FINAL EXPANDED SITE INSPECTION REPORT
NEW KENT WOOD PRESERVATIVES INC
PROVIDENCE FORGE, NEW KENT COUNTY, VIRGINIA

Prepared for:

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LIST OF ABBREVIATIONS AND ACRONYMS

µg/L	micrograms per liter
bgs	below ground surface
BTAG	Biological Technical Assistance Group
CCA	copper-chromate-arsenic
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CLP	Contract Laboratory Program
CRQL	contract-required quantitation limit
CZMA	Coastal Zone Management Act
EPA	U.S. Environmental Protection Agency
ESI	Expanded Site Inspection
GIS	Geographic Information System
HRS	Hazard Ranking System
MCL	Maximum Contaminant Level
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NPDES	National Pollutant Discharge Elimination System
PA	Preliminary Assessment
PAH	polycyclic aromatic hydrocarbon
ppb	parts per billion
PPE	probable point of entry
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
Ref.	Reference
RPA	Resource Protection Area
RSL	Regional Screening Level
SATA	Site Assessment and Technical Assistance
SI	Site Inspection
START	Superfund Technical Assessment and Response Team
SVOC	semivolatile organic compound

LIST OF ABBREVIATIONS AND ACRONYMS (Continued)

TAL	Target Analyte List
TCL	Target Compound List
TDD	Technical Direction Document
TDL	target distance limit
USGS	U.S. Geological Survey
VDEQ	Virginia Department of Environmental Quality
VDWM	Virginia Department of Waste Management
VWCB	Virginia Water Control Board
VWMB	Virginia Waste Management Board
WESTON®	Weston Solutions, Inc.

1.0 INTRODUCTION

Under the Superfund Technical Assessment and Response Team (START) IV Contract No. EP-S3-10-05, Technical Direction Document (TDD) No. WS03-12-09-001, the U.S. Environmental Protection Agency (EPA) Region III tasked Weston Solutions, Inc. (WESTON®) to conduct an Expanded Site Inspection (ESI) of the New Kent Wood Preservatives, Inc (New Kent) site (the Site) located in Providence Forge, New Kent County, Virginia. EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database identifies the Site with the EPA Identification No. VAD089028963.

This ESI was conducted in accordance with EPA's Guidance for Performing Site Inspections Under Comprehensive Environmental Response, Compensation, and Liability Act (Reference [Ref.] 1). The purpose of this ESI was to determine the need for additional action at the Site under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The scope of the ESI for the New Kent site included a review of available site information, a compilation and evaluation of potential targets, sampling, and an evaluation of the analytical data.

2.0 SITE BACKGROUND

This section includes a discussion of the Site location and description, a brief history of the Site, its operational history and associated waste characteristics, and information on previous investigations conducted at the Site.

2.1 LOCATION AND DESCRIPTION

The New Kent site is located at 4101 South Mountcastle Road in Providence Forge, Virginia, as shown in Figure 1, Site Location Map (Ref. 2). The geographic coordinates of the New Kent site, as recorded from the former main drip pad, are 37.453708° north latitude and 77.090753° west longitude (Ref. 3). The New Kent site is located approximately 1,500 feet south of the intersection

of U.S. Route 60 East and Route 615 in a rural area of New Kent County, Virginia. As shown on Figure 1 and Figure 2, Site Layout Map, land use in the Site vicinity is a mixture of industrial, agricultural, and residential.

As shown on Figure 2, Site Layout Map, directly surrounding the New Kent site to the north is undeveloped forested land and wetlands, to the east are wetlands, to the south are active railroad tracks, and to the west is Mountcastle Road. An active tire recycling facility (Virginia Recycling Corporation) is located 0.14 mile north of the Site and an active asphalt manufacturer and recycling plant (Lee Hy Paving Corporation) is located on the south side of the railroad tracks that border the Site to the south. The nearest residential property is located approximately 0.3 mile to the southwest. The nearest surface water is an unnamed tributary to Schiminoe Creek, located approximately 300 feet to the north and east of the Site from the property fence line. The unnamed tributary flows through the wetlands that border the Site and converges with Schiminoe Creek just upstream of the railroad tracks.

2.2 SITE DESCRIPTION

Currently, the Site is occupied by two active businesses: McNeil Sales and Service Co. Inc. (McNeil Sales) and Museum Resources. McNeil Sales specializes in refractory supplies and services; Museum Resources specializes in historic woodwork and forest product manufacture for museums and 18th century restorative work. Specifically, McNeil Sales casts refractory cement into shaped steel forms. The cement molds are then dried in ovens. No hazardous substances are used in the process. Museum Resources uses raw wood materials in its reproduction work and does not treat or stain its finished products (Ref. 4, pp. 13-14). As shown on Figure 2, several buildings are located on-site and are occupied by these active businesses. These buildings were previously used by the wood-treating facilities as drip pads, a process/office building, a wood-cutting building, and a maintenance shed. The former drip pads are open-aired buildings consisting of concrete slab foundations and metal roofs. The cleared area located west of the on-site buildings was the treated wood storage area prior to shipment off-site. The undeveloped, western end of the Site that borders

Mountcastle Road (Route 615) appears to have been historically outside the facility fence line and vegetated, based on previous sketch maps of the Site (Ref. 5, pp. 55, 57, and 59).

During the site reconnaissance conducted by WESTON on May 28, 2014, green staining was observed on the concrete floor in the main open-air building (former main drip pad) (Ref. 4, p. 17). The observed green staining on the concrete floor of the former drip pad is consistent with the color of chromated copper arsenate (CCA) solution (Ref. 24, p. 2). The facilities manager for McNeil Sales showed WESTON a sump that is located on the former main drip pad to collect surface water runoff when it rains. The water is pumped from the sump to the ground surface outside the northwest corner of the building (Ref. 4, pp. 13-14). The ground surface at the New Kent site is either compacted dirt roads or brush. During the site reconnaissance, two drainage ditches were observed in the back portion (east end) of the Site, originating near the dirt road, running through the brush area, past the fence, and into the wetlands on the adjacent eastern property. Standing or flowing water was not observed in these ditches during the reconnaissance; however, indication of channel flow was observed (Ref. 4, pp. 16-17). A third ditch was observed on the north side of the Site beginning alongside the building occupied by Museum Resources (former maintenance shed), extending past the fence, and into the wetlands on the adjacent northern property. Water was observed in this drainage ditch on-site and flowing into the wetlands during the site reconnaissance (Ref. 4, p. 18).

2.3 OPERATIONAL HISTORY AND PREVIOUS INVESTIGATIONS

In 1977, New Kent Wood began operations at the Site, which consisted of pressure treating lumber using a pressure/vacuum system to impregnate the lumber with a CCA solution. Lumber was placed in a cylinder into which a pre-mixed solution of CCA and water was forced. Once the cylinder was filled, excess solution was vacuumed off and the treated wood was removed from the cylinder and stored on a drip pad until dry. Any CCA solution not retained by the wood was drained into a sump and recycled back into the treatment system. The main drip pad was located near the center of the Site; a secondary drip pad was located in the southeastern portion of the Site (Ref. 5,

p. 6). Once the wood was treated and dried, the wood was moved to the storage area located on the western side of the main building on-site (Ref. 5, p. 57).

In 1978, New Kent applied for and received a Discharge Certificate, IW-ND-991, in accordance with Virginia Water Control Law. In August 1983, the facility was sold and renamed Midland Timber Company (Midland) then sold again in February 1985 and renamed Holland Forest Products, Inc. (Holland); however, operations at the facility remained the same throughout the change of names and ownership (Ref. 5, p. 6).

In August 1985, the Virginia Department of Waste Management (VDWM) performed a CERCLA preliminary assessment (PA) of the New Kent site. During the PA, a representative of Holland indicated that when the facility was operated by New Kent, the surface drainage was extremely poor. The subsequent property owners, Midland, reportedly regraded the property to address this issue. Following the site reconnaissance at the facility, VDWM was contacted by an employee of Holland who alleged that in the past CCA sludge was dumped in the wooded area adjacent to the facility. In October 1985, VDWM conducted a follow-up site reconnaissance based on the alleged dumping of contaminated sludge. According to an employee interviewed by VDWM who had worked at the facility for 6 years under each ownership, no dumping of sludge had occurred to his knowledge (Ref. 6, p. 6).

In September 1985, the Virginia Water Control Board (VWCB) contacted the new owner of the facility, Holland, for information in order to transfer the Discharge Certificate from the previous property owner, Midland. On September 25, 1985, the VWCB conducted an inspection of the property. No indications of chemical spillage were observed; however, it was noted that the treated wood was only being stored on the drip pad for 24 hours instead of the required 48 hours before it was moved to the storage yard. It was also noted that the drip pad was not bermed. The VWCB requested that the facility apply for a National Pollutant Discharge Elimination System (NPDES) permit so that a determination could be made regarding whether a drainage ditch located near the drip pad contained contaminants (Ref. 5, p. 6; 6, pp. 59-60).

In 1986, Holland was classified as a small quantity Resource Conservation and Recovery Act (RCRA) generator facility for sludge removed from the treatment cylinder (EPA ID No. VAD089028963) (Ref. 5, p.7).

In May 1986, Holland developed and installed a groundwater monitoring well system to assess the groundwater quality in the area around the drip pad. Initially, a piezometer was installed at each corner of the property (a total of four) to determine the groundwater gradient. Three monitoring wells were subsequently installed downgradient of the drip pad and one was installed upgradient as a background well. The wells ranged in depth from 15 to 18 feet. Groundwater samples were collected from each monitoring well, and one surface water sample was collected from a pond identified as the "Beaver Pond" located to the east of the New Kent site. The samples were analyzed for arsenic, copper, and chromium. Analytical results indicated elevated concentrations of chromium (up to 20 milligrams per liter [mg/L]) and arsenic (up to 0.80 mg/L) in the downgradient wells relative to the concentrations detected in the background well (chromium reported at 0.08 mg/L and arsenic reported at 0.40 mg/L). The surface water sample contained 0.008 mg/L; however, chromium and copper were not detected (Ref. 6, pp. 62-68).

In September 1986, an extended development of one of the monitoring wells (M-1) that contained the highest concentration of chromium was conducted. The objective of the investigation was to determine whether the high level of chromium detected in that well in May 1986 was accurate. The well was pumped for a 24-hour period, and groundwater samples were collected every 6 hours and submitted for total chromium, total arsenic, and total copper analyses. A report dated October 10, 1986, indicates that the shallow aquifer was contaminated with chromium at a concentration of at least 16 mg/L and that the chromium concentrations did not decline over the time the aquifer was pumped. A sample collected from the sump on the drip pad revealed a total chromium concentration of 23 mg/L and a total arsenic concentration of 0.38 mg/L (Ref. 6, pp. 69-72).

In 1987, Kel-wood Timber Products (Kel-wood) purchased the property. Subsequently, in May 1988, L-Wood Forest Products (L-Wood) began leasing the property from trustees of Kel-wood (Ref. 5, p. 8).

On June 7, 1988, VWCB performed a no-discharge inspection. VWCB observed the drip pad to be open and unbermed. CCA solution was observed at the perimeter of the pad and wood fragments were noted in the drainage ditches leaving the property (Ref. 6, p. 61).

A review of EPA's RCRA Information System (RCRA Info) indicates that, in 1988, RCRA ID Number VAD981944945 was issued for L-Wood. The facility name listed on RCRA Info is L-Wood Industries Southern Pine Specialists, Inc. Chemicals listed as being used by this facility are arsenic, copper, and chromium compounds. RCRA Info for this facility is listed for the years 1988 through 1992 (Ref 5, p. 8).

In October 1988, VDWM performed a CERCLA site inspection (SI) of the property. Soil samples were collected from around the drip pad and wood storage yard, groundwater samples were collected from the on-site monitoring wells and a water supply well, and surface water and sediment samples were collected from the on-site drainage ditches and the wetlands. Analytical results indicated significant levels of chromium (up to 37,800 micrograms per liter [µg/L]) in one or more of the groundwater monitoring well samples. All soil samples collected adjacent to the drip pad contained significant levels of arsenic (up to 3,950 mg/kg), copper (up to 1,390 mg/kg), and chromium (up to 2,860 mg/kg) and numerous organic polycyclic aromatic hydrocarbons (PAHs). Significant levels of arsenic (up to 922 mg/kg) and chromium (up to 699 mg/kg) were also detected in soil samples collected from the drainage ditches. Additionally, the one surface water sample collected downstream contained 7.3 µg/L chromium (Ref. 6, pp. 12-13, 17-22, and 36).

VWCB performed an inspection of the New Kent site in September 1991. VWCB observed that the operating area was diked correctly and that treated wood was held on the drip pad for 2 days

before storage. Runoff from the pad was reportedly collected and recycled back through the treatment process (Ref. 5, p. 9).

In December 1992, a CERCLA ESI field investigation was conducted by VDWM. The previous plant manager was interviewed during the ESI investigation and stated that CCA solution was received at the facility as 50% concentrate and was stored in a 4,000-gallon above ground storage tank. This concentrate was delivered in tanker trucks that held 44,000 pounds of chemical per load. The plant manager stated that during the winter months the company used less than one truck load of solution per month; however, during the summer months, up to three loads of solution may have been used each month. The plant manager indicated that 21 drums of hazardous waste had been shipped off-site since L-Wood began leasing the property in 1988. However, because of the recycling process of the solution from the drip pad back into the treatment system, no liquid waste was generated during the lumber treatment process. It was noted during the ESI that dirt tracked onto the drip pad by a forklift was washed into the sump, collected in drums, allowed to dry, and was hauled off-site for disposal. However, it was indicated that, historically, wood chips knocked off the lumber by the forklifts were washed into the on-site drainage ditches. In response to a VWCB complaint pertaining to this issue, the facility placed gravel filters in the ditches to remove the chips, which were then placed in drums for off-site disposal. During the ESI, stained soil was observed in the drainage ditches; however, there was no evidence of wood chips (Ref 7, p. 10).

As part of the ESI, on-site soil samples were collected from waste/source areas, and surface water and sediment samples were collected from the unnamed tributary and associated wetlands. Groundwater samples were not collected during the ESI. Concentrations of arsenic (up to 400 parts per million [ppm]), chromium (up to 415 ppm), and copper (up to 305 ppm) were detected in on-site soil; and concentrations of arsenic (up to 1,230 parts per billion [ppb]) and chromium (up to 1,910 ppb) were detected in a surface water sample collected from the wetlands. The ESI concluded that, based on the analytical results, a potential existed for on-site workers to be exposed

to soils contaminated with inorganic compounds as well as the potential exposure of aquatic life to on-site contaminates (Ref. 7, pp. 11-13 and 20).

In May 1995, the Virginia Waste Management Board (VWMB), on behalf of the Virginia Department of Environmental Quality (VADEQ), issued an enforcement order to L-Wood. According to the findings outlined in the enforcement order, on June 25, 1993, VADEQ staff conducted a Compliance Evaluation Inspection at the facility. Following the inspection, VADEQ sent L-Wood a Notice of Violation letter documenting four violations. L-Wood subsequently addressed two of the violations: (1) failure to minimize the tracking of hazardous wastes off the drip pad and (2) failure to make arrangements with the Virginia Department of Emergency Services for assistance in an emergency. L-Wood, however, did not address the remaining two violations: (3) failure to obtain the requested professional engineer certification for the drip pad and (4) failure to prepare a closure plan and contingent post-closure plan for the drip pad. A schedule of compliance was prepared and included in the enforcement order, which ordered L-Wood to evaluate the drip pad within 60 days and to submit a closure plan for the drip pad to VADEQ within 90 days. L-Wood was also ordered to pay a civil penalty of $6,400 to the Virginia Environmental Emergency Response Fund (Ref. 5, p. 10).

From April 9 through 11, 1996, the EPA Region III Site Assessment and Technical Assistance (SATA) team completed a sampling assessment of the New Kent site. Eleven soil samples, seven groundwater samples, three surface water samples, and three sediment samples were collected from the New Kent site during the assessment (Ref. 8, pp. 4-6). Concentrations of arsenic in the on-site soil samples ranged from 42.7 ppm to 1,100 ppm, concentrations of total chromium ranged from 52.3 ppm to 900 ppm, and concentrations of copper ranged from 27.7 ppm to 602 ppm (Ref. 8, p. 10). Concentrations of arsenic, total chromium, and copper were detected as high as 767 ppb, 6,840 ppb, and 892 ppb, respectively, in the shallow groundwater samples collected from the on-site piezometers (Ref. 8, p. 8). Arsenic and total chromium were detected in one of the surface water samples at 113 ppb and 19.5 ppb, respectively; and arsenic, chromium, and copper were

detected as high as 89.3 ppm, 20 ppm, and 64 ppm, respectively, in sediment samples (Ref. 8, pp. 8 and 10).

On April 25, 2000, VADEQ completed an inspection of the New Kent site. According to the inspection report, the property owner operated a trucking company on the property after closure of the wood preserving company. At the time of the inspection, the facility was deserted and a sign advertising the property for lease was posted at the entrance; thus, the condition of the on-site structures and their contents could not be determined (Ref. 5, p. 11).

VADEQ completed another inspection of the New Kent site on June 5, 2002. At the time of this inspection, the facility was occupied by Higgins Sales (currently McNeil Sales) and Museum Restorations, which was using the office space and storage facilities. The operations were reportedly "dry" and did not require permitting. The inspection report further indicates that the actions requested in the enforcement order were never completed. The inspection revealed abandoned equipment on the New Kent site, including one horizontal tank that contained a small quantity of liquid that reportedly smelled faintly of solvents/chemicals and a large vertical tank that appeared to be empty. A copy of this inspection report was sent to the address on record for the property owner, but could not be delivered. VADEQ requested that EPA take the lead on completing further assessments of the New Kent site. To date, there is no indication in the VADEQ site files that any soil remediation or closure of the drip pads has occurred (Ref. 5, p. 11).

3.0 SOURCE CHARACTERISTICS

This section describes the sources associated with the Site and provides information on the source sampling locations and analytical data.

3.1 SOURCE DESCRIPTION

The source at the Site consists of an unknown quantity of contaminated soil as a result of the historical use of the property for CCA wood-treating operations. The source data presented in this section are not intended to define the entire source area(s).

3.2 SAMPLING LOCATIONS

In June and September 2014, as part of this ESI, WESTON collected a total of 48 surface soil (0 to 6 inches below ground surface [bgs]) samples, including duplicate and background samples, from potential source areas at the New Kent site including from areas around the former drip pad, the former storage yard, and the drainage ditches. In September 2014, three background samples were collected to document soil conditions not potentially impacted by source areas. In June 2014, three samples were collected from residential properties to document background conditions. However, these soil samples appear to be fill material and not native soil; therefore, these samples were not used to evaluate background conditions. The results of the three samples collected from residences are included in Appendix A, but are not included in the data summary table or discussed below. Sample locations are shown in Figure 3, Source Sample Location Map.

3.3 ANALYTICAL RESULTS

Surface soil samples collected in June 2014 were analyzed for Target Analyte List (TAL) metals through the EPA Contract Laboratory Program (CLP). Samples collected in September 2014 were analyzed for TAL metals and Target Compound List (TCL) semivolatile organic compounds (SVOCs) through the EPA CLP. The Data Validation Reports are provided as Appendix A.

The analytical results presented below include a discussion of the concentrations of "elevated" compounds or elements. "Elevated" concentrations indicate detections in soil samples at concentrations three times or greater than the concentrations detected in the background samples (NKWP-SS-17, NKWP-SS-18, and NKWP-SS-19). For the most conservative evaluation, the highest concentration detected in the three background samples is used for comparison. However, if the compound or element was not detected in the background sample, the background contract required quantitation limit (CRQL) was used as the reference value. The CRQL is the minimum level of reliable quantitation acceptable under the CLP Statement of Work for each analytical method. These compounds or elements are "elevated" if they occurred at a value greater than the background CRQL.

The soil analytical results were also compared to EPA Regional Screening Levels (RSLs) for industrial soil. EPA RSLs are generic risk-based concentrations used for Site "screening." RSLs are intended to assist risk assessors and others in initial screening-level evaluations of environmental measurements. RSLs combine human health toxicity values with standard exposure pathway (i.e., inhalation, dermal, and ingestion) factors to estimate contaminant concentrations in environmental media (soil, air, and water) that are considered by EPA to be health-protective of human exposures, over a lifetime. RSLs are included here for comparison purposes only; they are not legally enforceable standards (Ref. 9).

As shown in Table 1, arsenic was detected at elevated concentrations in 34 of the 42 soil samples collected from potential source areas ranging from 20.3 milligrams per kilogram (mg/kg) (NKWP-SS-07) to 1,140 mg/kg (NKWP-SS-01). Additionally, 38 of the 42 soil samples collected contained concentrations of arsenic that exceed the EPA RSL of 3 mg/kg for arsenic in industrial soil. Chromium was detected at elevated concentrations in 25 of the 42 soil samples ranging from 71.6 mg/kg (NK-SS-073-062014) to 1,250 mg/kg (NKWP-SS-01). Additionally, 41 of the 42 soil samples collected contained concentrations of chromium that exceed the EPA RSL of 6.3 mg/kg for hexavalent chromium in industrial soil. Copper was detected in 22 of the 42 soil samples at elevated concentrations ranging from 69.2 mg/kg to 1,040 mg/kg. Concentrations of copper did not exceed the EPA RSL of 4,700 mg/kg for copper in industrial soil. In addition, lead was detected in 2 samples at elevated concentrations and zinc was detected in 15 samples at elevated concentrations. Concentrations of lead and zinc did not exceed applicable EPA RSLs for industrial soil.

With the exception of the detection of di-n-butylphthalate in the majority of the soil samples, including background sample NKWP-SS-19, and the detection of benzo(b)fluoranthene in two samples (NKWP-SS-02 and NKWP-SS-03), at concentrations just at or slightly exceeding the CRQL, SVOCs were not detected in the soil/source samples above the CRQL.

3.4 SOURCE SUMMARY

WESTON performed surface soil sampling at the New Kent site as part of this ESI. Based on the analytical results, contaminated soil containing arsenic, chromium, copper, lead, and zinc has been documented throughout the site including in the former storage yard area, in soil surrounding the former main drip pad, and in the drainage ditches. Of these contaminants, concentrations of arsenic and chromium exceed the respective RSLs for industrial soil. Impacts to the current on-site worker populations are suspected because the majority of the ground surface is bare/unpaved.

4.0 GROUNDWATER MIGRATION PATHWAY

This section describes the Site geologic and hydrogeologic setting, targets associated with the groundwater migration pathway, sampling locations, analytical data, and conclusions that can be reached for the groundwater migration pathway.

4.1 GEOLOGY AND HYDROGEOLOGIC SETTING

The Site is located in the Coastal Plain physiographic province (Ref. 10). The Coastal Plain is underlain by a seaward-thickening wedge of regionally extensive, eastward-dipping strata of unconsolidated to partly consolidated sediments of Cretaceous, Tertiary, and Quaternary Age that unconformably overlie a basement of consolidated bedrock. The sediments were deposited by seaward progradation of fluvial plains and deltas along the North American continental margin, followed by a series of transgressions and regressions by the Atlantic Ocean in response to changes in sea level. A thick sequence of nonmarine strata primarily of Cretaceous Age is overlain by a much thinner sequence of marine strata of Tertiary Age, which is in turn overlain by a veneer of nearly flat-lying terrace and flood-plain deposits primarily of Quaternary Age (Ref. 11, pp. 4 and 8).

In the Coastal Plain, groundwater is present in pores between the sediment grains. Groundwater in the Coastal Plain is recharged principally by precipitation infiltration and percolation to the water table. Most of the unconfined ground water flows relatively short distances and discharges

to nearby streams; however, a small amount flows downward to recharge the deeper confined aquifers, primarily along the Fall Zone and beneath surface-drainage divides between major river valleys. Because of stratification of the Coastal Plain sediments, horizontal hydraulic conductivity generally is greater than vertical hydraulic conductivity (Ref. 11, pp. 5 and 8).

The Site is underlain by Quarternary Age river terrace deposits (Ref. 7, p. 14). On-site shallow monitoring well borings logs indicate that the river deposits are present to a depth of 13 to 14 feet bgs and are characterized by tan to brown fine sand and gray to white coarse sand (Refs. 6, pp. 63-65; 7, p. 14). Below this depth, a green glaucontic fine sand with clay is encountered, which is indicative of the Piney Point Formation (Refs. 5, p. 24; 6, pp. 63-65; 11 p. 71).

The Piney Point Aquifer is a homogeneous aquifer composed of several geologic formations that represent different periods of time; however, because all of the sediments were deposited under relatively uniform sediment-transport conditions across the Continental Shelf, they function hydraulically as a continuous medium through which water flows essentially uninterrupted at both local and regional scales. The aquifer dips generally eastward and ranges in thickness from approximately 150 feet in its northern reaches to less than 50 feet south of the James River (Ref. 11. pp. 6,. 71, and 74). The Piney Point Aquifer provides public water supplies for some small towns and private supplies for low-density residential development in rural areas (Ref. 11, p. 71).

The Nanjemoy-Marlboro Confining Unit underlies the Piney Point Aquifer across most of its extent. The Nanjemoy-Marlboro Confining Unit consists primarily of marine, silty and clayey, fine-grained glauconitic quartz sands. The Nanjemoy-Marlboro Confining Unit dips generally eastward across its entire extent and has a maximum thickness of nearly 150 feet but thins to 50 feet or less south of the James River (Refs. 5, pp. 24-25; 11, pp. 6-7, and 59). The Nanjemoy-Marlboro Confining Unit is an extensive hydrogeologic unit that regionally impedes horizontal groundwater flow (Ref. 11, p. 60).

The Aquia Aquifer underlies the Nanjemoy-Marlboro Confining Unit across almost its entire extent. The Aquia Aquifer consists of marine, medium- to coarse-grained, glauconitic and fossiliferous quartz sands of the Aquia Formation of late Paleocene Age (Ref. 5, pp. 25; 11, pp. 6-7, 52, and 54). The Aquia Aquifer dips generally eastward across its entire extent and has a maximum thickness of nearly 150 feet across its upper reaches; however, it thins to generally 50 feet or less to the south and east (Ref. 11 pp. 54).

The Potomac Confining Unit underlies the Aquia Aquifer and is characterized by an uppermost clay that is interbedded with coarse-grained quartz and feldspar sands and gravels of the fluvial-deltaic Potomac Formation. The confining zone is widespread and is continuous through the 4-mile radius of the Site. The unit impedes groundwater flow into the underlying Potomac Aquifer (Ref. 11, pp. 6-7, 35-38).

The Potomac Aquifer underlies the Potomac Confining Unit and consists of 500 to 750 feet of interbedded sands and clays. The Potomac Aquifer is the largest, deepest, and most heavily used source of groundwater in the Virginia Coastal Plain. The aquifer supplies major industries, many towns and cities, and low-density residential developments in rural areas. It is a heterogeneous aquifer with sediments deposited by braided streams, meandering streams, and delta. The Potomac Aquifer is hydraulically continuous on a regional scale, but locally exhibits discontinuities where flow is impeded by fine-grained interbeds. Some studies of the Potomac Aquifer divide it into upper, middle, and lower aquifers separated by intervening confining units. The Potomac Aquifer is underlain across its entire extent by basement bedrock consisting of mainly igneous and metamorphic rock (Ref. 11, pp. 6-7; 29-32).

The shallow water table aquifer comprises the sand and gravel of the river terrace deposits that underlie the Site. Groundwater flow within the shallow water table aquifer is anticipated to be topographically controlled. Furthermore, groundwater flow measurements taken at the Site indicate groundwater flows from the northwest to the southeast towards Schiminoe Creek (Re. 6, p. 10)

4.3 GROUNDWATER TARGETS

There are four community wells located within a 4-mile radius of the Site. The Long Acres Mobile Home Park maintains one well located in the 0.5- to 1.0-mile radius ring that serves 48 persons. The depth of the well is unknown. A second 345-foot deep community supply well is located within the 2- to 3-mile radius ring and serves the 165 residents of the Minitree Glenn development. The Woodhaven Shores development maintains two community wells for the 1,428 residents of that development. The wells are located in the 3- to 4-mile radius ring and are 504 feet and 400 feet deep (Ref 5. p. 27). The location of the community wells within a 4-mile radius of the Site is shown on Figure 4.

A 100-foot well is located on the Site that is used for restroom and process water but is not used for drinking water. The two adjacent facilities also have wells that are used for restroom purposes but are also not used for drinking water. These wells are approximately 350 and 500 feet deep (Ref. 4, pp. 11-12). The nearest residential well to the Site is located 0.30 mile to the southwest. The remainder of the population surrounding the Site rely on private domestic wells for their potable supply. To determine the number of domestic private wells within each of the 4-mile target distance categories, a house count was completed on the 4-mile radius map (Figure 4). The number of individuals served by each well is estimated to be the average number of persons per household for the two counties (New Kent and Charles City) that are located within a 4-mile radius of the site. The average persons per household for New Kent County in 2010 was 2.70 and the average number of persons per household for Charles City in 2010 was 2.46. The private domestic wells are typically shallow and are less than 50 feet deep (Ref. 5, pp. 27-28).

The table below summarizes the total population within a 4-mile radius of the Site that relies on groundwater for their potable supply.

ESTIMATED DRINKING WATER POPULATIONS SERVED BY GROUNDWATER WITHIN A 4-MILE RADIUS

Distance Rings (miles)	Domestic Wells New Kent County	Domestic Wells Charles City County	Estimated Population Served by Domestic Wells	Public Supply Wells	Estimated Population Served by Public Wells	Total Population
≥0.0-0.25	0	0	0	0	0	0
>0.25-0.5	12	0	32	0	0	32
>0.5-1.0	41	0	111	1	48	159
>1.0-2.0	125	24	346	0	0	397
>2.0-3.0	123	103	585	1	165	750
>3.0-4.0	65	112	451	2	1,428	1,880

Ref. 5, p. 28

4.4 SAMPLING LOCATIONS

As part of a concurrent Removal Assessment, a total of seven groundwater samples were collected in September 2014 to determine whether there has been a release of hazardous substances associated with New Kent sources to groundwater. Samples were collected from two of the shallow on-site monitoring wells, MW-1/5 (well depth 23 feet bgs) and MW-4 (well depth 14 bgs); the on-site potable well, DW-05 (well depth 100 feet bgs); the potable wells located on the adjacent commercial properties, DW-02 (well depth 350 feet bgs) and DW-03 (well depth 500 feet bgs); and from two nearby residential wells, DW-01 and DW-04. The well depth of the residential wells is unknown. Groundwater sample locations are shown in Figure 5, Groundwater Sample Location Map. A background groundwater sample was not collected as part of this ESI.

4.5 ANALYTICAL RESULTS

Groundwater samples were analyzed for TAL metals and TCL SVOCs through the EPA CLP. The Data Validation Reports are provided as Appendix A. The groundwater analytical data results were compared to EPA National Primary Contaminant Drinking Water Regulations Maximum

Contaminant Levels (MCLs) (Ref. 12). EPA MCLs are legally enforceable standards that apply to public drinking water systems only. However, for the purpose of this ESI, they are used for comparison purposes only.

As shown in Table 2, potentially site-attributable contaminants (i.e. arsenic, chromium, copper, and lead) were not detected in samples DW-02, DW-03, DW-04, and DW-05 above the method detection limit (MDL). The MDL is the minimum concentration that can be measured and reported with 99 percent confidence that the concentration is greater than zero. Sample DW-01 contained estimated concentrations of chromium and copper at 2.1 µg/L and 15.9 µg/L, respectively. Arsenic was not detected in this well. The chromium and copper concentrations were qualified as estimated as they were detected above the MDL but below the CRQL; the minimum level of reliable quantitation acceptable under the CLP Statement of Work for each analytical method. Estimated concentrations of zinc were detected in the samples collected from all five deeper drinking water wells. However, concentrations of detected metals in the samples collected from the deeper drinking water wells did not meet or exceed applicable MCLs.

The sample collected from the shallow monitoring well located adjacent to and downgradient of the former treated wood storage yard, MW-04, contained 34.5 µg/L of chromium and 45.9 µg/L of copper. Additionally, arsenic was detected in this well at an estimated concentration of 7.9 µg/L as it was detected above the MDL but below the CRQL. Additionally, lead and zinc were detected in MW-04 at 22.8 µg/L and 158 µg/L, respectively. The sample collected from the shallow monitoring well located adjacent to the southeastern corner of the former main drip pad, MW-01/05, contained 41.3 µg/L of arsenic and 71.4 µg/L of chromium. Copper was not detected in this well. The concentrations of chromium and copper detected in the shallow monitoring wells do not exceed their applicable MCLs of 100 µg/L and 1,300 µg/L, respectively; however, the concentration of arsenic in sample MW-1/5 did exceed the MCL of 10 µg/L. Additionally, the concentration of lead detected in MW-04 exceeds the MCL of 15 µg/L.

SVOCs were not detected in either the deep or shallow wells at concentrations above the CRQL.

4.6 GROUNDWATER CONCLUSIONS

WESTON performed groundwater sampling as part of this ESI. Groundwater samples collected from on-site shallow monitoring wells contained concentrations of arsenic, chromium, copper, lead, and zinc; the concentration of arsenic in one of the shallow wells exceeded the MCL. These contaminants were also detected in on-site soil samples at elevated concentrations; therefore, it appears that site-attributable hazardous substances, arsenic, chromium, copper, lead, and zinc, may be impacting shallow groundwater; however, a background shallow groundwater sample was not collected. With the exception of the estimated concentrations of chromium and copper detected in sample DW0-1, the samples collected from the on-site deep well and the off-site wells did not contain concentrations of these contaminants above detection limits. The estimated concentrations of chromium and copper in DW-01 were well below applicable MCLs.

5.0 SURFACE WATER MIGRATION PATHWAY

This section describes the Site hydrologic setting, targets associated with the surface water migration pathway, surface water and sediment sampling locations, analytical results, and conclusions reached for the surface water migration pathway.

5.1 HYDROLOGIC SETTING

The Site is surrounded primarily by a mixture of undeveloped woodland and wetlands. Site elevation varies from approximately 30 feet to 50 feet above sea level [Refs. 2; 13, p. 4]. In general, runoff flows overland to the east, southeast into wetlands that are contiguous with an unnamed tributary to Schiminoe Creek. However, a drainage channel located on the north side of the property also conveys surface water runoff from the property and into the adjacent wetlands to the north. Impoundments of the stream system by the local beaver (*Castor canadensis*) population have resulted in the establishment of wetlands and impeded the flow of the unnamed tributary, creating a ponded area immediately adjacent to the northern boundary of the Site [Refs. 4, pp. 18, 19; 13, pp. 5, 12, 13]. There is minimal discernible flow or channelized stream bed in the unnamed

tributary or Schiminoe Creek in the vicinity of the Site, north of the railroad tracks that border the property to the south [Refs. 4 pp. 18, 19; 13, pp. 5, 12, 13].

As shown on Figure 7, the most upstream probable point-of-entry (PPE1) to surface water is at the northern drainage ditch that connects to the unnamed tributary. The northern drainage ditch receives surface water runoff from the northern portion of the Site, including the former wood storage area, as well as the discharge from the sump pump from the former main drip pad (Ref. 10, p. 13). The northern drainage ditch flows into the wetlands bordering the Site to the north and joins the unnamed tributary. A second PPE (PPE2) to the surface water migration pathway is into the wetlands adjacent to the eastern boundary of the property directly downgradient of the discharge point of the northernmost drainage ditch located on the eastern portion of the property. A third PPE (PPE3) to the surface water migration pathway is into the wetlands adjacent to the eastern boundary of the property directly downgradient of the discharge point of the southernmost drainage ditch located on the eastern portion of the property (Ref. 10, pp. 7 and 10]. The wetlands are contiguous to the unnamed tributary of Schiminoe Creek. From PPE3, the surface water migration pathway flows southeast through the wetlands and possibly via the unnamed tributary; however, there is not a discernible channel in this area. The pathway joins Schiminoe Creek approximately 300 feet downstream of PPE3, just north of the railroad tracks. Schiminoe Creek then flows in a southerly direction for approximately 0.75 mile until it discharges into the Chickahominy River. The 15-mile downstream target distance limit (TDL) is completed in the Chickahominy River.

5.2 SURFACE WATER TARGETS

Targets associated with the surface water migration pathway include drinking water targets, fisheries, and sensitive environments. As shown on Figure 6, the Newport News Waterworks maintains a drinking water intake on the Chickahominy River approximately 13.5 miles downstream from the Site. The Newport News Waterworks supplies drinking water to over 400,000 people (Ref. 4, p. 15).

Both the Schiminoe Creek and Chickahominy River are used for recreational fishing within the 15-mile TDL. The nearest identified fishing location to the Site is located on the Schiminoe Creek, approximately 0.73 mile from the Site, directly upstream of its discharge point into the Chickahominy River (Ref. 14, p. 1). The nearest access point to the Chickahominy River is at Crawford State Forest (Ref. 15, pp. 17 and 46). Fish species upstream of Walker's Dam include anadromous fish such as blueback herring and striped bass (Ref. 16, p. 1).

As depicted on Figures 6 and 7, wetlands border the Site to the north and east (Refs. 13, pp. 5, 6, 8, 15-17; 17, pp. 1-3). A wetland delineation conducted in June 2014, confirmed the wetland boundary as mapped by the National Wetland Inventory Maps (Refs. 13, pp. 5, 6, 8, 15-17; 17, pp. 1-3). There are 1,715.52 feet of wetlands associated with the unnamed tributary and Schiminoe Creek north of the railroad tracks (Ref. 17, pp. 1-3). An additional 21.2 miles of wetland frontage are located along the TDL in the Schiminoe Creek and Chickahominy River (Ref. 17, pp. 1-3).

The National Wetlands Inventory (NWI) map of the project area indicates the occurrence of palustrine forested, seasonally flooded (PF01C) and palustrine forested seasonally flooded, saturated (PF01E) wetlands surrounding the Site (USFWS, 1977). Dominant wetland plant species within the project area include the tree species of river birch (*Betula nigra*), red maple (*Acer rubrum*), black willow *(Salix nigra*), the shrub hazel alder (*Alnus serrulata*) and the herbaceous species of touch-me-not (*Impatiens* spp., likely *pallida* given the nearly closed canopy), sweetflag (*Acorus calamus*), and smallspike false nettle (*Boehmeria cylindrica*). Other wetland species include bald-cypress (*Taxodium distichum*), swamp white oak (*Quercus bicolor*), Jack-in-the-pulpit (*Arisaema triphyllum*), and beyond the forested wetland and fringing beaver dam impoundments, the broad-leaved cattail (*Typha latifolia*). Above the wetland boundary upland tree species include willow oak (*Quercus phellos*), sweetgum (*Liquidambar styraciflua*), tulip poplar (*Liriodendron tulipifera*), and American holly (*Ilex opaca*) with an understory dominated by catbriar (*Smilax* spp.). The boundary between the upland and wetland follows the topography and is well-defined with little overlap between wetland and upland species.

The New Kent County Geographic Information System (GIS) website identified the wetlands which the Site drains into as Resource Protection Areas (RPA) (Ref. 18, pp. 1-2). RPAs are areas designated under the Chesapeake Bay Preservation Act that are composed of lands at or near the shoreline that have intrinsic water quality value or are sensitive to impacts that may degrade the quality of Commonwealth water. Examples of RPAs include tidal wetlands and shores, perennial streams and associated non-tidal wetlands, and a 10-foot buffer area adjacent to and landward of the designated RPAs (Refs. 19, pp. 2-3; 20, pp. 1-2). The Chesapeake Bay Preservation Act is an enforceable program under Virginia's Coastal Zone Management Program, which was established pursuant to the federal Coastal Zone Management Act (CZMA) (Ref. 19, p. 1).

Other sensitive environments identified within the 15-mile TDL include habitat for state or federally listed threatened species. A Virginia Natural Heritage database search for New Kent County identified the presence of a state threatened species, the Bald Eagle (*Haliaeetus leucocephalus*) and several state and federally listed threatened vascular plant species within New Kent County. The small whorled pogonia (*Isotria medeoloides)*, the sensitive joint vetch (*Aeschynomene virginica)*, and the Bald Eagle (*Haliaeetus leucocephalus)* (all state listed threatened species under Virginia law) have been observed with the 15-mile TDL (Ref. 6, p. 34).

5.3 SAMPLING LOCATIONS

In September 2014, as part of this ESI, WESTON collected 15 pairs of co-located surface water and sediment samples from inundated wetland areas bordering the Site, the unnamed tributary to Schiminoe Creek, and Schiminoe Creek, including three locations upstream of source areas to document background conditions. Additionally, 13 sediment samples were collected from noninundated wetland areas bordering the Site, including a duplicate and three background locations to document conditions not potentially impacted by source areas. The surface water and sediment samples were collected to determine whether there has been a release of hazardous substances associated with on-site sources to the surface water pathway. Sediment sample locations are shown on Figure 7, Sediment Sample Location Map.

5.4 ANALYTICAL RESULTS

Surface water and sediment samples collected in in September 2014 were analyzed for TAL metals and TCL semivolatile organic compounds (SVOCs) through the EPA CLP. The Data Validation Reports are provided as Appendix A.

The analytical results presented below discuss the "elevated" compounds or elements that were detected in the surface water and sediment samples three times above the concentrations detected in the background samples (NKWP-SW/SD-03, NKWP-SW/SD-14, and NKWP-SW/SD-15 for the inundated wetlands, the unnamed tributary, and Schiminoe Creek, and NKWP-WS-11, NKWP-WS-12, and NKWP-WS-13 for the noninundated wetlands). For the most conservative evaluation, the highest concentration detected in the respective three background samples is used for comparison. However, if the compound or element was not detected in the background sample, the background CRQL was used as the reference value. The compounds or elements are "elevated" if they occurred at a value greater than the background CRQL.

As shown in Table 3, the surface water samples did not contain elevated concentrations of metals. Additionally, SVOCs were not detected above the CRQL.

The sediment analytical results were compared to EPA Region III Biological Technical Assistance Group (BTAG) freshwater screening benchmarks (Ref. 21). Region III BTAG screening benchmarks are media-specific ecotoxicological benchmarks that can be used in developing a screening level assessment. The EPA BTAG benchmarks are included here for comparison purposes only.

As shown in Table 4a, a total of four sediment samples that were collected from the inundated wetlands, the unnamed tributary, and Schiminoe Creek contained elevated concentrations (i.e. concentrations 3x background) of arsenic ranging from 8.2 mg/kg to 13 mg/kg, four contained elevated concentrations of chromium ranging from 12.1 mg/kg to 47.6 mg/kg, and five contained elevated concentrations of copper ranging from 4.8 mg/kg to 27.2. The EPA BTAG benchmarks

for arsenic, chromium, and copper are 9.8 mg/kg, 43.4 mg/kg, and 31.6 mg/kg, respectively. Additionally, six samples contained elevated concentrations of zinc and one sample contained an elevated concentration of manganese. The concentrations of zinc did not exceed the EPA BTAG level of 121 mg/kg; however, the elevated manganese concentration did exceed the EPA BTAG benchmark of 460 mg/kg.

As shown in Table 4b, four samples collected from the noninundated wetlands contained elevated concentrations (i.e. concentrations 3x background) of arsenic ranging from 59.2 mg/kg to 504 mg/kg, three contained elevated concentrations of chromium ranging from 122 mg/kg to 764 mg/kg, and one contained an elevated concentration of copper of 362 mg/kg. Eight of the noninundated wetland samples, including one of the background samples, contained concentrations of arsenic exceeding the EPA BTAG level of 9.8 mg/kg; five of the noninundated wetlands samples contained concentrations of chromium exceeding the EPA BTAG level of 43.4 mg/kg; and four of the noninundated wetland samples, including one of the background samples, contained concentrations of copper exceeding the EPA BTAG level of 31.6 mg/kg. Additionally, one non-inundated wetland sample contained an elevated concentration of manganese above the EPA BTAG level of 460 mg/kg.

The sediment samples did not contain concentrations of SVOCs above the CRQL.

5.5 SURFACE WATER CONCLUSIONS

WESTON performed surface water and sediment sampling as part of this ESI. No hazardous substances were detected at elevated concentrations in the surface water samples. Elevated concentrations of arsenic, chromium, copper, and zinc were detected in the sediment samples collected from the wetlands, the unnamed tributary, and Schiminoe Creek. Arsenic, chromium, copper, and zinc were also detected at elevated concentrations in soil samples collected from the Site; therefore, a release of hazardous substances attributable to the Site-to-surface-water migration pathway has been documented. As a result of the release, over 1,700 feet of wetlands

located along the unnamed tributary have been impacted. Potential targets associated with the surface water pathway include the 400,000 people supplied with drinking water via a surface water intake on the Chickahominy River, the use of Schiminoe Creek and Chickahominy River as fisheries, and the 21.2 miles of wetland frontage located along the 15-mile TDL.

6.0 SOIL EXPOSURE AND AIR MIGRATION PATHWAYS

This section provides information regarding physical conditions at the Site, targets associated with the soil exposure and air migration pathways, and conclusions reached for the soil exposure and air migration pathways. Soil samples collected as part of this ESI and associated analytical results are discussed in Sections 3.2 and 3.3, respectively.

6.1 PHYSICAL CONDITIONS

As shown in Figure 2 and the photographic documentation log (Ref. 4), with the exception of the footprint of the on-site buildings, the New Kent property is consists primarily of bare soil and overgrown brush areas. The majority of the property, particularly the portion historically used for wood-treating, is enclosed within a fence. The western portion of the property is accessible; however, based on available information and analytical data of surface soil samples, it does not appear that wood-treating operations or treated wood was stored in this area. As a result of overland flow migration of contaminated soil via the on-site drainage ditches, soil and sediment in the drainage ditches beyond the fence-line contain concentrations of arsenic, chromium, copper, and zinc above background levels.

6.2 SOIL AND AIR TARGETS

No schools, daycare centers, or residences are located on-site or within 200 feet of documented soil contamination. There are approximately 10 workers located on-site. The estimated population and wetland acreage within a 4-mile radius of the Site are summarized in the tables below.

ESTIMATED POPULATION WITHIN 4 –MILES OF SITE

Radial Distance from Site (miles)	Population (number of persons)
0.0 – 0.25	12
0.25 – 0.50	36
0.50 – 1.0	146
1.0 – 2.0	601
2.0 – 3.0	1,050
3.0 – 4.0	2,429
Total	4,274

Ref. 22

WETLAND ACREAGE WITHIN 4 MILES OF SITE

Radial Distance from Site (miles)	Wetlands (acreage)
≥0.00 - 0.25	30.97
>0.25 - 0.50	80.49
>0.50 - 1.0	496.40
>1.0 - 2.0	1,502.92
>2.0 - 3.0	1,642.86
>3.0 - 4.0	1,789.51
Total	5,543.15

Ref. 17

6.3 SOIL EXPOSURE AND AIR MIGRATION PATHWAY CONCLUSIONS

WESTON performed surface soil sampling at the New Kent site as part of this ESI. Based on the analytical results, contaminated surface soil containing arsenic, chromium, copper, and zinc has been documented on-site at concentrations exceeding EPA RSLs for industrial soil. Because the majority of the ground surface is bare, it is likely that on-site workers could come in contact with contaminated soil. The distance to the nearest residence is greater than 200 feet.

WESTON did not collect ambient air samples as part of this ESI. No laboratory quantitative or qualitative air samples are known to have been collected from the New Kent site. Based on

available data, no release of hazardous substances to the ambient air from on-site sources is known or suspected to have occurred, and no impacts to nearby residential populations or sensitive environments are known or suspected.

7.0 SUMMARY AND CONCLUSIONS

From approximately 1977 to the late 1990s, wood treating operations were conducted on the property under several property owners. Lumber was pressure treated by means of a pressure/vacuum system saturated with CCA solution. Lumber was placed in a cylinder into which a pre-mixed solution of CCA and water was forced. Once the cylinder was filled, excess solution was vacuumed off and the treated wood was removed from the cylinder and stored on a drip pad until dry. CCA solution not retained by the wood was drained into a sump and recycled back into the treatment system. Past inspections conducted on the property noted that the drip pad was not bermed, stained soil was observed surrounding the drip pad and in drainage ditches that convey surface water runoff from the Site, treated wood chips were observed in the drainage ditches, and the treated wood was moved from the drip pad to the storage yard prior to regulations.

Historical and current analytical data indicate elevated concentrations of arsenic, chromium, copper, and zinc in on-site soil. Based on current analytical results, arsenic, chromium, copper, and zinc are present in sediment samples collected from wetlands, the unnamed tributary, and Schiminoe Creek at elevated concentrations, documenting an observed release to the surface water migration pathway. These contaminants were also detected in the groundwater samples collected from the on-site shallow monitoring wells. It appears that site-attributable hazardous substances, arsenic, chromium, copper, lead, and zinc, may be impacting shallow groundwater; however, a background shallow groundwater sample was not collected.

Groundwater is the sole source of drinking water within a 4-mile radius of the Site. However, groundwater samples collected from the on-site deep well and nearby wells did not contain elevated concentrations of site-attributable contaminants. Therefore, at the present time and based

on available information, the groundwater migration pathway is not a significant pathway of concern.

The Site is bordered to the north and east by wetlands. Sediment samples collected from the wetlands contained elevated concentrations of site-attributable contaminants. Additionally, sediment samples collected from the unnamed tributary and Schiminoe Creek contained elevated concentrations of arsenic, chromium, and copper. Schiminoe Creek and Chickahominy River are documented recreational fisheries. In addition, approximately 4000,000 persons are supplied with drinking water via a surface water intake on the Chickahominy River.

The ground surface at the Site consists primarily of bare soil and vegetated areas. There are no residences, schools, or daycare centers located on or within 200 feet of documented contaminated soil; however, there are at a maximum 10 on-site workers who could potentially be exposed to concentrations of arsenic, chromium, and copper at levels exceeding EPA RSLs for industrial soil.

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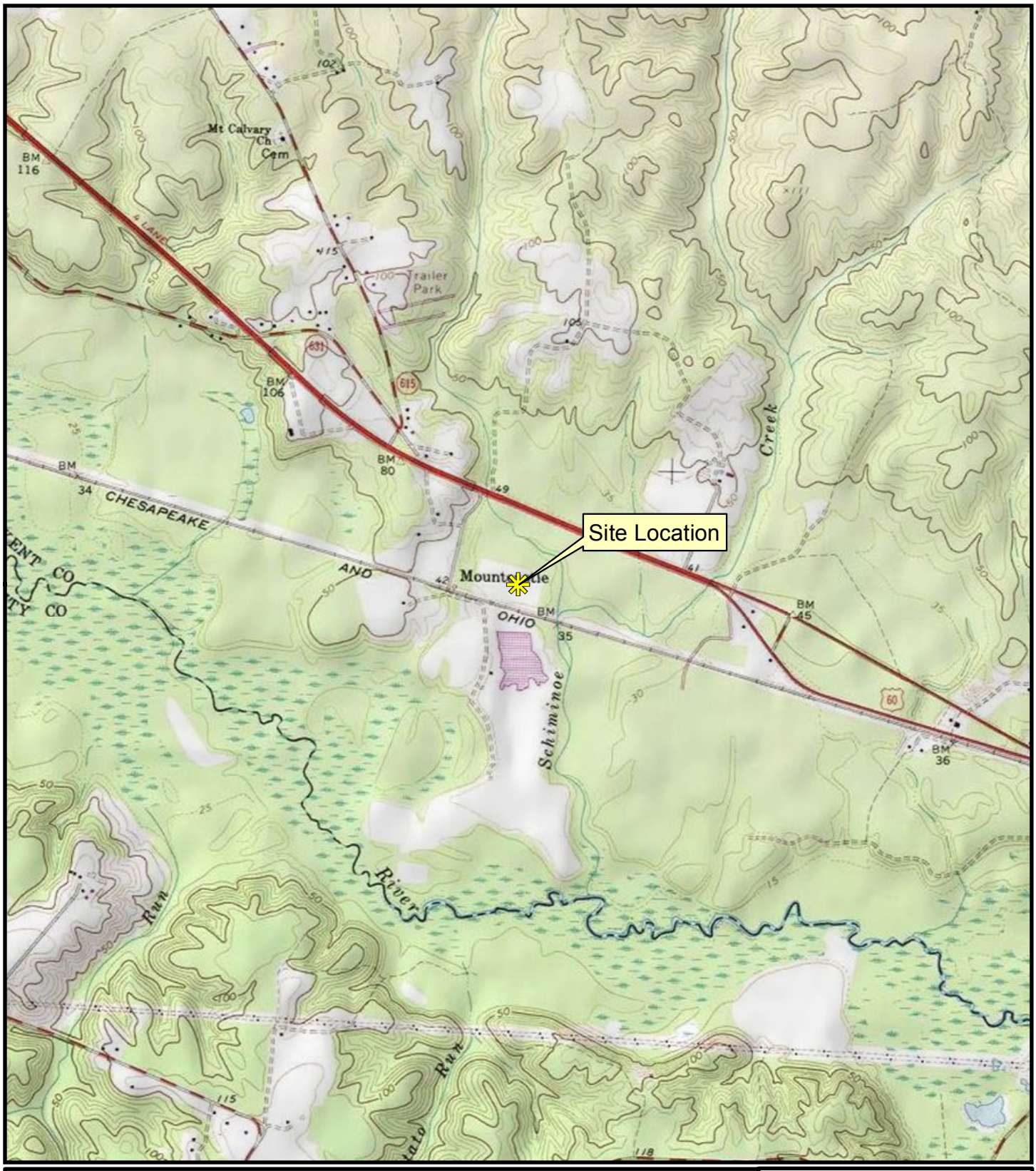
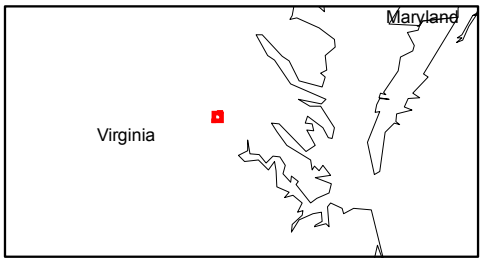
FIGURES





USGS 7.5 Minute Quadrangle
Providence Forge, Virginia. 1977

Coordinate System:
WGS84 UTM Zone 18N Feet

N

0 2,000
Feet

New Kent Wood Preservatives, Inc
Providence Forge, New Kent County, VA

Figure 1
Site Location Map

TDD#: WS03-12-09-001
Contract: EP-S3-10-05
Prepared: 7/17/2014

WESTON SOLUTIONS

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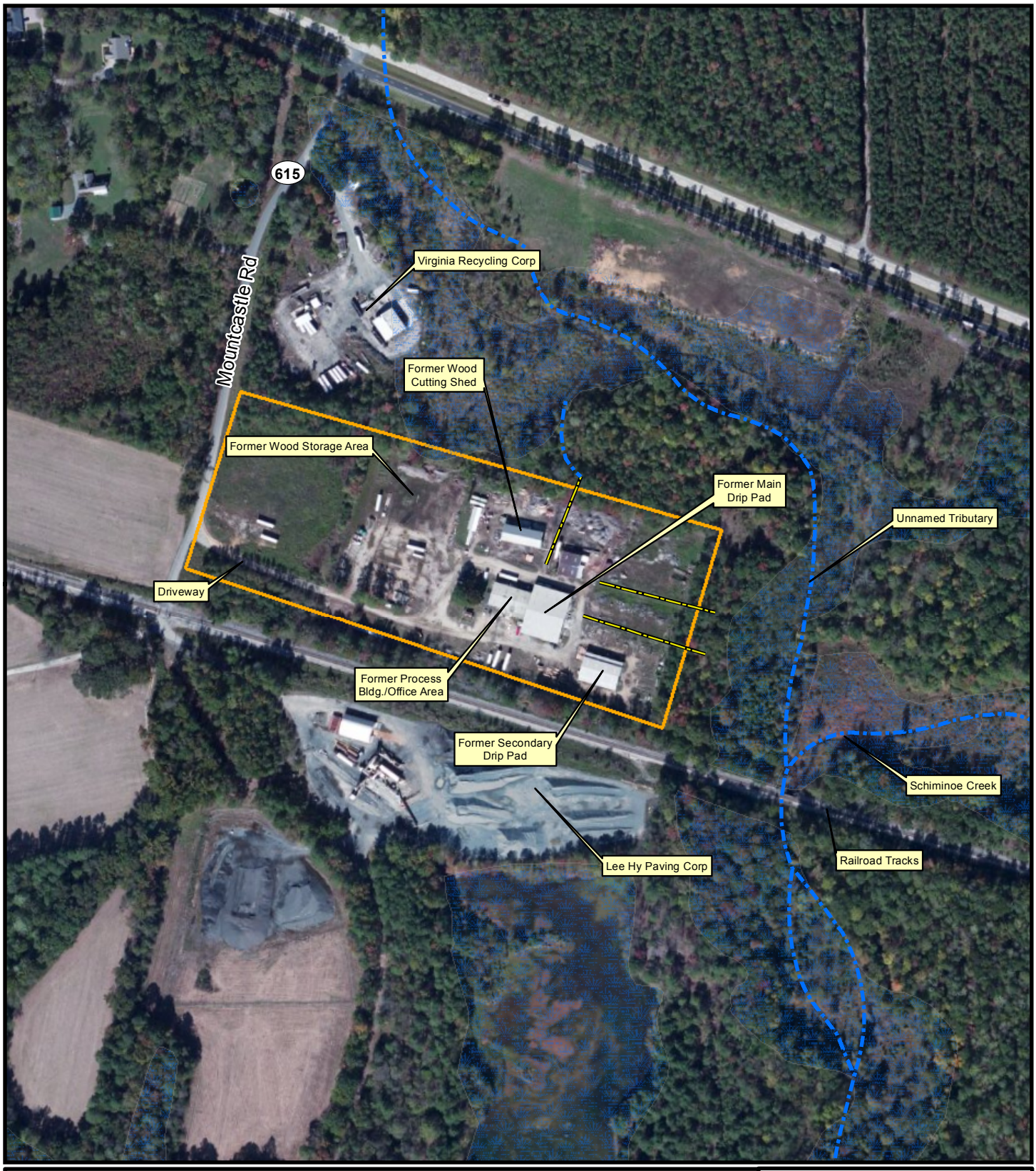

Legend

- Site Boundary
- NWI Wetlands
- Inferred stream channel from Topographic Map
- Drainage Ditch

Imagery: ESRI, USGS Mapping Service, 2013

N

Coordinate System: WGS84 UTM Zone 18N Feet

0 350

Feet

New Kent Wood Preservatives, Inc
Providence Forge, New Kent County, VA

Figure 2
Site Layout Map

TDD#: WS03-12-09-001
Contract: EP-S3-10-05
Prepared: 12/12/2014

WESTON SOLUTIONS

File: Y:\EPA_Region_III\New_Kent_Wood_Preservers\MXD\Site_Layout_sp.mxd, 12/12/2014 10:05:49 PM, ricksc

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-07	Arsenic	20.3
	Chromium	22.2
	Copper	14.3

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-075	Arsenic	54.9
	Chromium	62.5

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-080	Arsenic	53
	Chromium	51.8

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-045	Arsenic	26.3
	Chromium	49.4

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-13	Arsenic	25.2
	Chromium	72

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-14	Arsenic	28.5
	Chromium	43.6

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-15	Arsenic	21.5
	Chromium	31.1

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-041	Arsenic	101
	Chromium	134
	Copper	75.5

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-18	Arsenic	5.3
	Chromium	23.4
	Copper	14.2

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-12	Arsenic	10.6
	Chromium	21.8
	Copper	10.6

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-17	Arsenic	3.6
	Chromium	19.5
	Copper	22.9

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-16	Arsenic	9.5
	Chromium	19.1
	Copper	13

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-073	Arsenic	52.1
	Chromium	71.6
	Copper	69.2

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-062	Arsenic	21.9
	Chromium	46.8

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-11	Arsenic	36.3
	Chromium	64.2

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-067	Arsenic	229
	Chromium	143
	Copper	332

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-097	Arsenic	177
	Chromium	171
	Copper	123

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-098	Arsenic	449
	Chromium	281
	Copper	1,040

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-101	Arsenic	53.6
	Chromium	71.1

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-100	Arsenic	51
	Chromium	77.7

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-096	Arsenic	126
	Chromium	401
	Copper	99.8

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-094	Arsenic	115
	Chromium	119
	Copper	76.1

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-08	Arsenic	82.2
	Chromium	108
	Copper	77.9

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-10	Arsenic	48
	Chromium	94.9
	Copper	85.7

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-09	Arsenic	57.9
	Chromium	91.9
	Copper	81.1

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-104	Arsenic	24.9
	Chromium	26.3

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-092	Arsenic	128
	Chromium	148
	Copper	96.4

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-04	Arsenic	9.3
	Chromium	11.5
	Copper	7.2

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-05	Arsenic	15
	Chromium	17.7
	Copper	13.6

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-19	Arsenic	2.9
	Chromium	8.1
	Copper	4.1

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-06	Arsenic	80.8
	Chromium	108
	Copper	73.7

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-21	Arsenic	246
	Chromium	340
	Copper	169

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-03	Arsenic	313
	Chromium	339
	Copper	223

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-20	Arsenic	340
	Chromium	519
	Copper	327

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-155	Arsenic	376J
	Chromium	385
	Copper	222

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-02	Arsenic	309
	Chromium	235
	Copper	133

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-157	Arsenic	258J
	Chromium	367
	Copper	206

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-154	Arsenic	287
	Chromium	335
	Copper	193

Field Sample ID	Hazardous Substance	Conc. mg/kg
NKWP-SS-01	Arsenic	1,140
	Chromium	1,250
	Copper	598

Field Sample ID	Hazardous Substance	Conc. mg/kg
NK-SS-093	Arsenic	198
	Chromium	130
	Copper	96.4

Mountcastle Rd

Unnamed Tributary

Schiminoe Creek

PPE 1

PPE 2

PPE 3

615

Legend

- Site Boundary
- NWI Wetlands
- Water Features
- Drainage Ditch
- Below 3x Background Soil Samples
- Background Soil Samples
- 3x Background Soil Samples
- Probable Point of Entry
- Surface Water Flow Direction

Imagery: ESRI, USGS Mapping Service, 2013

N

Coordinate System: WGS84 UTM Zone 18N Feet

0 300

Feet

New Kent Wood Preservatives, Inc
Providence Forge, New Kent County, VA

Figure 3
Source Sample Location Map

TDD#: WS03-12-09-001
Contract: EP-S3-10-05
Prepared: 12/22/2014

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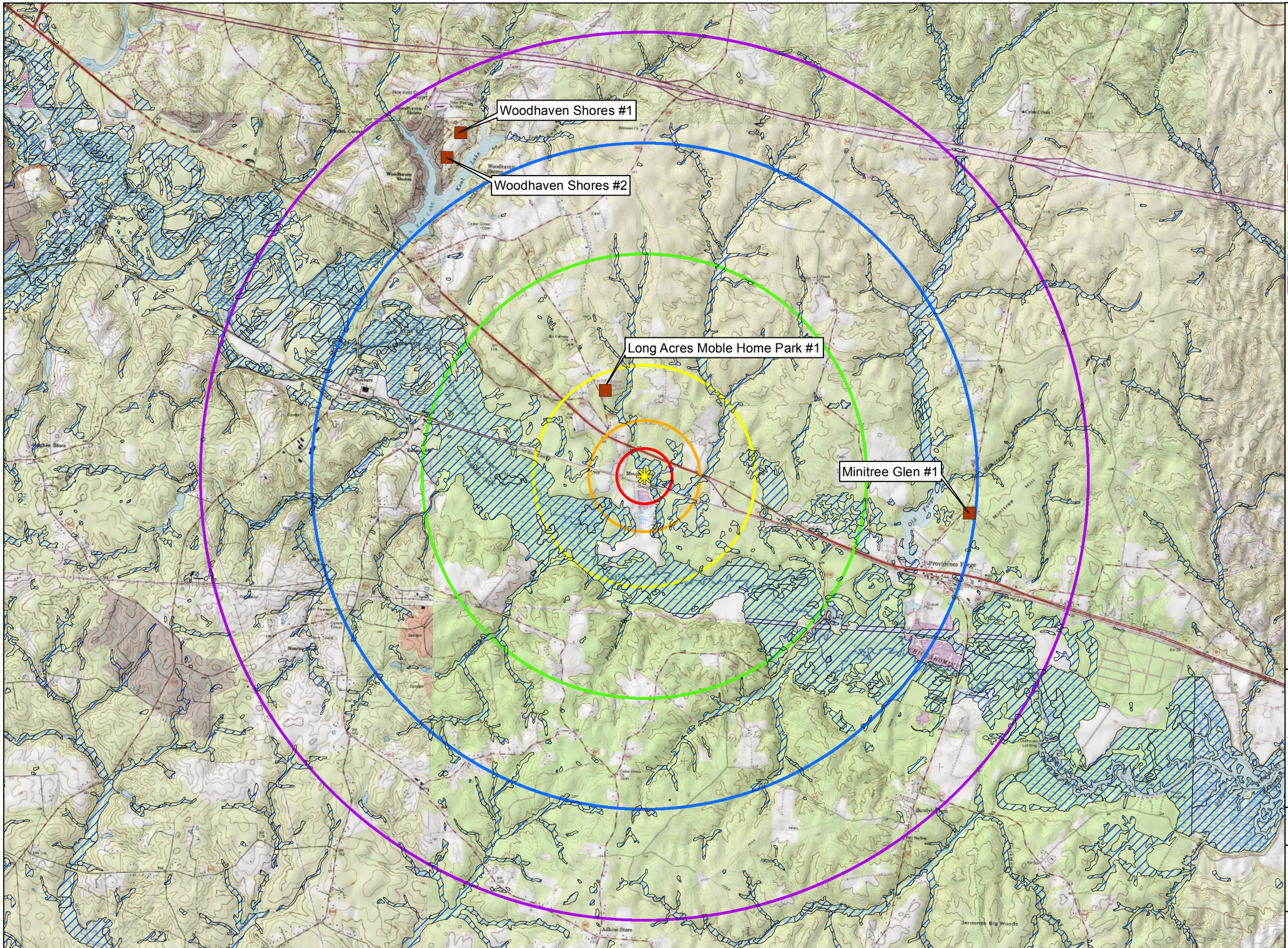

Legend

Wetlands

Distance Buffers

- 0.25 Miles
- 0.5 Miles
- 1 Miles
- 2 Miles
- 3 Miles
- 4 Miles

Community Supply Well

Data Sources
Imagery: USGS 7.5-Minute Series
Topogrpahic Quadrangles
Shapefiles: Weston generated

Coordinate System:
WGS 1984 UTM Zone 18N
Linear Unit: Foot US

Datum: WGS 1984

N

0 2,250 4,500
Feet

New Kent Wood Preservatives, Inc
Providence Forge, New Kent County, VA

Figure 4
4-mile Radius Map with Distance Rings

TDD#: WS03-12-09-001
Contract: EP-S3-10-05
Prepared: 12/11/2014

WESTON SOLUTIONS

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Legend

- Site Boundary
- NWI Wetlands
- Inferred stream channel from Topographic Map
- Drainage Ditch
- Sampling Locations

Imagery: ESRI, USGS Mapping Service, 2013

N

Coordinate System: WGS84 UTM Zone 18N Feet

0 400

Feet

New Kent Wood Preservatives, Inc
Providence Forge, New Kent County, VA

Figure 5
Groundwater Sample Location Map

TDD#: WS03-12-09-001
Contract: EP-S3-10-05
Prepared: 12/22/2014

WESTON SOLUTIONS

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Figure 6
15-mile Downstream Surface Water Pathway Map
New Kent Wood Preservatives, Inc
Providence Forge, New Kent County, VA

Legend

- Site Location
- Probable Point of Entry
- Newport News Surface Water Intake (Refs. 29, pp. 7-8; 34, p. 1)
- Mile Marker
- Fifteen Mile Surface Water Pathway
- HRS Eligible Wetlands

Wetlands data from the U.S. Fish & Wildlife Service wetlands geodatabase website: http://www.fws.gov/wetlands/Data/DataDownload.html Reference 49 of the HRS documentation record).

N W E S

0 1,000 2,000 4,000 6,000 8,000
Feet

0 0.25 0.5 1
Miles

SOURCE: USGS 7.5 Minute Series (Topographic) Quadrangles: Brandon, VA, 1983; Charles City, VA, 1983; New Kent, VA, 1977; Providence Forge, VA, 1977; Tunstall, VA, 1977; Walkers, VA, 1977.

TDD#: WS03-12-09-001
Contract: EP-S3-10-05
Prepared: 11/7/2014

WESTON SOLUTIONS

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Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-SD-15	Arsenic	1.3
	Chromium	3.8J[2]

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-WS-13	Arsenic	5
	Chromium	15.9J[2]
	Copper	12.9

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-SD-14	Arsenic	0.93U
	Chromium	1J[2]
	Copper	2.3U

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-SD-12	Arsenic	2.5
	Chromium	16.7J (12.9)
	Copper	7.7

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-SD-13	Arsenic	11.4
	Chromium	26.3J (20.4)
	Copper	13.2

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-WS-12	Arsenic	14.6
	Chromium	21J[2]
	Copper	27.4

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-SD-11	Arsenic	8.8
	Chromium	47.6J (36.9)
	Copper	27.2

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-SD-10	Arsenic	1.9
	Chromium	2.2
	Copper	1.7

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-WS-11	Arsenic	4.2
	Chromium	18J[2]
	Copper	47.9

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-SD-09	Arsenic	8.2
	Chromium	12.1J

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-WS-09	Arsenic	4.1
	Chromium	10.6
	Copper	7.8

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-WS-08	Arsenic	12.5
	Chromium	19.6
	Copper	11.9

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-WS-02	Arsenic	9.7
	Chromium	35.4
	Copper	18.2

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-SD-08	Arsenic	2
	Chromium	8.4J
	Copper	1.9

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-WS-07	Arsenic	2.5
	Chromium	7
	Copper	5.4

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-SD-07	Arsenic	2
	Chromium	5J
	Copper	2.7

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-SD-06	Arsenic	3.7
	Chromium	6.8J
	Copper	2.9

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-WS-10	Arsenic	59.2
	Chromium	32.7

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-WS-01	Arsenic	116
	Chromium	151
	Copper	90.4

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-WS-03	Arsenic	7.2
	Chromium	16.7
	Copper	7.4

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-WS-04	Arsenic	504
	Chromium	764
	Copper	362

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-WS-05	Arsenic	18
	Chromium	43.6
	Copper	19.6

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-SD-03	Arsenic	1.5
	Chromium	2.3J[2]

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-WS-06	Arsenic	15.9
	Chromium	46.7
	Copper	20.6

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-SD-05	Chromium	1.9J

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-SD-02	Arsenic	13
	Chromium	9.2

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-SD-04	Chromium	2.5J

Field Sample ID	Hazardous Substance	Concentration mg/kg
NKWP-SD-01	Arsenic	1.1
	Chromium	2.5J
	Copper	2.8

615

Mountcastle Rd

Unnamed Tributary

Schiminoe Creek

PPE 1

PPE 2

PPE 3

Legend

- Site Boundary
- NWI Wetlands
- Water Features
- Drainage Ditch
- Below 3x Background Soil Samples
- Background Soil Samples
- 3x Background Soil Samples
- Probable Point of Entry
- Surface Water Flow Direction

Imagery: ESRI, USGS Mapping Service, 2013

Coordinate System: WGS84 UTM Zone 18N Feet

N

0 300

Feet

New Kent Wood Preservatives, Inc
Providence Forge, New Kent County, VA

Figure 7
Sediment Sample Location Map

TDD#: WS03-12-09-001
Contract: EP-S3-10-05
Prepared: 12/22/2014

WESTON SOLUTIONS

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TABLES

Table 1
New Kent Wood Preservatives, Inc
Analytical Results for Metals in Soil Samples

	Sample Number:		NK-SS-041-062014		NK-SS-045-062014		NK-SS-062-062014		NK-SS-067-062014		NK-SS-073-062014		NK-SS-075-062014	
	Sampling Location:		41		45		62		67		73		75	
	Sample Type:		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample	
	Matrix:		Soil		Soil		Soil		Soil		Soil		Soil	
	Date Sampled:		6/20/2014		6/20/2014		6/20/2014		6/20/2014		6/20/2014		6/20/2014	
	CLP Sample ID:		MC0AA3		MC0AA4		MC0AA5		MC0AA6		MC0AA7		MC0AA8	
	Units:		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
	CRQL	**RSL**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	20	1.1E+05	2360		4170		3020		2570		5780		1620	
Antimony	6	4.7E+01	5.6	UJ	4.3	UJ	5.1	UJ	0.33	J	6.4	UJ	6.2	UJ
Arsenic	1	3.0E+00	**101**		**26.3**		**21.9**		**229**		**52.1**		**54.9**	
Barium	20	2.2E+04	22.2		31.9		29.8		35.8		61.2		20.7	U
Beryllium	0.5	2.3E+02	0.47	U	0.36	U	0.42	U	0.39	U	0.53	U	0.52	U
Cadmium	0.5	9.8E+01	0.47	U	0.36	U	0.42	U	0.39	U	0.53	U	0.52	U
Calcium	500	NL	1690	J	831	J	4650	J	12900	J	5830	J	1910	J
Chromium	1	6.3E+00*	**134**		49.4		46.8		**143**		**71.6**		62.4	
Cobalt	5	3.5E+01	4.7	U	8.3		4.2	U	3.9	U	5.3	U	5.2	U
Copper	2.5	4.7E+03	**75.5**		22.3		25.7		**332**		**69.2**		47.1	
Iron	10	8.2E+04	8120	J	13500	J	9050	J	5330	J	11400	J	3250	J
Lead	1	8.0E+02	12.9		16.9		10.2		19		24		8.8	
Magnesium	500	NL	345	J	204	J	896		5210		1090		318	J
Manganese	1.5	2.60E+03	82.3		166		116		87.4		208		48.5	
Nickel	4	NL	3.7	U	7.1		4.6		3.2		5.9		4.1	U
Potassium	500	NL	468	U	361	U	423	U	391	U	534	U	519	U
Selenium	3.5	5.80E+02	3.3	U	0.39	J	3	U	2.7	U	0.68	J	3.6	U
Silver	1	5.80E+02	0.94	U	0.72	U	0.85	U	0.78	U	1.1	U	1	U
Sodium	500	NL	468	U	361	U	423	U	391	U	534	U	519	U
Thallium	2.5	NL	2.3	U	1.8	U	2.1	U	2	U	2.7	U	2.6	U
Vanadium	5	5.8E+02	7.2		12.9		9.5		6.6		15.8		5.2	U
Zinc	6	3.5E+04	41.1		16		22.7		93.7		73		25.4	

Notes:
RSL - Based on May 2014 concentrations for Industrial Soil with Target Risk of 1.0 and hazard quotient of 0.1
* - Listed value for chromium is for hexavalent chromium
Bolded value indicates concentration is 3X background
Shaded value indicates concentration exceeds the RSL
CRQL - Contract required quantitation Limit
RSL - Regional Screening Level
J - Estimated value.
J+ - Estimated value, biased high.
J- - Estimated value, biased low.
mg/kg - milligrams per kilogram
NL - No listing in RSL table
U - Result not detected above the detection limit.
UJ - Result is estimated above the detection limit, but below the reporting limit.

Table 1
New Kent Wood Preservatives, Inc
Analytical Results for Metals in Soil Samples

	Sample Number:		NK-SS-080-062014		NK-SS-092-062014		NK-SS-093-062014		NK-SS-094-062014		NK-SS-096-062014		NK-SS-097-062014	
	Sampling Location:		80		92		93		94		96		97	
	Sample Type:		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample	
	Matrix:		Soil		Soil		Soil		Soil		Soil		Soil	
	Date Sampled:		6/20/2014		6/20/2014		6/20/2014		6/20/2014		6/20/2014		6/20/2014	
	CLP Sample ID:		MC0AA9		MC0AB0		MC0AB1		MC0AB2		MC0AB3		MC0AB4	
	Units:		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
	CRQL	**RSL**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	20	1.1E+05	3110		4260		4240		5980		9990		5760	
Antimony	6	4.7E+01	0.3	J	5.4	UJ	6	UJ	0.42	J	6.1	UJ	0.44	J
Arsenic	1	3.0E+00	**53**		**128**		**198**		**115**		**126**		**177**	
Barium	20	2.2E+04	43.2		38.9		30.3		48.4		82.2		133	
Beryllium	0.5	2.3E+02	0.4	U	0.45	U	0.5	U	0.51	U	0.51	U	0.45	U
Cadmium	0.5	9.8E+01	0.4	U	0.49		0.5	U	0.51	U	0.51	U	1.5	
Calcium	500	NL	2080	J	8530	J	2010	J	3830	J	6470	J	3040	J
Chromium	1	6.3E+00*	51.8		**148**		**130**		**119**		**401**		**171**	
Cobalt	5	3.5E+01	4	U	4.5	U	5	U	5.1	U	8.3		15.6	
Copper	2.5	4.7E+03	29		**96.4**		**96.4**		**76.1**		**99.8**		**123**	
Iron	10	8.2E+04	8960	J	15600	J	4360	J	6740	J	22400	J	10500	J
Lead	1	8.0E+02	20.9		17.8		5.2		12.3		16.5		39.4	
Magnesium	500	NL	433		924		324	J	947		1990		764	
Manganese	1.5	2.60E+03	165		149		45.6		84.4		195		177	
Nickel	4	NL	8.5		12.9		4	U	4.6		**42.8**		14.2	
Potassium	500	NL	398	U	453	U	498	U	544	J+	598	J+	486	J+
Selenium	3.5	5.80E+02	2.8	U	3.2	U	3.5	U	3.6	U	3.6	U	3.1	U
Silver	1	5.80E+02	0.8	U	0.91	U	1	U	1	U	1	U	0.89	U
Sodium	500	NL	398	U	453	U	498	U	512	U	510	U	445	U
Thallium	2.5	NL	2	U	2.3	U	2.5	U	2.6	U	2.6	U	2.2	U
Vanadium	5	5.8E+02	7.1		9.7		7.7		12		22.3		13.3	
Zinc	6	3.5E+04	**333**		**156**		19.9		25.6		**283**		**120**	

Table 1
New Kent Wood Preservatives, Inc
Analytical Results for Metals in Soil Samples

	Sample Number:		NK-SS-098-062014		NK-SS-100-062014		NK-SS-101-062014		NK-SS-104-062014		NK-SS-154-062014		NK-SS-155-062014	
	Sampling Location:		98		100		101		104		154		155	
	Sample Type:		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample	
	Matrix:		Soil		Soil		Soil		Soil		Soil		Soil	
	Date Sampled:		6/20/2014		6/20/2014		6/20/2014		6/20/2014		6/20/2014		6/20/2014	
	CLP Sample ID:		MC0AB5		MC0AB6		MC0AB7		MC0AB8		MC0AB9		MC0AC0	
	Units:		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
	CRQL	**RSL**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	20	1.1E+05	2470		4760		3680		2650		9410		19100	J
Antimony	6	4.7E+01	1	J	6.1	UJ	6.3	UJ	6.3	UJ	0.66	J	0.95	J
Arsenic	1	3.0E+00	**449**		**51**		**53.6**		**24.9**		**287**		**376**	J
Barium	20	2.2E+04	71.5		46.6		68.2		44.7		60.5		117	
Beryllium	0.5	2.3E+02	0.49	U	0.51	U	0.52	U	0.53	U	0.55	U	0.67	
Cadmium	0.5	9.8E+01	0.7		0.51	U	0.52	U	0.53	U	0.55	U	0.64	U
Calcium	500	NL	19900	J	4160	J	2150	J	6240	J	2310	J	5180	
Chromium	1	6.3E+00*	**281**		**77.7**		**73.1**		26.3		**335**		**385**	
Cobalt	5	3.5E+01	4.9	U	5.6		5.2	U	5.3	U	7.6		16.1	
Copper	2.5	4.7E+03	**1040**		47.8		61.2		18.8		**193**		**222**	
Iron	10	8.2E+04	6400	J	10600	J	17800	J	6820	J	17100	J	25400	
Lead	1	8.0E+02	47.4		23.7		14.3		12		23.9		41.5	J
Magnesium	500	NL	9400		618		560		1040		785		1470	
Manganese	1.5	2.60E+03	125		166		173		95.3		150		456	J
Nickel	4	NL	3.9	U	6.3		9.5		4.2	U	8.9		14	
Potassium	500	NL	493	U	508	U	523	U	822	J+	580	J+	1010	
Selenium	3.5	5.80E+02	3.5	U	3.6	U	3.7	U	3.7	U	3.8	U	1	J
Silver	1	5.80E+02	0.99	U	1	U	1	U	1.1	U	1.1	U	1.3	U
Sodium	500	NL	493	U	508	U	523	U	526	U	546	U	641	U
Thallium	2.5	NL	2.5	U	2.5	U	2.6	U	2.6	U	2.7	U	3.2	U
Vanadium	5	5.8E+02	6.5		13.3		10.9		8.6		23.8		35.3	J
Zinc	6	3.5E+04	**210**		53.3		**155**		50.5		**121**		**206**	J

Table 1
New Kent Wood Preservatives, Inc
Analytical Results for Metals in Soil Samples

	Sample Number:		NK-SS-157-062014		NK-SS-201-090914		NK-SS-202-090914		NK-SS-203-090914		NK-SS-204-090914	
	Sampling Location:		157		201		202		203		204	
	Sample Type:		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample	
	Matrix:		Soil		Soil		Soil		Soil		Soil	
	Date Sampled:		6/20/2014		9/9/2014		9/9/2014		9/9/2014		9/9/2014	
	CLP Sample ID:		MC0AC1		MC0AC7		MC0AC8		MC0AC9		MC0AD0	
	Units:		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
	CRQL	**RSL**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	20	1.1E+05	9510	J	3080		2150		1160		1890	
Antimony	6	4.7E+01	0.7	J	5.4	U	4.6	U	5.6	U	5.4	U
Arsenic	1	3.0E+00	**278**	J	3.3		2.1		1.3		0.67	J
Barium	20	2.2E+04	85.8		25.3		20.4		11.9	J	20.6	
Beryllium	0.5	2.3E+02	0.45	U	0.097	J	0.091	J	0.46	U	0.45	U
Cadmium	0.5	9.8E+01	0.48		0.45	UJ	0.38	UJ	0.46	UJ	0.45	UJ
Calcium	500	NL	4220		454	U	379	U	464	U	450	U
Chromium	1	6.3E+00*	**367**		11.2		8.1		6.7		5.4	
Cobalt	5	3.5E+01	11.8		0.64	J	0.47	J	0.22	J	0.33	J
Copper	2.5	4.7E+03	**206**		3.7		2.4		1.6	J	1.2	J
Iron	10	8.2E+04	19100		4210		3060		2190		3100	
Lead	1	8.0E+02	27.6	J	3.5		2.5		1.8		2.1	
Magnesium	500	NL	768		311	J	216	J	128	J-	188	J
Manganese	1.5	2.60E+03	305	J	43.2		52.8		18.4		22	
Nickel	4	NL	8.6		3	J	3.2		2.2	J	2.1	J
Potassium	500	NL	531		454	U	379	U	464	U	450	U
Selenium	3.5	5.80E+02	3.1	U	3.2	UJ	2.7	UJ	3.2	UJ	3.1	UJ
Silver	1	5.80E+02	0.89	U	0.91	U	0.76	U	0.93	U	0.9	U
Sodium	500	NL	447	U	454	U	379	U	464	U	450	U
Thallium	2.5	NL	2.2	U	2.3	U	1.9	U	2.3	U	2.2	U
Vanadium	5	5.8E+02	23.5	J	9		5.1		3.6	J	5.6	
Zinc	6	3.5E+04	**111**	J	8.7		16.5		8		9.3	

Table 1
New Kent Wood Preservatives, Inc
Analytical Results for Metals in Soil Samples

	Sample Number:		NKWP-SS-01		NKWP-SS-02		NKWP-SS-03		NKWP-SS-03-01		NKWP-SS-04		NKWP-SS-05	
	Sampling Location:		SS01		SS02		SS03		SS03		SS04		SS05	
	Sample Type:		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample	
	Matrix:		Soil		Soil		Soil		Soil		Soil		Soil	
	Date Sampled:		9/10/2014		9/10/2014		9/10/2014		9/10/2014		9/10/2014		9/10/2014	
	CLP Sample ID:		MC0AD5		MC0AD4		MC0AD6		MC0AD7		MC0AD8		MC0AD9	
	Units:		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
	CRQL	**RSL**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	20	1.1E+05	21200		8930		10200		17300		3100		3640	
Antimony	6	4.7E+01	4.6	J	2.4	J	2.3	J	4.1	J	0.19	J	0.16	J
Arsenic	1	3.0E+00	**1140**		**309**		**313**		**876**		9.3		15	
Barium	20	2.2E+04	150		62.3		76.4		135		21.9		28.9	
Beryllium	0.5	2.3E+02	1.5		0.59		0.51		1.1		0.16	J	0.23	J
Cadmium	0.5	9.8E+01	0.93	J	0.2	J	0.3	J	0.76	J	0.039	J	0.053	J
Calcium	500	NL	6240		1650		2780		5300		453		617	
Chromium	1	6.3E+00*	**1250**		**235**		**339**		**1020**		11.5		17.7	
Cobalt	5	3.5E+01	31.3		11.3		8.2		26.6		0.56	J	0.84	J
Copper	2.5	4.7E+03	**598**		**133**		**223**		**524**		7.2		13.6	
Iron	10	8.2E+04	53600		20600		15200		38800		2830		3770	
Lead	1	8.0E+02	**68.5**		20.8		21		**58.8**		3.8		5.3	
Magnesium	500	NL	1400		478		808		1380		255	J	342	J
Manganese	1.5	2.60E+03	716		321		215		726		49.2		61.9	
Nickel	4	NL	22.1		7.4		7.1		17		1.6	J	3.6	
Potassium	500	NL	1030		458	U	471	U	920		407	U	395	U
Selenium	3.5	5.80E+02	8.3	J+	3.5	J+	2.8	J+	6.2	J+	0.68	J+	0.52	J+
Silver	1	5.80E+02	1.2	U	0.92	U	0.94	U	1.1	U	0.81	U	0.79	U
Sodium	500	NL	150	J	48.1	J	61.9	J	139	J	407	U	23.7	J
Thallium	2.5	NL	2.9	U	2.3	U	2.4	U	2.7	U	2	U	2	U
Vanadium	5	5.8E+02	57.8		27.9		19.7		45.1		5.4		7	
Zinc	6	3.5E+04	**190**		36.4		89.5		**174**		23.3		27.2	

Table 1
New Kent Wood Preservatives, Inc
Analytical Results for Metals in Soil Samples

	Sample Number:		NKWP-SS-06		NKWP-SS-07		NKWP-SS-08		NKWP-SS-09		NKWP-SS-10		NKWP-SS-11	
	Sampling Location:		SS06		SS07		SS08		SS09		SS10		SS11	
	Sample Type:		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample	
	Matrix:		Soil		Soil		Soil		Soil		Soil		Soil	
	Date Sampled:		9/10/2014		9/10/2014		9/10/2014		9/10/2014		9/10/2014		9/10/2014	
	CLP Sample ID:		MC0AE0		MC0AE1		MC0AE2		MC0AE3		MC0AE6		MC0AE5	
	Units:		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
	CRQL	**RSL**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	20	1.1E+05	5060		3660		3970		8980		8280		4190	
Antimony	6	4.7E+01	0.5	J	0.29	J	0.46	J	1	J	0.88	J	1.1	J
Arsenic	1	3.0E+00	**80.8**		**20.3**		**82.2**		**57.9**		**48**		**36.2**	
Barium	20	2.2E+04	49.9		23.1		31.9		188		171		126	
Beryllium	0.5	2.3E+02	0.32	J	0.2	J	0.23	J	0.48	J	0.48	J	0.84	
Cadmium	0.5	9.8E+01	0.25	J	0.064	J	0.095	J	0.53	J	0.47	J	0.3	J
Calcium	500	NL	1490		1310		1790		16500		7170		3750	
Chromium	1	6.3E+00*	**108**		22.2		**108**		**91.9**		**94.9**		64.2	
Cobalt	5	3.5E+01	3.8	J	0.58	J	1.9	J	8.3	J	6.9	J	4	J
Copper	2.5	4.7E+03	**73.7**		14.3		**77.9**		**81.1**		**85.7**		16.4	
Iron	10	8.2E+04	9120		3890		6270		19800		17000		36200	
Lead	1	8.0E+02	16.8		9.1		11.4		39.4		38.5		17.6	
Magnesium	500	NL	534		285	J	470		2440		1940		689	
Manganese	1.5	2.60E+03	170		67.1		84.4		375		264		158	
Nickel	4	NL	4.4		2	J	3.1	J	11		9.3	J	4.8	
Potassium	500	NL	428	U	448	U	459	U	1850		1410		408	U
Selenium	3.5	5.80E+02	1.6	J+	0.81	J+	1.2	J+	3.1	J+	2.9	J+	5.8	J+
Silver	1	5.80E+02	0.86	U	0.9	U	0.92	U	1.7	U	2.3	U	0.82	U
Sodium	500	NL	36	J	448	U	31.1	J	111	J	108	J	60	J
Thallium	2.5	NL	2.1	U	2.2	U	2.3	U	4.3	U	5.9	U	2	U
Vanadium	5	5.8E+02	12.8		7.2		9.6		28.1		25.9		24.4	
Zinc	6	3.5E+04	92.5		17.2		26.9		**165**		**171**		30.7	

Table 1
New Kent Wood Preservatives, Inc
Analytical Results for Metals in Soil Samples

	Sample Number:		NKWP-SS-12		NKWP-SS-13		NKWP-SS-14		NKWP-SS-15		NKWP-SS-16	
	Sampling Location:		SS12		SS13		SS14		SS15		SS16	
	Sample Type:		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample	
	Matrix:		Soil		Soil		Soil		Soil		Soil	
	Date Sampled:		9/10/2014		9/10/2014		9/10/2014		9/10/2014		9/10/2014	
	CLP Sample ID:		MC0AE7		MC0AE4		MC0AE8		MC0AE9		MC0AF0	
	Units:		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
	CRQL	**RSL**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	20	1.1E+05	4770		2370		3310		2610		4410	
Antimony	6	4.7E+01	0.29	J	0.33	J	0.35	J	0.22	J	0.42	J
Arsenic	1	3.0E+00	10.6		**25.2**		**28.5**		**21.5**		9.5	
Barium	20	2.2E+04	20		30.7		23.6		20		34.7	
Beryllium	0.5	2.3E+02	0.39	J	0.27	J	0.36	J	0.31	J	0.59	
Cadmium	0.5	9.8E+01	0.09	J	0.086	J	0.1	J	0.067	J	0.24	J
Calcium	500	NL	5100		1600		1530		1090		35600	
Chromium	1	6.3E+00*	21.8		**72**		43.6		31.1		19.1	
Cobalt	5	3.5E+01	2.8	J	4.1		3.9		2.9	J	9	
Copper	2.5	4.7E+03	10.6		34.8		22.9		21.5		13	
Iron	10	8.2E+04	9300		8060		11200		7400		13800	
Lead	1	8.0E+02	10.5		10.8		8.1		8.7		13.5	
Magnesium	500	NL	1240		556		313	J	323	J	1690	
Manganese	1.5	2.60E+03	112		159		126		93		252	
Nickel	4	NL	4.3		3.6		4.1		2.6	J	5.3	
Potassium	500	NL	443	U	408	U	389	U	409	U	429	U
Selenium	3.5	5.80E+02	1.6	J+	1.5	J+	1.8	J+	1.3	J+	2.3	J+
Silver	1	5.80E+02	0.89	U	0.82	U	0.78	U	0.82	U	0.86	U
Sodium	500	NL	35.1	J	408	U	30.9	J	25.1	J	119	J
Thallium	2.5	NL	2.2	U	2	U	1.9	U	2	U	2.1	U
Vanadium	5	5.8E+02	15.8		8.2		10.9		8.2		13	
Zinc	6	3.5E+04	22.8		19.3		16.6		18		28.5	

Table 1
New Kent Wood Preservatives, Inc
Analytical Results for Metals in Soil Samples

	Sample Number:		NKWP-SS-17		NKWP-SS-18		NKWP-SS-19		NKWP-SS-20		NKWP-SS-21	
	Sampling Location:		SS17		SS18		SS19		SS20		SS21	
	Sample Type:		Background Sample		Background Sample		Background Sample		Field Sample		Field Sample	
	Matrix:		Soil		Soil		Soil		Soil		Soil	
	Date Sampled:		9/10/2014		9/10/2014		9/10/2014		9/10/2014		9/10/2014	
	CLP Sample ID:		MC0AF1		MC0AF2		MC0AF3		MC0AF4		MC0AF5	
	Units:		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
	CRQL	**RSL**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	20	1.1E+05	11000		12700		5580		8700		7550	
Antimony	6	4.7E+01	0.54	J	0.77	J	0.16	J	1.6	J	0.99	J
Arsenic	1	3.0E+00	3.6		5.3		2.9		**340**		**246**	
Barium	20	2.2E+04	66.2		52.4		34.1		105		70.8	
Beryllium	0.5	2.3E+02	0.44	J	0.53		0.39	J	0.51		0.55	
Cadmium	0.5	9.8E+01	0.29	J	0.39	J	0.088	J	0.65		0.55	
Calcium	500	NL	3700		2210		160	J	4630		2270	
Chromium	1	6.3E+00*	19.5		23.4		8.1		**519**		**340**	
Cobalt	5	3.5E+01	6.1		4.3	J	2.5	J	13.8		9.4	
Copper	2.5	4.7E+03	22.9		14.2		4.1		**327**		**169**	
Iron	10	8.2E+04	24400		32500		6200		17200		17900	
Lead	1	8.0E+02	7.4		12.3		16.5		30.4		25.7	
Magnesium	500	NL	4740		2520		390	J	830		643	
Manganese	1.5	2.60E+03	259		137		193		**934**		385	
Nickel	4	NL	11.3		6.9		3.6		8.6		7.4	
Potassium	500	NL	2870		1660		415	U	493	U	464	U
Selenium	3.5	5.80E+02	3.8	J+	5.3	J+	1.1	J+	2.9	J+	3	J+
Silver	1	5.80E+02	0.88	U	0.89	U	0.83	U	0.99	U	0.93	U
Sodium	500	NL	110	J	91.6	J	34.1	J	73.7	J	70.2	J
Thallium	2.5	NL	2.2	U	2.2	U	2.1	U	2.5	U	2.3	U
Vanadium	5	5.8E+02	41.1		50.5		12.8		21.3		20.3	
Zinc	6	3.5E+04	35.8		23.5		16		**115**		**117**	

Table 2
New Kent Wood Preservatives, Inc.
Analytical Results for Metals in Groundwater Samples

	Sample Number:		NK-DW-01-09092014		NK-DW-02-09092014		NK-DW-02B-09092014		NK-DW-03-09092014	
	Sampling Location:		DW-01		DW-02		DW-02		DW-03	
	Sample Type:		Field Sample		Field Sample		Duplicate of MC0AC3		Field Sample	
	Sample Matrix:		Water		Water		Water		Water	
	Date Sampled:		9/9/2014		9/9/2014		9/9/2014		9/9/2014	
	CLP Sample ID:		MC0AC2		MC0AC3		MC0AC6		MC0AC4	
	Units:		ug/L		ug/L		ug/L		ug/L	
Parameter	**CRQL**	**MCL**	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aluminum	20	50*	18.1	B	3	B	3.7	B	3.1	B
Antimony	2	6	0.29	B	0.12	B	0.35	B	0.16	B
Arsenic	1	10	0.2	B	0.22	B	0.18	B	0.12	B
Barium	10	2,000	1.2	J	0.93	J	1	J	0.92	J
Beryllium	1	4	1	U	1	U	1	U	1	U
Cadmium	1	5	1	U	1	U	1	U	1	U
Calcium	500	NL	25600		500		480	J	594	
Chromium	2	100	2.1	J	23.9	J	48.7	J	0.44	B
Cobalt	1	NL	0.54	J	0.29	J	1.3		1	U
Copper	2	1,300	19.9		1.7	J	7.4		1.3	J
Iron	200	300*	262		77.8	B	223		9.5	B
Lead	1	15	2.5		0.16	B	0.2	B	0.35	B
Magnesium	500	NL	13300		91.7	B	84.4	B	77.8	B
Manganese	1	50*	2	J	3.5	J	12	J	0.98	B
Nickel	1	NL	2.3	J	15	J	74.4	J	0.16	J
Potassium	500	NL	12400	J	3710	J	3490	J	2900	J
Selenium	5	50	5	U	5	U	5	U	5	U
Silver	1	100*	1	U	1	U	1	U	1	U
Sodium	500	NL	18400	J	86000	J	80500	J	77900	J
Thallium	1	2	1	U	1	U	1	U	0.037	B
Vanadium	5	NL	0.24	J	5	U	5	U	5	U
Zinc	2	5,000*	49.1		21.6		19.3		26.5	

Notes:
* Indicates secondary MCL that may impact taste, odor, color but not associated with a health hazard
Shaded value indicates concentration exceeds primary MCL
B - Value observed in blank. Appears to be blank contamination.
CRQL - Contract-required quantitation limit
J - Estimated value.
MCL - Maximum Contaminant Level (EPA, 2009)
NL - No listed value
U - Result not detected above the detection limit.
ug/L - micrograms per liter

Table 2
New Kent Wood Preservatives, Inc.
Analytical Results for Metals in Groundwater Samples

	Sample Number:		NK-DW-04-09092014		NK-DW-05-09102014		NK-MW-04-09102014		NK-MW-05-09102014	
	Sampling Location:		DW-04		DW-05		MW-04		MW-01/05	
	Sample Type:		Field Sample		Field Sample		Field Sample		Field Sample	
	Sample Matrix:		Water		Water		Water		Water	
	Date Sampled:		9/9/2014		9/10/2014		9/9/2014		9/9/2014	
	CLP Sample ID:		MC0AC5		MC0AD1		MC0AD2		MC0AD3	
	Units:		ug/L		ug/L		ug/L		ug/L	
Parameter	**CRQL**	**MCL**	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Aluminum	20	50*	1.6	B	3.3	B	57700		477	
Antimony	2	6	0.32	B	0.2	B	2	U	2	U
Arsenic	1	10	0.22	B	1	U	11.4		51.1	
Barium	10	2,000	0.98	J	1.6	J	212		11.1	
Beryllium	1	4	1	U	1	U	2.1		1	U
Cadmium	1	5	1	U	0.074	J	0.44	J	0.073	J
Calcium	500	NL	26000		1120		14500		10100	
Chromium	2	100	0.26	B	2.3	J	45.4	J	94	J
Cobalt	1	NL	0.42	J	0.044	J	13		6.2	
Copper	2	1,300	5.5		1.6	J	42.2		2.9	
Iron	200	300*	224		76.1	B	20700		17400	
Lead	1	15	0.49	B	1.6		29.5		2.1	
Magnesium	500	NL	13400		365	B	4090		1590	
Manganese	1	50*	2	J	1.9	J	831	J	603	J
Nickel	1	NL	0.6	J	0.89	J	11	J	27.1	J
Potassium	500	NL	12500	J	6300	J	3830	J	1420	J
Selenium	5	50	0.25	B	5	U	5	U	5	U
Silver	1	100*	1	U	1	U	0.24	J	1	U
Sodium	500	NL	15500	J	114000	J	3620	J	3320	J
Thallium	1	2	0.049	B	1	U	1	U	1	U
Vanadium	5	NL	5	U	5	U	48.6		3.1	J
Zinc	2	5,000*	49.7		15.5		67.7		12.5	

Table 3
New Kent Wood Preservatives, Inc.
Analytical Results for Metals in Surface Water Samples

	Sample Number:	NKWP-SW-01		NKWP-SW-02		NKWP-SW-03		NKWP-SW-04		NKWP-SW-04-01		NKWP-SW-05		NKWP-SW-06		NKWP-SW-07		NKWP-SW-08	
	Sampling Location:	SW01		SW02		SW03		SW04		SW04		SW05		SW06		SW07		SW08	
	Sample Type:	Field Sample		Field Sample		Background Sample		Field Sample		Duplicate Sample		Field Sample		Field Sample		Field Sample		Field Sample	
	Sample Matrix:	Water		Water		Water		Water		Water		Water		Water		Water		Water	
	Date Sampled:	9/11/2014		9/11/2014		9/11/2014		9/11/2014		9/11/2014		9/11/2014		9/11/2014		9/11/2014		9/11/2014	
	CLP Sample ID:	MC0AG7		MC0AG8		MC0AG9		MC0AH0		MC0AH1		MC0AH2		MC0AH3		MC0AH4		MC0AH5	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
	CRQL	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	200	200	U	200	U	200	U	200	U	200	U	200	U	200	U	200	U	200	U
Antimony	60.0	60	U	60	U	60	U	60	U	60	U	60	U	60	U	60	U	60	U
Arsenic	10.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Barium	200	30.4	J	39	J	30.2	J	37.7	J	39.3	J	39.9	J	41.6	J	40.9	J	39	J
Beryllium	5.0	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Cadmium	5.0	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Calcium	5000	12600		23100		11900		24200		24700		25100		26800		25600		23900	
Chromium	10.0	10	U	10	U	10	U	10	U	10	U	1.3	J	0.69	J	0.68	J	10	U
Cobalt	50.0	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Copper	25.0	25	U	25	U	25	U	25	U	25	U	25	U	25	U	25	U	25	U
Iron	100	2510		2440		2620		2350		2600		2680		2690		2880		2670	
Lead	10.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Magnesium	5000	760	J	1010	J	747	J	1010	J	996	J	998	J	1050	J	1010	J	923	J
Manganese	15.0	198	J+	107	J+	205	J+	94.5	J+	98.8	J+	102	J+	106	J+	140	J+	114	J+
Nickel	40.0	40	U	40	U	40	U	1.4	J	1.6	J	40	U	40	U	40	U	40	U
Potassium	5000	5000	UJ	5000	UJ	5000	UJ	488	J-	5000	UJ	5000	UJ	5000	UJ	5000	UJ	5000	UJ
Selenium	35.0	35	U	35	U	35	U	35	U	35	U	4	J+	35	U	4	J+	35	U
Silver	10.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Sodium	5000	5620		2480	J	6200		2700	J	2660	J	2440	J	2650	J	2520	J	2320	J
Thallium	25.0	25	U	25	U	25	U	25	U	25	U	25	U	25	U	25	U	25	U
Vanadium	50.0	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Zinc	60.0	60	U	60	U	60	U	60	U	11.1	J	60	U	60	U	60	U	5.1	J

Notes:
B - Value observed in blank. Appears to be blank contamination.
CRQL - Contract-required quantitation limit
J - Estimated value.
J+ - Estimated value, biased high.
J- - Estimated value, biased low.
U - Result not detected above the detection limit.
UJ - Result is estimated above the detection limit, but below the reporting limit
ug/L - Micrograms per liter

Table 3
New Kent Wood Preservatives, Inc.
Analytical Results for Metals in Surface Water Samples

	Sample Number:	NKWP-SW-09		NKWP-SW-10		NKWP-SW-11		NKWP-SW-12		NKWP-SW-13		NKWP-SW-14		NKWP-SW-15	
	Sampling Location:	SW09		SW10		SW11		SW12		SW13		SW14		SW15	
	Sample Type:	Field Sample		Field Sample		Field Sample		Field Sample		Field Sample		Background Sample		Background Sample	
	Sample Matrix:	Water		Water		Water		Water		Water		Water		Water	
	Date Sampled:	9/11/2014		9/11/2014		9/11/2014		9/11/2014		9/11/2014		9/11/2014		9/11/2014	
	CLP Sample ID:	MC0AH6		MC0AH7		MC0AH8		MC0AH9		MC0AJ0		MC0AJ1		MC0AJ2	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
	CRQL	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	200	200	U	200	U	200	U	200	U	143	J	50.2	J	200	U
Antimony	60.0	60	U	60	U	60	U	60	U	60	U	60	U	60	U
Arsenic	10.0	10	U	10	U	10	U	10	U	4.3	J	10	U	10	U
Barium	200	40.3	J	40.1	J	39.3	J	41.7	J	47.4	J	29.9	J	30.4	J
Beryllium	5.0	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Cadmium	5.0	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Calcium	5000	25200		25200		27100		27400		25900		25900		27300	
Chromium	10.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Cobalt	50.0	50	U	50	U	50	U	50	U	2.6	J	50	U	50	U
Copper	25.0	25	U	25	U	25	U	25	U	25	U	25	U	25	U
Iron	100	2250		2760		3060		3470		6280		2120		1780	
Lead	10.0	10	U	10	U	10	U	10	U	2.6	J+	10	U	2	J+
Magnesium	5000	977	J	925	J	924	J	919	J	853	J	767	J	794	J
Manganese	15.0	103	J+	97.5	J+	87.7	J+	131	J+	222	J+	43.6	J+	23.3	J+
Nickel	40.0	1.8	J	40	U	40	U	1.4	J	40	U	40	U	40	U
Potassium	5000	5000	UJ	5000	UJ	5000	UJ	5000	UJ	5000	UJ	5000	UJ	5000	UJ
Selenium	35.0	35	U	35	U	35	U	35	U	35	U	35	U	35	U
Silver	10.0	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Sodium	5000	2490	J	2440	J	2240	J	2390	J	2300	J	2090	J	2250	J
Thallium	25.0	25	U	25	U	25	U	25	U	25	U	25	U	25	U
Vanadium	50.0	50	U	50	U	50	U	50	U	50	U	50	U	50	U
Zinc	60.0	6.9	J	4.4	J	60	U	5.7	J	14.5	J	60	U	60	U

Table 4a
New Kent Wood Preservatives, Inc
Analytical Results for Metals in Inundated Sediment Samples

	Sample Number:		NKWP-SD-01		NKWP-SD-02		NKWP-SD-03		NKWP-SD-04		NKWP-SD-04-01	
	Sampling Location:		SD01		SD02		SD03		SD04		SD04	
	Sample Type:		Field Sample		Field Sample		Background Sample		Field Sample		Field Sample	
	Sample Matrix:		Sediment		Sediment		Sediment		Sediment		Sediment	
	Date Sampled:		9/11/2014		9/11/2014		9/11/2014		9/11/2014		9/11/2014	
	CLP Sample ID:		MC0AJ7		MC0AJ8		MC0AJ9		MC0AK0		MC0AK1	
	Units:		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
	CRQL	**BTAG**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	20	NL	1060		3630		1550		1210		1210	
Antimony	6	2	6.6	U	0.56	J	7.7	U	8.2	U	8.2	U
Arsenic	1	9.8	1.1	J	**13**		1.5		0.88	J	0.88	J
Barium	20	NL	16.9	J	53.4		23	J	15.2	J	15.2	J
Beryllium	0.5	NL	0.29	J	0.54	J	0.36	J	0.37	J	0.37	J
Cadmium	0.5	0.99	0.12	J	0.23	J	0.049	J	0.059	J	0.059	J
Calcium	500	NL	893		1950		563	J	1260		1260	
Chromium	1	43.4	2.5	J	9.2	J	2.8	J	2.5	J	2.5	J
Cobalt	5	50	4.7	J	3.9	J	1.6	J	1.4	J	1.4	J
Copper	2.5	31.6	2.8	U	**9.1**		1.4	J	1.3	J	1.3	J
Iron	10	20,000	2800		9200		2110		3190		3190	
Lead	1	35.8	8		21.4		22.1		4.8		4.8	
Magnesium	500	NL	157	J	245	J	82.8	J	58.4	J	58.4	J
Manganese	1.5	460	36.9		**1540**		59.7		70.8		70.8	
Nickel	4	NL	1.6	J	4.9	J	1.2	J	1.2	J	1.2	J
Potassium	500	NL	552	UJ	683	UJ	642	UJ	687	UJ	687	UJ
Selenium	3.5	2	3.9	U	4.8	U	4.5	U	4.8	U	4.8	U
Silver	1	1	1.1	U	1.4	U	1.3	U	1.4	U	1.4	U
Sodium	500	NL	552	U	50.2	J	642	U	687	U	687	U
Thallium	2.5	NL	2.8	U	3.4	U	3.2	U	3.4	U	3.4	U
Vanadium	5	NL	4.7	J	11.8		3.5	J	5.7	J	5.7	J
Zinc	6	121	13.9		**29.2**		7.7	U	9.5		9.5	

Notes:
BTAG - EPA freshwater sediments screening benchmarks (EPA, 2004)
Bolded value indicates concentration is 3X background
Shaded value indicates concentration exceeds BTAG standard
CRQL - Contract required quantitation Limit
RSL - Regional Screening Level
J - Estimated value.
J+ - Estimated value, biased high.
mg/kg - milligrams per kilogram
NL - No listing
U - Result not detected above the detection limit.
UJ - Result is estimated above the detection limit, but below the reporting limit.

Table 4a
New Kent Wood Preservatives, Inc
Analytical Results for Metals in Inundated Sediment Samples

	Sample Number:		NKWP-SD-05		NKWP-SD-06		NKWP-SD-07		NKWP-SD-08		NKWP-SD-09		NKWP-SD-10	
	Sampling Location:		SD05		SD06		SD07		SD08		SD09		SD10	
	Sample Type:		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample	
	Sample Matrix:		Sediment		Sediment		Sediment		Sediment		Sediment		Sediment	
	Date Sampled:		9/11/2014		9/11/2014		9/11/2014		9/11/2014		9/11/2014		9/11/2014	
	CLP Sample ID:		MC0AK2		MC0AK3		MC0AK4		MC0AK5		MC0AK6		MC0AK7	
	Units:		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
	CRQL	**BTAG**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	20	NL	743		3890		2830		5460		6820		617	
Antimony	6	2	6.1	U	0.26	J	6.4	U	6.1	U	10.4	U	6.1	U
Arsenic	1	9.8	0.46	J-	3.7		2		2		**8.2**		1.9	
Barium	20	NL	7.3	J	41.5		36.3		42.8		83.1		6.8	J
Beryllium	0.5	NL	0.15	J	0.68	J	0.94		0.49	J	1.2		0.18	J
Cadmium	0.5	0.99	0.51	U	0.098	J	0.94		0.5	U	0.11	J	0.51	U
Calcium	500	NL	170	J	1300		1560		404	J	1640		184	J
Chromium	1	43.4	1.9	J	6.8	J	5	J	8.4	J	**12.1**	J	2.2	J
Cobalt	5	50	0.92	J	7	J	2.8	J	3.3	J	14.2		0.97	J
Copper	2.5	31.6	0.48	J	2.9	J	2.7		1.9	J	**4.8**		1.7	J
Iron	10	20,000	1810		11500		5460		6350		20900		6810	
Lead	1	35.8	2.7		10.1		9.6		9.4		15.2		1.9	
Magnesium	500	NL	36	J	184	J	127	J	253	J	308	J	38.6	J
Manganese	1.5	460	18.6		95.2		60.9		38.1		534		50	
Nickel	4	NL	0.65	J	3.6	J	2.7	J	2.9	J	6.3	J	1	J
Potassium	500	NL	510	UJ	746	U	535	U	504	U	870	U	512	UJ
Selenium	3.5	2	3.6	U	5.2	U	3.7	U	3.5	U	6.1	U	3.6	U
Silver	1	1	1	U	1.5	U	1.1	U	1	U	1.7	U	1	U
Sodium	500	NL	510	U	746	U	535	U	504	U	870	U	512	U
Thallium	2.5	NL	2.6	U	3.7	U	2.7	U	2.5	U	4.4	U	2.6	U
Vanadium	5	NL	2.9	J	13.1		13.2		15		21.4		2.3	J
Zinc	6	121	6.1	U	**29.1**		21.9		11.9		**43.5**		9.4	

Table 4a
New Kent Wood Preservatives, Inc
Analytical Results for Metals in Inundated Sediment Samples

	Sample Number:		NKWP-SD-11		NKWP-SD-12		NKWP-SD-13		NKWP-SD-14		NKWP-SD-15	
	Sampling Location:		SD11		SD12		SD13		SD14		SD15	
	Sample Type:		Field Sample		Field Sample		Field Sample		Background Sample		Background Sample	
	Sample Matrix:		Sediment		Sediment		Sediment		Sediment		Sediment	
	Date Sampled:		9/11/2014		9/11/2014		9/11/2014		9/11/2014		9/11/2014	
	CLP Sample ID:		MC0AK8		MC0AK9		MC0AL0		MC0AL1		MC0AL2	
	Units:		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
	CRQL	**BTAG**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	20	NL	7140		3230		8600		288		2070	
Antimony	6	2	0.29	J	6.9	U	0.26	J	5.6	U	6.4	U
Arsenic	1	9.8	**8.8**		2.5		**11.4**		0.93	UJ	1.3	
Barium	20	NL	66.2		29.8		68.7		2.7	J	17.2	J
Beryllium	0.5	NL	0.61	J	0.29	J	0.8		0.47	U	0.36	J
Cadmium	0.5	0.99	0.13	J	0.029	J	0.044	J	0.47	U	0.53	U
Calcium	500	NL	2890		970		818		85.9	J	343	J
Chromium	1	43.4	**47.6**	J	**16.7**	J	**26.3**	J	1	J	3.8	J
Cobalt	5	50	3.9	J	2.3	J	5.1	J	0.3	J	1.5	J
Copper	2.5	31.6	**27.2**		**7.7**		**13.2**		2.3	U	1.2	J
Iron	10	20,000	8170		4260		9800		776		4530	
Lead	1	35.8	12.9		5.6		21.4		1		12.6	
Magnesium	500	NL	569	J	267	J	433	J	15.7	J	94.9	J
Manganese	1.5	460	62		37.3		77.3		10		26.6	
Nickel	4	NL	5.7		2.5	J	4.6	J	0.29	J	1.3	J
Potassium	500	NL	694	U	579	U	751	U	465	UJ	533	U
Selenium	3.5	2	4.9	U	4	U	5.3	U	3.3	U	3.7	U
Silver	1	1	1.4	U	1.2	U	1.5	U	0.93	U	1.1	U
Sodium	500	NL	694	U	579	U	751	U	465	U	533	U
Thallium	2.5	NL	3.5	U	2.9	U	3.8	U	2.3	U	2.7	U
Vanadium	5	NL	14.8		8.6		22.4		1.6	J	7.6	
Zinc	6	121	**96.8**		**39.5**		**50.7**		5.6	U	8.9	

Table 4b
New Kent Wood Preservatives, Inc
Analytical Results for Metals in Noninundated Sediment Samples

	Sample Number:		NKWP-WS-01		NKWP-WS-01-01		NKWP-WS-02		NKWP-WS-03		NKWP-WS-04	
	Sampling Location:		WS01		WS01		WS02		WS03		WS04	
	Sample Type:		Field Sample		Field Duplicate		Field Sample		Field Sample		Field Sample	
	Sample Matrix:		Sediment		Sediment		Sediment		Sediment		Sediment	
	Date Sampled:		9/10/2014		9/10/2014		9/10/2014		9/10/2014		9/10/2014	
	CLP Sample ID:		MC0AF6		MC0AF7		MC0AF8		MC0AF9		MC0AG0	
	Units:		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
	CRQL	**BTAG**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	20	NL	6150		6850		10600		9940		9650	
Antimony	6	2	0.75	J	0.79	J	0.34	J	0.52	J	1.5	J
Arsenic	1	9.8	**99.5**		**116**		9.7		7.2		**504**	
Barium	20	NL	90.9		90.8		100		90.3		90.5	
Beryllium	0.5	NL	0.37	J	0.48	J	1.3		1.2		0.65	
Cadmium	0.5	0.99	0.36	J	0.37	J	0.41	J	0.45	J	0.54	J
Calcium	500	NL	4290		4110		2370		1680		3270	
Chromium	1	43.4	**122**		**151**		35.4		16.7		**764**	
Cobalt	5	50	4.7	J	5	J	7.2	J	8.2		17.8	
Copper	2.5	31.6	78.8		90.4		18.2		7.4		**362**	
Iron	10	20,000	11200		13400		13800		14200		21800	
Lead	1	35.8	24.4		22.4		24.4		27.6		32.8	
Magnesium	500	NL	810		786		577	J	493	J	941	
Manganese	1.5	460	522		467		119		154		**835**	
Nickel	4	NL	5.3		5.7	J	7.8		7		9.5	
Potassium	500	NL	617	U	743	U	760	U	732	U	565	U
Selenium	3.5	2	2.3	J+	2.6	J+	2.7	J+	2.7	J+	3.6	J+
Silver	1	1	1.2	U	1.5	U	1.5	U	1.5	U	1.1	U
Sodium	500	NL	131	J	107	J	87.2	J	85.4	J	90.4	J
Thallium	2.5	NL	3.1	U	3.7	U	3.8	U	3.7	U	2.8	U
Vanadium	5	NL	15.5		17.8		30.3		27.9		25.1	
Zinc	6	121	100		98.3		53.9		36.7		82.2	

Notes:
BTAG - EPA freshwater sediments screening benchmarks (EPA, 2004)
Bolded value indicates concentration is 3X background
Shaded value indicates concentration exceeds BTAG standard
CRQL - Contract required quantitation Limit
RSL - Regional Screening Level
J - Estimated value.
J+ - Estimated value, biased high.
mg/kg - milligrams per kilogram
NL - No listing
U - Result not detected above the detection limit.
UJ - Result is estimated above the detection limit, but below the reporting limit.

Table 4b
New Kent Wood Preservatives, Inc
Analytical Results for Metals in Noninundated Sediment Samples

	Sample Number:		NKWP-WS-05		NKWP-WS-06		NKWP-WS-07		NKWP-WS-08		NKWP-WS-09	
	Sampling Location:		WS05		WS06		WS07		WS08		WS09	
	Sample Type:		Field Sample		Field Sample		Field Sample		Field Sample		Field Sample	
	Sample Matrix:		Sediment		Sediment		Sediment		Sediment		Sediment	
	Date Sampled:		9/10/2014		9/10/2014		9/10/2014		9/10/2014		9/10/2014	
	CLP Sample ID:		MC0AG1		MC0AG2		MC0AG3		MC0AG4		MC0AG5	
	Units:		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
	CRQL	**BTAG**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	20	NL	13200		13800		3240		4330		6660	
Antimony	6	2	0.33	J	12.7	UJ	6.7	UJ	6.4	UJ	0.29	J
Arsenic	1	9.8	18		15.9		2.5		12.5		4.1	
Barium	20	NL	119		113		41.4		40.5		52.5	
Beryllium	0.5	NL	1.4		1.4		0.15	J	0.22	J	0.23	J
Cadmium	0.5	0.99	0.53	J	0.37	J	0.27	J	0.15	J	0.19	J
Calcium	500	NL	2730		1720		3090		1400		2160	
Chromium	1	43.4	43.6		46.7		7		19.6		10.6	
Cobalt	5	50	11.1		5.9	J	0.76	J	1.4	J	2.1	J
Copper	2.5	31.6	19.6		20.6		5.4		11.9		7.8	
Iron	10	20,000	19300		12600		4710		5730		8550	
Lead	1	35.8	30.7		32.6		10.7		15.7		17.2	
Magnesium	500	NL	714	J	707	J	350	J	394	J	738	
Manganese	1.5	460	307		68.1		185		281		323	
Nickel	4	NL	9.2		8.3	J	2.2	J	2.6	J	3.4	J
Potassium	500	NL	856	U	1060	UJ	555	UJ	535	U	515	U
Selenium	3.5	2	3.7	J+	2.6	J+	0.9	J+	1	J+	1.5	J+
Silver	1	1	1.7	U	2.1	U	1.1	U	1.1	U	1	U
Sodium	500	NL	111	J	103	J	30.2	J	535	U	30.1	J
Thallium	2.5	NL	4.3	U	5.3	U	2.8	U	2.7	U	2.6	U
Vanadium	5	NL	36.1		40.8		11.5		12.1		19.2	
Zinc	6	121	55.2		43.2		15.8		39.5		35.7	

Table 4b
New Kent Wood Preservatives, Inc
Analytical Results for Metals in Noninundated Sediment Samples

	Sample Number:		NKWP-WS-10		NKWP-WS-11		NKWP-WS-12		NKWP-WS-13	
	Sampling Location:		WS10		WS11		WS12		WS13	
	Sample Type:		Field Sample		Background Sample		Background Sample		Background Sample	
	Sample Matrix:		Sediment		Sediment		Sediment		Sediment	
	Date Sampled:		9/10/2014		9/11/2014		9/11/2014		9/11/2014	
	CLP Sample ID:		MC0AG6		MC0AJ4		MC0AJ5		MC0AJ6	
	Units:		mg/kg		mg/kg		mg/kg		mg/kg	
	CRQL	**BTAG**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**	**Result**	**Flag**
Aluminum	20	NL	4600		10400		11100		11100	
Antimony	6	2	0.52	J	0.96	J	1.4	J	0.34	J
Arsenic	1	9.8	**59.2**		4.2		14.6		5	
Barium	20	NL	34.3		91.3		118		44.4	
Beryllium	0.5	NL	0.3	J	0.51	J	1.4		0.64	J
Cadmium	0.5	0.99	0.5	J	0.4	J	0.89	J	0.23	J
Calcium	500	NL	809		2240		3250		640	J
Chromium	1	43.4	32.7		18	J	21	J	15.9	J
Cobalt	5	50	1.5	J	6.2	J	12.6		2.7	J
Copper	2.5	31.6	35.5		47.9		27.4		12.9	
Iron	10	20,000	9390		18300		36400		12100	
Lead	1	35.8	30.9		37		46.3		49.9	
Magnesium	500	NL	366	J	1340		1290		760	
Manganese	1.5	460	175		152		166		29.6	
Nickel	4	NL	3.1	J	11.6		12.8		8.9	
Potassium	500	NL	445	U	895	J-	902	U	708	U
Selenium	3.5	2	1.6	J+	5.1	U	6.3	U	5	U
Silver	1	1	0.89	U	1.5	U	1.8	U	1.4	U
Sodium	500	NL	44.1	J	110	J	176	J	129	J
Thallium	2.5	NL	2.2	U	3.7	U	4.5	U	3.5	U
Vanadium	5	NL	12.1		29.1		43.7		29	
Zinc	6	121	93.2		767		498		31.3	

APPENDIX A

ANALYTICAL DATA VALIDATION REPORTS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: August 7, 2014

SUBJECT: Region III Data QA Review

FROM: Brandon McDonald
Region III ESAT PO (3EA22)

TO: Ruth Scharr
On-Scene Coordinator (3HS31)

Attached is the inorganic data validation report for the New Kent Wood Preservatives, Inc. site for Case 44460; SDG#:MC0AA0 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Laura Mathew (WESTON)
Eric Armistead (WESTON)

TO: #0002 TDF: #0814016

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ICF International
ESAT Region 3
US Environmental Protection Agency Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Phone 410-305-3011

Date: August 6, 2014

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Mahboobeh Mecanic
Data Review Chemist

Kenneth W. Curry
Oversight Chemist

Subject: Inorganic Data Validation (S4VEM)
Site: New Kent Wood Preservatives, Inc.
Case: 44460, SDG MC0AA0

OVERVIEW

Case 44460, Sample Delivery Group (SDG) MC0AA0, consisted of twenty (20) soil samples analyzed for metals by ICP AES. All samples were analyzed by ALS Environmental (DATAC) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM01.3 through the Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to Inorganic National Functional Guidelines utilizing Environmental Data Exchange and Evaluation System (EXES) and is assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). Areas of concern with respect to data usability are discussed below.

MINOR PROBLEMS

Matrix Spike recovery was low (<75%) for Sb. The post digestion spike recovery for this analyte was >75%. Positive results and quantitation limits for this analyte are estimated and are qualified “J” and “UJ”, respectively.

Laboratory duplicate analysis was outside the control limits [20% Relative Percent Difference (RPD), ± CRQL] for calcium (Ca) and iron (Fe). Positive results for these analytes are estimated and are qualified “J”.

The Interference Check Standard (ICS) solutions A and AB reported positive results >MDL for K. Positive results for this analyte may have contributions from interfering analytes. Positive results for this analyte were considered estimated high and qualified "J+".

NOTES

Analytes detected below CRQLs are qualified "J" unless reported at CRQLs and qualified "U" due to the presence of these analytes in the associated laboratory blanks.

Laboratory blanks reported positive results greater than Method Detection Limit (>MDL) but less than Contract Required Quantitation Limit (<CRQL) for barium (Ba), beryllium (Be), cadmium (Cd), cobalt (Co), nickel (Ni), potassium (K), sodium (Na) and vanadium (V). Positive results <CRQL for these analytes in affected samples are raised to the CRQL and qualified "U" due to blank contamination.

Both the Analytical Request Form (ARF) and Chain of Custody (COC) records requested analysis for arsenic (As), chromium (Cr) and copper (Cu) only. The laboratory analyzed and reported results for all ICP AES analytes. No action was taken by the reviewer.

Arsenic (As), Cr and Cu were detected above their respective CRQLs in all samples.

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
B	The result is presumed a blank contaminant. This qualifier is used only for drinking water samples.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

DCN: R3ESAT-2014-V379

Sample Summary Report

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	LCS	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:	07/10/2014	Sample Time:	14:40:37
% Moisture :				% Solids :	100.0		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Spike				43.371		1.0	Yes	S4VEM
Antimony	Spike				12.044		1.0	Yes	S4VEM
Arsenic	Spike				2.1737		1.0	Yes	S4VEM
Barium	Spike				42.155		1.0	Yes	S4VEM
Beryllium	Spike				1.0196		1.0	Yes	S4VEM
Cadmium	Spike				1.1059		1.0	Yes	S4VEM
Chromium	Spike				2.1678		1.0	Yes	S4VEM
Cobalt	Spike				10.413		1.0	Yes	S4VEM
Copper	Spike				5.3047		1.0	Yes	S4VEM
Iron	Spike				21.737		1.0	Yes	S4VEM
Lead	Spike				2.4143		1.0	Yes	S4VEM
Manganese	Spike				3.2317		1.0	Yes	S4VEM
Nickel	Spike				8.7611		1.0	Yes	S4VEM
Selenium	Spike				7.2429		1.0	Yes	S4VEM
Silver	Spike				2.0664		1.0	Yes	S4VEM
Thallium	Spike				5.1272		1.0	Yes	S4VEM
Magnesium	Spike				1043		1.0	Yes	S4VEM
Vanadium	Spike				10.458		1.0	Yes	S4VEM
Potassium	Spike				1011.2		1.0	Yes	S4VEM
Zinc	Spike				13.068		1.0	Yes	S4VEM
Calcium	Spike				1090.9		1.0	Yes	S4VEM
Sodium	Spike				1045.1		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AA0	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	BKG01	pH:		Sample Date:	06/20/2014	Sample Time:	08:45:00
% Moisture :				% Solids :	77.052		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	3860		mg/kg	3862.262385432		1.0	Yes	S4VEM
Antimony	Target	6.4	UJ	mg/kg	6.435495101945	UN	1.0	Yes	S4VEM
Arsenic	Target	1.8		mg/kg	1.784026500511		1.0	Yes	S4VEM
Barium	Target	56.0		mg/kg	55.98022672678		1.0	Yes	S4VEM
Beryllium	Target	0.54	U	mg/kg	0.1856104045653	J	1.0	Yes	S4VEM
Cadmium	Target	0.54	U	mg/kg	0.06346041720028	J	1.0	Yes	S4VEM
Calcium	Target	2540	J	mg/kg	2540.840724499	*	1.0	Yes	S4VEM
Chromium	Target	4.3		mg/kg	4.310601877534		1.0	Yes	S4VEM
Cobalt	Target	5.4	U	mg/kg	0.7187911737614	J	1.0	Yes	S4VEM
Copper	Target	2.9		mg/kg	2.893184081331		1.0	Yes	S4VEM
Iron	Target	3680	J	mg/kg	3683.248363346	*	1.0	Yes	S4VEM
Lead	Target	18.1		mg/kg	18.06550733368		1.0	Yes	S4VEM
Magnesium	Target	258	J	mg/kg	258.2671442662	J	1.0	Yes	S4VEM
Manganese	Target	179		mg/kg	178.7244248062		1.0	Yes	S4VEM
Nickel	Target	4.3	U	mg/kg	2.254461192463	J	1.0	Yes	S4VEM
Potassium	Target	536	U	mg/kg	211.5239981758	J	1.0	Yes	S4VEM
Selenium	Target	3.8	U	mg/kg	3.754038809468	U	1.0	Yes	S4VEM
Silver	Target	1.1	U	mg/kg	1.072582516991	U	1.0	Yes	S4VEM
Sodium	Target	536	U	mg/kg	11.65039129955	J	1.0	Yes	S4VEM
Thallium	Target	2.7	U	mg/kg	2.681456292477	U	1.0	Yes	S4VEM
Vanadium	Target	8.5		mg/kg	8.535611670213		1.0	Yes	S4VEM
Zinc	Target	13.2		mg/kg	13.16916814361		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AA1	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	BKG02	pH:		Sample Date:	06/20/2014	Sample Time:	08:49:00
% Moisture :				% Solids :	70.522		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	4700		mg/kg	4701.973747094		1.0	Yes	S4VEM
Antimony	Target	6.3	UJ	mg/kg	6.302209869891	UN	1.0	Yes	S4VEM
Arsenic	Target	1.8		mg/kg	1.804217648919		1.0	Yes	S4VEM
Barium	Target	83.0		mg/kg	83.0305646675		1.0	Yes	S4VEM
Beryllium	Target	0.53	U	mg/kg	0.3321789785588	J	1.0	Yes	S4VEM
Cadmium	Target	0.53	U	mg/kg	0.1285125629302	J	1.0	Yes	S4VEM
Calcium	Target	2180	J	mg/kg	2181.089799138	*	1.0	Yes	S4VEM
Chromium	Target	4.3		mg/kg	4.279725685812		1.0	Yes	S4VEM
Cobalt	Target	5.3	U	mg/kg	1.295104128263	J	1.0	Yes	S4VEM
Copper	Target	3.3		mg/kg	3.331138063562		1.0	Yes	S4VEM
Iron	Target	3520	J	mg/kg	3517.57843888	*	1.0	Yes	S4VEM
Lead	Target	14.2		mg/kg	14.24509504258		1.0	Yes	S4VEM
Magnesium	Target	481	J	mg/kg	481.1632198831	J	1.0	Yes	S4VEM
Manganese	Target	150		mg/kg	150.0976317346		1.0	Yes	S4VEM
Nickel	Target	4.2	U	mg/kg	2.92611604259	J	1.0	Yes	S4VEM
Potassium	Target	525	U	mg/kg	273.7259820156	J	1.0	Yes	S4VEM
Selenium	Target	3.7	U	mg/kg	3.67628909077	U	1.0	Yes	S4VEM
Silver	Target	1.1	U	mg/kg	1.050368311648	U	1.0	Yes	S4VEM
Sodium	Target	525	U	mg/kg	11.41645317931	J	1.0	Yes	S4VEM
Thallium	Target	2.6	U	mg/kg	2.625920779121	U	1.0	Yes	S4VEM
Vanadium	Target	7.6		mg/kg	7.563912285843		1.0	Yes	S4VEM
Zinc	Target	29.9		mg/kg	29.94074872354		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AA2	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	BKG03	pH:		Sample Date:	06/20/2014	Sample Time:	08:55:00
% Moisture :				% Solids :	66.368		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	3230		mg/kg	3227.385516382		1.0	Yes	S4VEM
Antimony	Target	7.4	UJ	mg/kg	7.350001176	UN	1.0	Yes	S4VEM
Arsenic	Target	2.3		mg/kg	2.333135373302		1.0	Yes	S4VEM
Barium	Target	54.9		mg/kg	54.8800087808		1.0	Yes	S4VEM
Beryllium	Target	0.61	U	mg/kg	0.1280492704879	J	1.0	Yes	S4VEM
Cadmium	Target	0.61	U	mg/kg	0.2824605451937	J	1.0	Yes	S4VEM
Calcium	Target	3850	J	mg/kg	3845.888115342	*	1.0	Yes	S4VEM
Chromium	Target	4.6		mg/kg	4.571945731511		1.0	Yes	S4VEM
Cobalt	Target	6.1	U	mg/kg	0.93712514994	J	1.0	Yes	S4VEM
Copper	Target	6.5		mg/kg	6.469348535096		1.0	Yes	S4VEM
Iron	Target	4670	J	mg/kg	4668.108246897	*	1.0	Yes	S4VEM
Lead	Target	28.9		mg/kg	28.93817963011		1.0	Yes	S4VEM
Magnesium	Target	366	J	mg/kg	365.5155584825	J	1.0	Yes	S4VEM
Manganese	Target	147		mg/kg	146.8897735024		1.0	Yes	S4VEM
Nickel	Target	4.9	U	mg/kg	2.640120422419	J	1.0	Yes	S4VEM
Potassium	Target	613	U	mg/kg	307.0462991274	J	1.0	Yes	S4VEM
Selenium	Target	4.3	U	mg/kg	4.287500686	U	1.0	Yes	S4VEM
Silver	Target	1.2	U	mg/kg	1.225000196	U	1.0	Yes	S4VEM
Sodium	Target	613	U	mg/kg	11.8081443893	J	1.0	Yes	S4VEM
Thallium	Target	3.1	U	mg/kg	3.06250049	U	1.0	Yes	S4VEM
Vanadium	Target	8.3		mg/kg	8.346416335427		1.0	Yes	S4VEM
Zinc	Target	62.6		mg/kg	62.55341000855		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AA3	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	041	pH:		Sample Date:	06/20/2014	Sample Time:	15:08:00
% Moisture :				% Solids :	84.089		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	2360		mg/kg	2357.176306356		1.0	Yes	S4VEM
Antimony	Target	5.6	UJ	mg/kg	5.618344193437	UN	1.0	Yes	S4VEM
Arsenic	Target	101		mg/kg	101.2706540867		1.0	Yes	S4VEM
Barium	Target	22.2		mg/kg	22.18122287569		1.0	Yes	S4VEM
Beryllium	Target	0.47	U	mg/kg	0.2387047169651	J	1.0	Yes	S4VEM
Cadmium	Target	0.47	U	mg/kg	0.3198523349323	J	1.0	Yes	S4VEM
Calcium	Target	1690	J	mg/kg	1692.900744552	*	1.0	Yes	S4VEM
Chromium	Target	134		mg/kg	133.51058585		1.0	Yes	S4VEM
Cobalt	Target	4.7	U	mg/kg	2.532936840541	J	1.0	Yes	S4VEM
Copper	Target	75.5		mg/kg	75.50586400629		1.0	Yes	S4VEM
Iron	Target	8120	J	mg/kg	8118.039164166	*	1.0	Yes	S4VEM
Lead	Target	12.9		mg/kg	12.89690909603		1.0	Yes	S4VEM
Magnesium	Target	345	J	mg/kg	344.5355937555	J	1.0	Yes	S4VEM
Manganese	Target	82.3		mg/kg	82.32934302922		1.0	Yes	S4VEM
Nickel	Target	3.7	U	mg/kg	3.077541671025	J	1.0	Yes	S4VEM
Potassium	Target	468	U	mg/kg	232.6649969572	J	1.0	Yes	S4VEM
Selenium	Target	3.3	U	mg/kg	3.277367446171	U	1.0	Yes	S4VEM
Silver	Target	0.94	U	mg/kg	0.9363906989061	U	1.0	Yes	S4VEM
Sodium	Target	468	U	mg/kg	16.19019518409	J	1.0	Yes	S4VEM
Thallium	Target	2.3	U	mg/kg	2.340976747265	U	1.0	Yes	S4VEM
Vanadium	Target	7.2		mg/kg	7.221070513684		1.0	Yes	S4VEM
Zinc	Target	41.1		mg/kg	41.14126174714		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AA4	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	045	pH:		Sample Date:	06/20/2014	Sample Time:	15:30:00
% Moisture :				% Solids :	94.314		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	4170		mg/kg	4165.633426855		1.0	Yes	S4VEM
Antimony	Target	4.3	UJ	mg/kg	4.327706017199	UN	1.0	Yes	S4VEM
Arsenic	Target	26.3		mg/kg	26.29586304484		1.0	Yes	S4VEM
Barium	Target	31.9		mg/kg	31.87716123835		1.0	Yes	S4VEM
Beryllium	Target	0.36	U	mg/kg	0.2747949064054	J	1.0	Yes	S4VEM
Cadmium	Target	0.36	U	mg/kg	0.2004377041866	J	1.0	Yes	S4VEM
Calcium	Target	831	J	mg/kg	830.5589131341	*	1.0	Yes	S4VEM
Chromium	Target	49.4		mg/kg	49.40725574535		1.0	Yes	S4VEM
Cobalt	Target	8.3		mg/kg	8.279622895238		1.0	Yes	S4VEM
Copper	Target	22.3		mg/kg	22.30932451866		1.0	Yes	S4VEM
Iron	Target	13500	J	mg/kg	13518.31102906	*	1.0	Yes	S4VEM
Lead	Target	16.9		mg/kg	16.91483896822		1.0	Yes	S4VEM
Magnesium	Target	204	J	mg/kg	203.6185681092	J	1.0	Yes	S4VEM
Manganese	Target	166		mg/kg	166.2632523374		1.0	Yes	S4VEM
Nickel	Target	7.1		mg/kg	7.055098477672		1.0	Yes	S4VEM
Potassium	Target	361	U	mg/kg	210.4635564598	J	1.0	Yes	S4VEM
Selenium	Target	0.39	J	mg/kg	0.3922344220255	J	1.0	Yes	S4VEM
Silver	Target	0.72	U	mg/kg	0.7212843361999	U	1.0	Yes	S4VEM
Sodium	Target	361	U	mg/kg	10.93394925245	J	1.0	Yes	S4VEM
Thallium	Target	1.8	U	mg/kg	1.8032108405	U	1.0	Yes	S4VEM
Vanadium	Target	12.9		mg/kg	12.88718723488		1.0	Yes	S4VEM
Zinc	Target	16.0		mg/kg	16.02477409735		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AA5	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	062	pH:		Sample Date:	06/20/2014	Sample Time:	15:33:00
% Moisture :				% Solids :	92.995		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	3020		mg/kg	3021.244474663		1.0	Yes	S4VEM
Antimony	Target	5.1	UJ	mg/kg	5.080283293531	UN	1.0	Yes	S4VEM
Arsenic	Target	21.9		mg/kg	21.89771442288		1.0	Yes	S4VEM
Barium	Target	29.8		mg/kg	29.82041621914		1.0	Yes	S4VEM
Beryllium	Target	0.42	U	mg/kg	0.1724248149824	J	1.0	Yes	S4VEM
Cadmium	Target	0.42	U	mg/kg	0.1809512237767	J	1.0	Yes	S4VEM
Calcium	Target	4650	J	mg/kg	4654.640224921	*	1.0	Yes	S4VEM
Chromium	Target	46.8		mg/kg	46.76739457248		1.0	Yes	S4VEM
Cobalt	Target	4.2	U	mg/kg	2.904059273359	J	1.0	Yes	S4VEM
Copper	Target	25.7		mg/kg	25.73840859279		1.0	Yes	S4VEM
Iron	Target	9050	J	mg/kg	9049.677973543	*	1.0	Yes	S4VEM
Lead	Target	10.2		mg/kg	10.23084383929		1.0	Yes	S4VEM
Magnesium	Target	896		mg/kg	895.9079588141		1.0	Yes	S4VEM
Manganese	Target	116		mg/kg	116.3723559771		1.0	Yes	S4VEM
Nickel	Target	4.6		mg/kg	4.566581981167		1.0	Yes	S4VEM
Potassium	Target	423	U	mg/kg	404.297411638	J	1.0	Yes	S4VEM
Selenium	Target	3.0	U	mg/kg	2.963498587893	U	1.0	Yes	S4VEM
Silver	Target	0.85	U	mg/kg	0.8467138822551	U	1.0	Yes	S4VEM
Sodium	Target	423	U	mg/kg	23.26007705943	J	1.0	Yes	S4VEM
Thallium	Target	2.1	U	mg/kg	2.116784705638	U	1.0	Yes	S4VEM
Vanadium	Target	9.5		mg/kg	9.477268484082		1.0	Yes	S4VEM
Zinc	Target	22.7		mg/kg	22.67753790844		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AA6	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	067	pH:		Sample Date:	06/20/2014	Sample Time:	15:36:00
% Moisture :				% Solids :	88.786		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	2570		mg/kg	2574.464317447		1.0	Yes	S4VEM
Antimony	Target	0.33	J	mg/kg	0.333988153788	JN	1.0	Yes	S4VEM
Arsenic	Target	229		mg/kg	229.3514117591		1.0	Yes	S4VEM
Barium	Target	35.8		mg/kg	35.7585780541		1.0	Yes	S4VEM
Beryllium	Target	0.39	U	mg/kg	0.157142830326 1	J	1.0	Yes	S4VEM
Cadmium	Target	0.39	U	mg/kg	0.294825635673 3	J	1.0	Yes	S4VEM
Calcium	Target	12900	J	mg/kg	12939.19586922	*	1.0	Yes	S4VEM
Chromium	Target	143		mg/kg	143.4942195591		1.0	Yes	S4VEM
Cobalt	Target	3.9	U	mg/kg	1.173154801683	J	1.0	Yes	S4VEM
Copper	Target	332		mg/kg	332.4707724191		1.0	Yes	S4VEM
Iron	Target	5330	J	mg/kg	5334.37766715	*	1.0	Yes	S4VEM
Lead	Target	19.0		mg/kg	19.01576074306		1.0	Yes	S4VEM
Magnesium	Target	5210		mg/kg	5214.238606187		1.0	Yes	S4VEM
Manganese	Target	87.4		mg/kg	87.44496754994		1.0	Yes	S4VEM
Nickel	Target	3.2		mg/kg	3.183763331056		1.0	Yes	S4VEM
Potassium	Target	391	U	mg/kg	257.8844387378	J	1.0	Yes	S4VEM
Selenium	Target	2.7	U	mg/kg	2.737543706841	U	1.0	Yes	S4VEM
Silver	Target	0.78	U	mg/kg	0.782155344811 6	U	1.0	Yes	S4VEM
Sodium	Target	391	U	mg/kg	30.02850799801	J	1.0	Yes	S4VEM
Thallium	Target	2.0	U	mg/kg	1.955388362029	U	1.0	Yes	S4VEM
Vanadium	Target	6.6		mg/kg	6.595759591727		1.0	Yes	S4VEM
Zinc	Target	93.7		mg/kg	93.70221030843		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AA7	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	073	pH:		Sample Date:	06/20/2014	Sample Time:	15:39:00
% Moisture :				% Solids :	75.551		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	5780		mg/kg	5783.211596866		1.0	Yes	S4VEM
Antimony	Target	6.4	UJ	mg/kg	6.404560730393	UN	1.0	Yes	S4VEM
Arsenic	Target	52.1		mg/kg	52.13419177219		1.0	Yes	S4VEM
Barium	Target	61.2		mg/kg	61.15074585379		1.0	Yes	S4VEM
Beryllium	Target	0.53	U	mg/kg	0.2994559112174	J	1.0	Yes	S4VEM
Cadmium	Target	0.53	U	mg/kg	0.3745600600492	J	1.0	Yes	S4VEM
Calcium	Target	5830	J	mg/kg	5829.75140484	*	1.0	Yes	S4VEM
Chromium	Target	71.6		mg/kg	71.59551697828		1.0	Yes	S4VEM
Cobalt	Target	5.3	U	mg/kg	5.132081255943	J	1.0	Yes	S4VEM
Copper	Target	69.2		mg/kg	69.24290833665		1.0	Yes	S4VEM
Iron	Target	11400	J	mg/kg	11402.25295368	*	1.0	Yes	S4VEM
Lead	Target	24.0		mg/kg	24.01817016576		1.0	Yes	S4VEM
Magnesium	Target	1090		mg/kg	1087.174183984		1.0	Yes	S4VEM
Manganese	Target	208		mg/kg	208.2442921487		1.0	Yes	S4VEM
Nickel	Target	5.9		mg/kg	5.858144957412		1.0	Yes	S4VEM
Potassium	Target	534	U	mg/kg	532.1762996241	J	1.0	Yes	S4VEM
Selenium	Target	0.68	J	mg/kg	0.6830570761643	J	1.0	Yes	S4VEM
Silver	Target	1.1	U	mg/kg	1.067426788399	U	1.0	Yes	S4VEM
Sodium	Target	534	U	mg/kg	40.73620852567	J	1.0	Yes	S4VEM
Thallium	Target	2.7	U	mg/kg	2.668566970997	U	1.0	Yes	S4VEM
Vanadium	Target	15.8		mg/kg	15.83207412553		1.0	Yes	S4VEM
Zinc	Target	73.0		mg/kg	72.95968841385		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AA8	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	075	pH:		Sample Date:	06/20/2014	Sample Time:	15:43:00
% Moisture :				% Solids :	85.297		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	1620		mg/kg	1622.545108134		1.0	Yes	S4VEM
Antimony	Target	6.2	UJ	mg/kg	6.224995619159	UN	1.0	Yes	S4VEM
Arsenic	Target	54.9		mg/kg	54.90861135806		1.0	Yes	S4VEM
Barium	Target	20.7	U	mg/kg	17.09176297167	J	1.0	Yes	S4VEM
Beryllium	Target	0.52	U	mg/kg	0.08396066591268	J	1.0	Yes	S4VEM
Cadmium	Target	0.52	U	mg/kg	0.1594740127702	J	1.0	Yes	S4VEM
Calcium	Target	1910	J	mg/kg	1905.263659171	*	1.0	Yes	S4VEM
Chromium	Target	62.4		mg/kg	62.42840606601		1.0	Yes	S4VEM
Cobalt	Target	5.2	U	mg/kg	0.9473509583018	J	1.0	Yes	S4VEM
Copper	Target	47.1		mg/kg	47.05370438596		1.0	Yes	S4VEM
Iron	Target	3250	J	mg/kg	3247.683964442	*	1.0	Yes	S4VEM
Lead	Target	8.8		mg/kg	8.759295085646		1.0	Yes	S4VEM
Magnesium	Target	318	J	mg/kg	317.5370265333	J	1.0	Yes	S4VEM
Manganese	Target	48.5		mg/kg	48.49582837106		1.0	Yes	S4VEM
Nickel	Target	4.1	U	mg/kg	2.186944710938	J	1.0	Yes	S4VEM
Potassium	Target	519	U	mg/kg	143.40314908	J	1.0	Yes	S4VEM
Selenium	Target	3.6	U	mg/kg	3.63124744451	U	1.0	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1.03749926986	U	1.0	Yes	S4VEM
Sodium	Target	519	U	mg/kg	15.92872629016	J	1.0	Yes	S4VEM
Thallium	Target	2.6	U	mg/kg	2.59374817465	U	1.0	Yes	S4VEM
Vanadium	Target	5.2	U	mg/kg	3.827853556148	J	1.0	Yes	S4VEM
Zinc	Target	25.4		mg/kg	25.36063215246		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AA9	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	080	pH:		Sample Date:	06/20/2014	Sample Time:	15:40:00
% Moisture :				% Solids :	89.764		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	3110		mg/kg	3114.357012356		1.0	Yes	S4VEM
Antimony	Target	0.30	J	mg/kg	0.2999372958934	JN	1.0	Yes	S4VEM
Arsenic	Target	53.0		mg/kg	53.02953140616		1.0	Yes	S4VEM
Barium	Target	43.2		mg/kg	43.20694901551		1.0	Yes	S4VEM
Beryllium	Target	0.40	U	mg/kg	0.1515481866736	J	1.0	Yes	S4VEM
Cadmium	Target	0.40	U	mg/kg	0.2568003717685	J	1.0	Yes	S4VEM
Calcium	Target	2080	J	mg/kg	2079.341384074	*	1.0	Yes	S4VEM
Chromium	Target	51.8		mg/kg	51.75078141412		1.0	Yes	S4VEM
Cobalt	Target	4.0	U	mg/kg	3.287032026839	J	1.0	Yes	S4VEM
Copper	Target	29.0		mg/kg	28.96722835117		1.0	Yes	S4VEM
Iron	Target	8960	J	mg/kg	8960.003055632	*	1.0	Yes	S4VEM
Lead	Target	20.9		mg/kg	20.94619542037		1.0	Yes	S4VEM
Magnesium	Target	433		mg/kg	432.6344637048		1.0	Yes	S4VEM
Manganese	Target	165		mg/kg	164.9006601437		1.0	Yes	S4VEM
Nickel	Target	8.5		mg/kg	8.53826223685		1.0	Yes	S4VEM
Potassium	Target	398	U	mg/kg	228.4562057968	J	1.0	Yes	S4VEM
Selenium	Target	2.8	U	mg/kg	2.785080878749	U	1.0	Yes	S4VEM
Silver	Target	0.80	U	mg/kg	0.7957373939282	U	1.0	Yes	S4VEM
Sodium	Target	398	U	mg/kg	28.57890850293	J	1.0	Yes	S4VEM
Thallium	Target	2.0	U	mg/kg	1.989343484821	U	1.0	Yes	S4VEM
Vanadium	Target	7.1		mg/kg	7.112937416845		1.0	Yes	S4VEM
Zinc	Target	333		mg/kg	332.753506019		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AB0	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	092	pH:		Sample Date:	06/20/2014	Sample Time:	15:45:00
% Moisture :				% Solids :	84.334		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	4260		mg/kg	4260.14192568		1.0	Yes	S4VEM
Antimony	Target	5.4	UJ	mg/kg	5.430968140674	UN	1.0	Yes	S4VEM
Arsenic	Target	128		mg/kg	128.4786029812		1.0	Yes	S4VEM
Barium	Target	38.9		mg/kg	38.91922285742		1.0	Yes	S4VEM
Beryllium	Target	0.45	U	mg/kg	0.180389606792 5	J	1.0	Yes	S4VEM
Cadmium	Target	0.49		mg/kg	0.490534094079 2		1.0	Yes	S4VEM
Calcium	Target	8530	J	mg/kg	8528.520819707	*	1.0	Yes	S4VEM
Chromium	Target	148		mg/kg	147.9667269927		1.0	Yes	S4VEM
Cobalt	Target	4.5	U	mg/kg	3.314610372389	J	1.0	Yes	S4VEM
Copper	Target	96.4		mg/kg	96.40873611053		1.0	Yes	S4VEM
Iron	Target	15600	J	mg/kg	15603.17146816	*	1.0	Yes	S4VEM
Lead	Target	17.8		mg/kg	17.81357550141		1.0	Yes	S4VEM
Magnesium	Target	924		mg/kg	923.8076807286		1.0	Yes	S4VEM
Manganese	Target	149		mg/kg	148.8447335087		1.0	Yes	S4VEM
Nickel	Target	12.9		mg/kg	12.9447125633		1.0	Yes	S4VEM
Potassium	Target	453	U	mg/kg	267.7376777216	J	1.0	Yes	S4VEM
Selenium	Target	3.2	U	mg/kg	3.168064748726	U	1.0	Yes	S4VEM
Silver	Target	0.91	U	mg/kg	0.905161356778 9	U	1.0	Yes	S4VEM
Sodium	Target	453	U	mg/kg	33.66657150404	J	1.0	Yes	S4VEM
Thallium	Target	2.3	U	mg/kg	2.262903391947	U	1.0	Yes	S4VEM
Vanadium	Target	9.7		mg/kg	9.699709099243		1.0	Yes	S4VEM
Zinc	Target	156		mg/kg	155.5700823896		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AB1	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	093	pH:		Sample Date:	06/20/2014	Sample Time:	15:47:00
% Moisture :				% Solids :	95.664		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	4240		mg/kg	4242.925636553		1.0	Yes	S4VEM
Antimony	Target	6.0	UJ	mg/kg	5.973287458486	UN	1.0	Yes	S4VEM
Arsenic	Target	198		mg/kg	198.0443456861		1.0	Yes	S4VEM
Barium	Target	30.3		mg/kg	30.3333492621		1.0	Yes	S4VEM
Beryllium	Target	0.50	U	mg/kg	0.1019441059582	J	1.0	Yes	S4VEM
Cadmium	Target	0.50	U	mg/kg	0.09358449016	J	1.0	Yes	S4VEM
Calcium	Target	2010	J	mg/kg	2008.617462707	*	1.0	Yes	S4VEM
Chromium	Target	130		mg/kg	130.3470878233		1.0	Yes	S4VEM
Cobalt	Target	5.0	U	mg/kg	1.089826296801	J	1.0	Yes	S4VEM
Copper	Target	96.4		mg/kg	96.39492190922		1.0	Yes	S4VEM
Iron	Target	4360	J	mg/kg	4361.594947395	*	1.0	Yes	S4VEM
Lead	Target	5.2		mg/kg	5.245342826878		1.0	Yes	S4VEM
Magnesium	Target	324	J	mg/kg	323.5431151889	J	1.0	Yes	S4VEM
Manganese	Target	45.6		mg/kg	45.55527680214		1.0	Yes	S4VEM
Nickel	Target	4.0	U	mg/kg	3.354200017522	J	1.0	Yes	S4VEM
Potassium	Target	498	U	mg/kg	274.124116949	J	1.0	Yes	S4VEM
Selenium	Target	3.5	U	mg/kg	3.484417684117	U	1.0	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	0.9955479097476	U	1.0	Yes	S4VEM
Sodium	Target	498	U	mg/kg	18.85169521898	J	1.0	Yes	S4VEM
Thallium	Target	2.5	U	mg/kg	2.488869774369	U	1.0	Yes	S4VEM
Vanadium	Target	7.7		mg/kg	7.734909484784		1.0	Yes	S4VEM
Zinc	Target	19.9		mg/kg	19.90000716794		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AB1A	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	1417548012	pH:		Sample Date:	06/20/2014	Sample Time:	15:47:00
% Moisture :				% Solids :	95.664		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Antimony	Target	11.3		mg/kg	11.26761124252		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AB1D	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	1417548014	pH:		Sample Date:	06/20/2014	Sample Time:	15:47:00
% Moisture :				% Solids :	95.664		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	4780		mg/kg	4783.010377591		1.0	Yes	S4VEM
Antimony	Target	6.0	UJ	mg/kg	5.973287458486	U	1.0	Yes	S4VEM
Arsenic	Target	212		mg/kg	211.5638863005		1.0	Yes	S4VEM
Barium	Target	34.7		mg/kg	34.74163540646		1.0	Yes	S4VEM
Beryllium	Target	0.50	U	mg/kg	0.128186748859 1	J	1.0	Yes	S4VEM
Cadmium	Target	0.50	U	mg/kg	0.101884373083 6	J	1.0	Yes	S4VEM
Calcium	Target	1270		mg/kg	1267.4320439		1.0	Yes	S4VEM
Chromium	Target	119		mg/kg	119.2467286296		1.0	Yes	S4VEM
Cobalt	Target	5.0	U	mg/kg	1.102270645673	J	1.0	Yes	S4VEM
Copper	Target	84.1		mg/kg	84.0859675531		1.0	Yes	S4VEM
Iron	Target	5720		mg/kg	5720.916063365		1.0	Yes	S4VEM
Lead	Target	6.2		mg/kg	6.15149053433		1.0	Yes	S4VEM
Magnesium	Target	408	J	mg/kg	408.1746429965	J	1.0	Yes	S4VEM
Manganese	Target	47.5		mg/kg	47.4607555014		1.0	Yes	S4VEM
Nickel	Target	4.0	U	mg/kg	3.290783615671	J	1.0	Yes	S4VEM
Potassium	Target	498	U	mg/kg	358.8352885894	J	1.0	Yes	S4VEM
Selenium	Target	3.5	U	mg/kg	3.484417684117	U	1.0	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	0.995547909747 6	U	1.0	Yes	S4VEM
Sodium	Target	498	U	mg/kg	24.21471180879	J	1.0	Yes	S4VEM
Thallium	Target	2.5	U	mg/kg	2.488869774369	U	1.0	Yes	S4VEM
Vanadium	Target	10.4		mg/kg	10.42836435461		1.0	Yes	S4VEM
Zinc	Target	17.5		mg/kg	17.54254971766		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AB1S	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	1417548013	pH:		Sample Date:	06/20/2014	Sample Time:	15:47:00
% Moisture :				% Solids :	95.664		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Antimony	Spike	9.5		mg/kg	9.450437642861		1.0	Yes	S4VEM
Arsenic	Spike	201		mg/kg	200.9513455826		1.0	Yes	S4VEM
Barium	Spike	460		mg/kg	459.9630452616		1.0	Yes	S4VEM
Beryllium	Spike	10.4		mg/kg	10.43533318997		1.0	Yes	S4VEM
Cadmium	Spike	10.8		mg/kg	10.78178386257		1.0	Yes	S4VEM
Chromium	Spike	161		mg/kg	161.3982271283		1.0	Yes	S4VEM
Cobalt	Spike	104		mg/kg	104.2338661506		1.0	Yes	S4VEM
Copper	Spike	145		mg/kg	144.7128441609		1.0	Yes	S4VEM
Lead	Spike	9.3		mg/kg	9.299014805789		1.0	Yes	S4VEM
Manganese	Spike	151		mg/kg	150.6164432657		1.0	Yes	S4VEM
Nickel	Spike	108		mg/kg	107.8875269793		1.0	Yes	S4VEM
Selenium	Spike	9.2		mg/kg	9.211107925358		1.0	Yes	S4VEM
Silver	Spike	9.9		mg/kg	9.920037591889		1.0	Yes	S4VEM
Thallium	Spike	10.2		mg/kg	10.23821470384		1.0	Yes	S4VEM
Vanadium	Spike	110		mg/kg	109.8089344452		1.0	Yes	S4VEM
Zinc	Spike	126		mg/kg	125.7078345638		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AB2	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	094	pH:		Sample Date:	06/20/2014	Sample Time:	15:49:00
% Moisture :				% Solids :	93.089		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	5980		mg/kg	5976.257232582		1.0	Yes	S4VEM
Antimony	Target	0.42	J	mg/kg	0.4173885820482	JN	1.0	Yes	S4VEM
Arsenic	Target	115		mg/kg	115.4655375885		1.0	Yes	S4VEM
Barium	Target	48.4		mg/kg	48.37050462205		1.0	Yes	S4VEM
Beryllium	Target	0.51	U	mg/kg	0.2498377129107	J	1.0	Yes	S4VEM
Cadmium	Target	0.51	U	mg/kg	0.180789607897	J	1.0	Yes	S4VEM
Calcium	Target	3830	J	mg/kg	3828.798758382	*	1.0	Yes	S4VEM
Chromium	Target	119		mg/kg	118.698490794		1.0	Yes	S4VEM
Cobalt	Target	5.1	U	mg/kg	3.207478352769	J	1.0	Yes	S4VEM
Copper	Target	76.1		mg/kg	76.09512453264		1.0	Yes	S4VEM
Iron	Target	6740	J	mg/kg	6742.548989216	*	1.0	Yes	S4VEM
Lead	Target	12.3		mg/kg	12.30056847799		1.0	Yes	S4VEM
Magnesium	Target	947		mg/kg	947.449675656		1.0	Yes	S4VEM
Manganese	Target	84.4		mg/kg	84.39849422135		1.0	Yes	S4VEM
Nickel	Target	4.6		mg/kg	4.595602058245		1.0	Yes	S4VEM
Potassium	Target	544	J+	mg/kg	543.8727607835		1.0	Yes	S4VEM
Selenium	Target	3.6	U	mg/kg	3.580802601095	U	1.0	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1.023086457456	U	1.0	Yes	S4VEM
Sodium	Target	512	U	mg/kg	40.02825764795	J	1.0	Yes	S4VEM
Thallium	Target	2.6	U	mg/kg	2.557716143639	U	1.0	Yes	S4VEM
Vanadium	Target	12.0		mg/kg	12.04684303654		1.0	Yes	S4VEM
Zinc	Target	25.6		mg/kg	25.60171551137		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AB3	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	096	pH:		Sample Date:	06/20/2014	Sample Time:	15:51:00
% Moisture :				% Solids :	94.246		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	9990		mg/kg	9992.364499452		1.0	Yes	S4VEM
Antimony	Target	6.1	UJ	mg/kg	6.121459551844	UN	1.0	Yes	S4VEM
Arsenic	Target	126		mg/kg	125.7245767623		1.0	Yes	S4VEM
Barium	Target	82.2		mg/kg	82.24282932228		1.0	Yes	S4VEM
Beryllium	Target	0.51	U	mg/kg	0.337741328340 4	J	1.0	Yes	S4VEM
Cadmium	Target	0.51	U	mg/kg	0.410505077546 6	J	1.0	Yes	S4VEM
Calcium	Target	6470	J	mg/kg	6468.546308433	*	1.0	Yes	S4VEM
Chromium	Target	401		mg/kg	401.1188395672		1.0	Yes	S4VEM
Cobalt	Target	8.3		mg/kg	8.327225477025		1.0	Yes	S4VEM
Copper	Target	99.8		mg/kg	99.77672996528		1.0	Yes	S4VEM
Iron	Target	22400	J	mg/kg	22351.4893103	*	1.0	Yes	S4VEM
Lead	Target	16.5		mg/kg	16.54630516863		1.0	Yes	S4VEM
Magnesium	Target	1990		mg/kg	1992.024962496		1.0	Yes	S4VEM
Manganese	Target	195		mg/kg	194.652211316		1.0	Yes	S4VEM
Nickel	Target	42.8		mg/kg	42.82267029492		1.0	Yes	S4VEM
Potassium	Target	598	J+	mg/kg	597.9237641589		1.0	Yes	S4VEM
Selenium	Target	3.6	U	mg/kg	3.570851405242	U	1.0	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1.020243258641	U	1.0	Yes	S4VEM
Sodium	Target	510	U	mg/kg	167.9320403723	J	1.0	Yes	S4VEM
Thallium	Target	2.6	U	mg/kg	2.550608146602	U	1.0	Yes	S4VEM
Vanadium	Target	22.3		mg/kg	22.34434760749		1.0	Yes	S4VEM
Zinc	Target	283		mg/kg	282.8012288626		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AB4	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	097	pH:		Sample Date:	06/20/2014	Sample Time:	15:53:00
% Moisture :				% Solids :	89.107		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	5760		mg/kg	5764.337898738		1.0	Yes	S4VEM
Antimony	Target	0.44	J	mg/kg	0.438664697926	JN	1.0	Yes	S4VEM
Arsenic	Target	177		mg/kg	176.8517642691		1.0	Yes	S4VEM
Barium	Target	133		mg/kg	133.2177597791		1.0	Yes	S4VEM
Beryllium	Target	0.45	U	mg/kg	0.285121810927 9	J	1.0	Yes	S4VEM
Cadmium	Target	1.5		mg/kg	1.475397600281		1.0	Yes	S4VEM
Calcium	Target	3040	J	mg/kg	3043.603187251	*	1.0	Yes	S4VEM
Chromium	Target	171		mg/kg	170.6615962511		1.0	Yes	S4VEM
Cobalt	Target	15.6		mg/kg	15.60723945048		1.0	Yes	S4VEM
Copper	Target	123		mg/kg	122.5386066083		1.0	Yes	S4VEM
Iron	Target	10500	J	mg/kg	10531.30167566	*	1.0	Yes	S4VEM
Lead	Target	39.4		mg/kg	39.40420478964		1.0	Yes	S4VEM
Magnesium	Target	764		mg/kg	764.2675356772		1.0	Yes	S4VEM
Manganese	Target	177		mg/kg	177.4574209961		1.0	Yes	S4VEM
Nickel	Target	14.2		mg/kg	14.21511965016		1.0	Yes	S4VEM
Potassium	Target	486	J+	mg/kg	486.3156315904		1.0	Yes	S4VEM
Selenium	Target	3.1	U	mg/kg	3.117350800473	U	1.0	Yes	S4VEM
Silver	Target	0.89	U	mg/kg	0.890671657278 1	U	1.0	Yes	S4VEM
Sodium	Target	445	U	mg/kg	48.56030942646	J	1.0	Yes	S4VEM
Thallium	Target	2.2	U	mg/kg	2.226679143195	U	1.0	Yes	S4VEM
Vanadium	Target	13.3		mg/kg	13.27011702179		1.0	Yes	S4VEM
Zinc	Target	120		mg/kg	119.7775244708		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AB5	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	098	pH:		Sample Date:	06/20/2014	Sample Time:	15:55:00
% Moisture :				% Solids :	90.465		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	2470		mg/kg	2470.667424655		1.0	Yes	S4VEM
Antimony	Target	1.0	J	mg/kg	1.020817048424	JN	1.0	Yes	S4VEM
Arsenic	Target	449		mg/kg	449.4634862733		1.0	Yes	S4VEM
Barium	Target	71.5		mg/kg	71.53318963135		1.0	Yes	S4VEM
Beryllium	Target	0.49	U	mg/kg	0.1468109213508	J	1.0	Yes	S4VEM
Cadmium	Target	0.70		mg/kg	0.7043173760965		1.0	Yes	S4VEM
Calcium	Target	19900	J	mg/kg	19867.58888599	*	1.0	Yes	S4VEM
Chromium	Target	281		mg/kg	281.1071369354		1.0	Yes	S4VEM
Cobalt	Target	4.9	U	mg/kg	1.331908157062	J	1.0	Yes	S4VEM
Copper	Target	1040		mg/kg	1042.234171069		1.0	Yes	S4VEM
Iron	Target	6400	J	mg/kg	6402.337920743	*	1.0	Yes	S4VEM
Lead	Target	47.4		mg/kg	47.42165478362		1.0	Yes	S4VEM
Magnesium	Target	9400		mg/kg	9398.168984059		1.0	Yes	S4VEM
Manganese	Target	125		mg/kg	125.3839290649		1.0	Yes	S4VEM
Nickel	Target	3.9	U	mg/kg	3.721644519191	J	1.0	Yes	S4VEM
Potassium	Target	493	U	mg/kg	212.9473908615	J	1.0	Yes	S4VEM
Selenium	Target	3.5	U	mg/kg	3.454374620019	U	1.0	Yes	S4VEM
Silver	Target	0.99	U	mg/kg	0.9869641771482	U	1.0	Yes	S4VEM
Sodium	Target	493	U	mg/kg	44.59696330862	J	1.0	Yes	S4VEM
Thallium	Target	2.5	U	mg/kg	2.467410442871	U	1.0	Yes	S4VEM
Vanadium	Target	6.5		mg/kg	6.47241237732		1.0	Yes	S4VEM
Zinc	Target	210		mg/kg	209.8976715541		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AB6	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	100	pH:		Sample Date:	06/20/2014	Sample Time:	16:00:00
% Moisture :				% Solids :	85.626		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	4760		mg/kg	4755.36179076		1.0	Yes	S4VEM
Antimony	Target	6.1	UJ	mg/kg	6.093232551267	UN	1.0	Yes	S4VEM
Arsenic	Target	51.0		mg/kg	51.02066722928		1.0	Yes	S4VEM
Barium	Target	46.6		mg/kg	46.58377839319		1.0	Yes	S4VEM
Beryllium	Target	0.51	U	mg/kg	0.237179077058 1	J	1.0	Yes	S4VEM
Cadmium	Target	0.51	U	mg/kg	0.308957356512	J	1.0	Yes	S4VEM
Calcium	Target	4160	J	mg/kg	4159.646754998	*	1.0	Yes	S4VEM
Chromium	Target	77.7		mg/kg	77.69785487748		1.0	Yes	S4VEM
Cobalt	Target	5.6		mg/kg	5.588611342146		1.0	Yes	S4VEM
Copper	Target	47.8		mg/kg	47.75164796552		1.0	Yes	S4VEM
Iron	Target	10600	J	mg/kg	10583.94494155	*	1.0	Yes	S4VEM
Lead	Target	23.7		mg/kg	23.71384555077		1.0	Yes	S4VEM
Magnesium	Target	618		mg/kg	617.5389636833		1.0	Yes	S4VEM
Manganese	Target	166		mg/kg	165.9390331462		1.0	Yes	S4VEM
Nickel	Target	6.3		mg/kg	6.276232635557		1.0	Yes	S4VEM
Potassium	Target	508	U	mg/kg	377.8311951165	J	1.0	Yes	S4VEM
Selenium	Target	3.6	U	mg/kg	3.554385654906	U	1.0	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1.015538758544	U	1.0	Yes	S4VEM
Sodium	Target	508	U	mg/kg	28.0075434219	J	1.0	Yes	S4VEM
Thallium	Target	2.5	U	mg/kg	2.538846896361	U	1.0	Yes	S4VEM
Vanadium	Target	13.3		mg/kg	13.26598280287		1.0	Yes	S4VEM
Zinc	Target	53.3		mg/kg	53.30766051352		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AB7	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	101	pH:		Sample Date:	06/20/2014	Sample Time:	16:02:00
% Moisture :				% Solids :	84.525		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	3680		mg/kg	3684.514975671		1.0	Yes	S4VEM
Antimony	Target	6.3	UJ	mg/kg	6.281850947382	UN	1.0	Yes	S4VEM
Arsenic	Target	53.6		mg/kg	53.6082690098		1.0	Yes	S4VEM
Barium	Target	68.2		mg/kg	68.17588135678		1.0	Yes	S4VEM
Beryllium	Target	0.52	U	mg/kg	0.212535957053 1	J	1.0	Yes	S4VEM
Cadmium	Target	0.52	U	mg/kg	0.439666747807 2	J	1.0	Yes	S4VEM
Calcium	Target	2150	J	mg/kg	2146.194376173	*	1.0	Yes	S4VEM
Chromium	Target	73.1		mg/kg	73.07363114542		1.0	Yes	S4VEM
Cobalt	Target	5.2	U	mg/kg	4.367352173651	J	1.0	Yes	S4VEM
Copper	Target	61.2		mg/kg	61.16847662497		1.0	Yes	S4VEM
Iron	Target	17800	J	mg/kg	17847.78551667	*	1.0	Yes	S4VEM
Lead	Target	14.3		mg/kg	14.30796250782		1.0	Yes	S4VEM
Magnesium	Target	560		mg/kg	560.3306347549		1.0	Yes	S4VEM
Manganese	Target	173		mg/kg	172.5415060214		1.0	Yes	S4VEM
Nickel	Target	9.5		mg/kg	9.469995000694		1.0	Yes	S4VEM
Potassium	Target	523	U	mg/kg	247.0128490026	J	1.0	Yes	S4VEM
Selenium	Target	3.7	U	mg/kg	3.664413052639	U	1.0	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1.046975157897	U	1.0	Yes	S4VEM
Sodium	Target	523	U	mg/kg	95.43178564231	J	1.0	Yes	S4VEM
Thallium	Target	2.6	U	mg/kg	2.617437894742	U	1.0	Yes	S4VEM
Vanadium	Target	10.9		mg/kg	10.94717225097		1.0	Yes	S4VEM
Zinc	Target	155		mg/kg	154.6068215666		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AB8	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	104	pH:		Sample Date:	06/20/2014	Sample Time:	16:05:00
% Moisture :				% Solids :	84.179		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	2650		mg/kg	2653.847516465		1.0	Yes	S4VEM
Antimony	Target	6.3	UJ	mg/kg	6.307671168907	UN	1.0	Yes	S4VEM
Arsenic	Target	24.9		mg/kg	24.91740367424		1.0	Yes	S4VEM
Barium	Target	44.7		mg/kg	44.68354256054		1.0	Yes	S4VEM
Beryllium	Target	0.53	U	mg/kg	0.1050469043685	J	1.0	Yes	S4VEM
Cadmium	Target	0.53	U	mg/kg	0.2500045467796	J	1.0	Yes	S4VEM
Calcium	Target	6240	J	mg/kg	6241.545749486	*	1.0	Yes	S4VEM
Chromium	Target	26.3		mg/kg	26.30404005287		1.0	Yes	S4VEM
Cobalt	Target	5.3	U	mg/kg	1.863811702559	J	1.0	Yes	S4VEM
Copper	Target	18.8		mg/kg	18.84942400975		1.0	Yes	S4VEM
Iron	Target	6820	J	mg/kg	6824.795076905	*	1.0	Yes	S4VEM
Lead	Target	12.0		mg/kg	12.02767764058		1.0	Yes	S4VEM
Magnesium	Target	1040		mg/kg	1039.619849274		1.0	Yes	S4VEM
Manganese	Target	95.3		mg/kg	95.31101391924		1.0	Yes	S4VEM
Nickel	Target	4.2	U	mg/kg	3.802053924912	J	1.0	Yes	S4VEM
Potassium	Target	822	J+	mg/kg	822.278526364		1.0	Yes	S4VEM
Selenium	Target	3.7	U	mg/kg	3.679474848529	U	1.0	Yes	S4VEM
Silver	Target	1.1	U	mg/kg	1.051278528151	U	1.0	Yes	S4VEM
Sodium	Target	526	U	mg/kg	35.73295717186	J	1.0	Yes	S4VEM
Thallium	Target	2.6	U	mg/kg	2.628196320378	U	1.0	Yes	S4VEM
Vanadium	Target	8.6		mg/kg	8.604189113653		1.0	Yes	S4VEM
Zinc	Target	50.5		mg/kg	50.46031807273		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	MC0AB9	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	154	pH:		Sample Date:	06/20/2014	Sample Time:	16:13:00
% Moisture :				% Solids :	68.402		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	9410		mg/kg	9409.692568123		1.0	Yes	S4VEM
Antimony	Target	0.66	J	mg/kg	0.6617267453557	JN	1.0	Yes	S4VEM
Arsenic	Target	287		mg/kg	286.519509118		1.0	Yes	S4VEM
Barium	Target	60.5		mg/kg	60.47217786684		1.0	Yes	S4VEM
Beryllium	Target	0.55	U	mg/kg	0.4403074536967	J	1.0	Yes	S4VEM
Cadmium	Target	0.55	U	mg/kg	0.4367071400112	J	1.0	Yes	S4VEM
Calcium	Target	2310	J	mg/kg	2314.783498955	*	1.0	Yes	S4VEM
Chromium	Target	335		mg/kg	334.6000618818		1.0	Yes	S4VEM
Cobalt	Target	7.6		mg/kg	7.59709827809		1.0	Yes	S4VEM
Copper	Target	193		mg/kg	193.4568553682		1.0	Yes	S4VEM
Iron	Target	17100	J	mg/kg	17109.12703521	*	1.0	Yes	S4VEM
Lead	Target	23.9		mg/kg	23.93226697133		1.0	Yes	S4VEM
Magnesium	Target	785		mg/kg	785.1411344785		1.0	Yes	S4VEM
Manganese	Target	150		mg/kg	150.3512815153		1.0	Yes	S4VEM
Nickel	Target	8.9		mg/kg	8.86626340244		1.0	Yes	S4VEM
Potassium	Target	580	J+	mg/kg	579.7486937407		1.0	Yes	S4VEM
Selenium	Target	3.8	U	mg/kg	3.818514514937	U	1.0	Yes	S4VEM
Silver	Target	1.1	U	mg/kg	1.091004147125	U	1.0	Yes	S4VEM
Sodium	Target	546	U	mg/kg	37.63964307581	J	1.0	Yes	S4VEM
Thallium	Target	2.7	U	mg/kg	2.727510367812	U	1.0	Yes	S4VEM
Vanadium	Target	23.8		mg/kg	23.76316132853		1.0	Yes	S4VEM
Zinc	Target	121		mg/kg	121.0250900406		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AA0	Lab Code:	DATAC
Sample Number:	PBS	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:	07/10/2014	Sample Time:	14:37:38
% Moisture :				% Solids :	100.0		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	mg/kg	20	U	1.0	Yes	S4VEM
Antimony	Target	6.0	U	mg/kg	6	U	1.0	Yes	S4VEM
Arsenic	Target	0.42	J	mg/kg	0.41744	J	1.0	Yes	S4VEM
Barium	Target	20.0	U	mg/kg	20	U	1.0	Yes	S4VEM
Beryllium	Target	0.50	U	mg/kg	0.5	U	1.0	Yes	S4VEM
Cadmium	Target	0.035	J	mg/kg	0.035392	J	1.0	Yes	S4VEM
Calcium	Target	4.7	J	mg/kg	4.6996	J	1.0	Yes	S4VEM
Chromium	Target	1.0	U	mg/kg	1	U	1.0	Yes	S4VEM
Cobalt	Target	5.0	U	mg/kg	5	U	1.0	Yes	S4VEM
Copper	Target	2.5	U	mg/kg	2.5	U	1.0	Yes	S4VEM
Iron	Target	10.0	U	mg/kg	10	U	1.0	Yes	S4VEM
Lead	Target	1.0	U	mg/kg	1	U	1.0	Yes	S4VEM
Magnesium	Target	500	U	mg/kg	500	U	1.0	Yes	S4VEM
Manganese	Target	1.5	U	mg/kg	1.5	U	1.0	Yes	S4VEM
Nickel	Target	0.15	J	mg/kg	0.14616	J	1.0	Yes	S4VEM
Potassium	Target	7.75	J	mg/kg	7.7512	J	1.0	Yes	S4VEM
Selenium	Target	3.5	U	mg/kg	3.5	U	1.0	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1	U	1.0	Yes	S4VEM
Sodium	Target	6.84	J	mg/kg	6.8375	J	1.0	Yes	S4VEM
Thallium	Target	2.5	U	mg/kg	2.5	U	1.0	Yes	S4VEM
Vanadium	Target	5.0	U	mg/kg	5	U	1.0	Yes	S4VEM
Zinc	Target	6.0	U	mg/kg	6	U	1.0	Yes	S4VEM

FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

LABORATORY NAME	ALS Environmental		
CITY/STATE	Salt Lake City, UT 84123		
CASE NO.	44460	SDG NO.:	MC0AA0
SDG NOs. TO FOLLOW	N/A		
MOD. REF. No.	N/A		
CONTRACT NO.	EPW09036		
SOW NO.	ISM01.3		

All documents delivered in the Complete SDG File must be original documents where possible. (Reference - Exhibit B Section 2.6)

		PAGE NOs		CHECK	
		FROM	TO	LAB	REGION
1.	Inventory Sheet (DC-2)	1	2	✓	
2.	SDG Narrative	3	5	✓	
3.	Sample Log-In Sheet (DC-1)	6	6	✓	
4.	Traffic Report/Chain of Custody Record(s)	7	8	✓	
5.	Cover Page	9	9	✓	
Inorganic Analysis					
6.	Data Sheet (Form I-IN)	10	29	✓	
7.	Initial & Continuing Calibration Verification (Form IIA-IN)	30	30	✓	
8.	Blanks (Form III-IN)	31	31	✓	
9.	ICP-AES Interference Check Sample(Form IVA-IN)	32	32	✓	
10.	ICP-MS Interference Check Sample(Form IVB-IN)	N A		✓	
11.	Matrix Spike Sample Recovery(Form VA-IN)	33	33	✓	
12.	Post-Digestion Spike Sample Recovery(Form VB-IN)	34	34	✓	
13.	Duplicates (Form VI-IN)	35	35	✓	
14.	Laboratory Control Sample (Form VII-IN)	36	36	✓	
15.	ICP-AES and ICP-MS Serial Dilutions (Form VIII-IN)	37	37	✓	
16.	Method Detection Limit (Annually) (Form IX-IN)	38	38	✓	
17.	ICP-AES Interelement Correction Factors (Quarterly) Form XA-IN)	39	39	✓	
18.	ICP-AES Interelement Correction Factors (Annually) Form XB-IN)	40	41	✓	
19.	Internal Standard Association (Form X1-IN)	N A		✓	
20.	Preparation Log (Form XII-IN)	42	42	✓	
21.	Analysis Run Log (Form XIII-IN)	43	44	✓	

FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK REGION
22. ICP-MS Tune (Form XIV-IN)	NA		✓	
23. ICP-MS Internal Standards Relative Intensity Summary (Form XV-IN)	NA		✓	
24. Initial Calibration (Form XVI - IN)	45	47	✓	
25. ICP AES Raw Data	48	139	✓	
26. ICP-MS Raw Data	NA		✓	
27. Mercury Raw Dta	NA		✓	
28. Cyanide Raw Data	NA		✓	
29. Preparation Logs Raw Data	140	140	✓	
30. Percent Solids Determination Log	141	141	✓	
31. USEPA Shipping/Receiving Documents				
Airbill (No. of Shipments _____)	142	143	✓	
Sample Tags	144	148	✓	
Sample Log-In Sheet (Lab)	NA		✓	
32. Misc. Shipping/Receiving Records (list all individual records)				
Communication Logs	NA		✓	
ALS SDG TR Cover Sheet	149	150	✓	
			✓	
33. Internal Lab Sample Transfer Records and Tracking Sheets (describe or list)				
ALS CoC	151	156	✓	
34. Internal Original Sample Prep & Analysis Records (describe or list)				
Prep Records	157	161	✓	
Analysis Records	162	206	✓	
PE Instructions				
Description	NA		✓	
35. Other Records (describe or list)				
Communication Logs			✓	
	NA			
E-mail Communications	NA		✓	
			✓	

36. Comments: _____

Completed by:
(CLP Lab) _____ Melissa Duggan / Doc. Ctrl. 7/14/14
(Signature) (Print Name & Title) (Date)

Audited By:
(USEPA) _____ _____ _____
(Signature) (Print Name & Title) (Date)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

SDG Administrative Narrative

Contract: EP10-09-060

Case: 444400

SDG: MC0AA0

Set ID No.: 1417548

Cooler # and temperatures of each (upon receipt)

Cooler Number C14- NA Arrival temperature was 6 °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Communications:

The sample receipt for this case and SDG is compliant with EPA CLP SOW requirements.

Comments:

None.

Signature: _____ Date: 7/24/14
Document Control Officer

SDG Narrative

Case:	44460	Contract #:	EPW-09-036
SDG:	MC0AA0	ALS Set ID #:	1417548

General Information: The twenty samples in this SDG were analyzed by methodologies contained in ISM01.3. All concentration, analytical, and method qualifiers are defined in the SOW.

Target Analytes: Target analytes for this SDG are aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, sodium, thallium, vanadium and zinc.

Holding Times: All samples were prepared and analyzed within method required holding times.

Initial and Continuing Calibration: All initial and continuing calibration verification and blank analyses were performed within the designated frequency and recoveries of the verifications and concentrations of the blanks met method acceptance criteria.

Interference Check Sample Analysis: Results for the interference check samples met method acceptance criteria.

Preparation Blanks: The absolute values of all analyte concentrations in the preparation blank were lower than the Contract Required Quantitation Limits.

Laboratory Control Sample Analysis: Results for the analysis of the LCS met method acceptance criteria.

Matrix Spike Analysis: All matrix spike recoveries were within the limits of 75-125% with the exception of antimony.

Matrix Duplicate Analysis: All matrix duplicate results met method criteria with the exceptions of calcium and iron.

Serial Dilution: Serial Dilution results met method acceptance criteria.

Miscellaneous Comments: All calibration data is linear, please see raw data.

Example Equations:

Method 3050B: $$C \times \frac{Vf}{W \times S} \times DF \div 1000 = Concentration\,(mg/Kg)$$

C = Instrument value in µg/L (The average of all replicate integrations).
Vf = Final digestion volume (mL)
W = Initial digestion Weight (g)

DF = Dilution Factor
S = % Solids/100

SAMPLE LOG-IN SHEET

Lab Name	ALS Laboratory Group - Salt Lake City ~~copy original in Sdn. MCØAAØ~~ aa 06/24/14	Page 1 of 1
Received By (Print Name)	Juanette Allstrom	Log-In Date 06/24/14
Received By (Signature)	Juanette Allstrom	
Case Number	44460	Sample Delivery Group No. MCØAAØ
		Mod. Ref. No. NA

Remarks:

1. Custody Seal (s) (Present/Absent*)
   (Intact/Broken*)
2. Custody Seal Nos. NA / 1
3. Traffic Reports/Chain of Custody Records or Packing Lists (Present/Absent*)
4. Airbill (Present/Absent*)
5. Airbill No. 7703 8001 4214 / NA
6. Sample Tags (Present/Absent*)
   Sample Tag Numbers (Listed/Not Listed on Chain-of-Custody)
7. Sample Condition (Intact/Broken*/Leaking*)
8. Cooler Temperature Indicator Bottle (Present/Absent*)
9. Cooler Temperature 6
10. Does information Traffic Reports/Chain of Custody Records and sample tags agree? (Yes/No*)
11. Date Received at Lab 06/24/14
12. Time Received 1006

	Sample Transfer		
Fraction	ICP.AES	Fraction	~~aa~~ 06/24/14
Area #	R331	Area #	
By	aa	By	
On	06/24/14	On	

	EPA Sample #	Aqueous Sample pH	Corresponding: Sample Tag #	Corresponding: Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	MCØAAØ	NA	1000	14175480 01	ICP.AES AS, Cr, Cu SOIL
2	A1		01	002	
3	A2		02	003	
4	A3		03	004	
5	A4		04	005	
6	A5		05	006	
7	A6		06	007	
8	A7		~~07~~	008	
9	A8		08	009	
10	A9		09	010	
11	B0		10	011 ~~012~~ aa 06/24/14	
12	B1		11	012, 013, 014	MS/MD
13	B2		12	015	
14	B3		13	016	
15	B4		14	017	
16	B5		15	018	
17	B6		16	019	
18	B7		17	020	
19	B8		18	021	
20	B9		19	022	aa 06/24/14 MS/MD
21	C0		20		MS/MD
22	C1		21		

* Contact SMO and attach record of resolution

Reviewed By Johanne Allsa	Logbook No. Not Applicable
Date 6/24/14	Logbook Page No. Not Applicable

1417548

USEPA CLP COC (LAB COPY)
DateShipped: 6/23/2014
CarrierName: FedEx
AirbillNo: 770380014214

CHAIN OF CUSTODY RECORD

Case #: 44460
Cooler #: 1 of 1

SDn. MC0AA0

No: 3-062214-213952-0001
Lab: ALS Laboratory Group - Salt Lake City
Lab Contact: Roxy Olson
Lab Phone: 801-266-7700

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
NK-SS-BKG01-062014	MC0AA0	Soil/ START	Grab	AsCuCr(21)	1000 (4 C) (1)	BKG01	06/20/2014 08:45	
NK-SS-BKG02-062014	MC0AA1	Soil/ START	Grab	AsCuCr(21)	1001 (4 C) (1)	BKG02	06/20/2014 08:49	
NK-SS-BKG03-062014	MC0AA2	Soil/ START	Grab	AsCuCr(21)	1002 (4 C) (1)	BKG03	06/20/2014 08:55	aa 06/24/14
NK-SS-041-062014	MC0AA3	Soil/ START	Grab	AsCuCr(21)	1003 (4 C) (1)	041	06/20/2014 15:08	
NK-SS-045-062014	MC0AA4	Soil/ START	Grab	AsCuCr(21)	1004 (4 C) (1)	045	06/20/2014 15:30	
NK-SS-062-062014	MC0AA5	Soil/ START	Grab	AsCuCr(21)	1005 (4 C) (1)	062	06/20/2014 15:33	
NK-SS-067-062014	MC0AA6	Soil/ START	Grab	AsCuCr(21)	1006 (4 C) (1)	067	06/20/2014 15:36	
NK-SS-073-062014	MC0AA7	Soil/ START	Grab	AsCuCr(21)	1007 (4 C) (1)	073	06/20/2014 15:39	
NK-SS-075-062014	MC0AA8	Soil/ START	Grab	AsCuCr(21)	1008 (4 C) (1)	075	06/20/2014 15:43	
NK-SS-080-062014	MC0AA9	Soil/ START	Grab	AsCuCr(21)	1009 (4 C) (1)	080	06/20/2014 15:40	

Special Instructions:	**Shipment for Case Complete? Y**
	Samples Transferred From Chain of Custody #

Analysis Key: AsCuCr=Arsenic, Copper, Chromium only

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	[signature]	6/23/14 1200	Anyanette Ahlstrom/ DATAC	06/24/14 10:06	Intact

00007

USEPA CLP COC (LAB COPY)
DateShipped: 6/23/2014
CarrierName: FedEx
AirbillNo: 770380014214

CHAIN OF CUSTODY RECORD

SDG. MC0AA0

Case #: 44460
Cooler #: 1 of 1

No: 3-062214-213952-0001
Lab: ALS Laboratory Group - Salt Lake City
Lab Contact: Roxy Olson
Lab Phone: 801-266-7700

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
NK-SS-092-062014	MC0AB0	Soil/ START	Grab	AsCuCr(21)	1010 (4 C) (1)	092	06/20/2014 15:45	
NK-SS-093-062014	MC0AB1	Soil/ START	Grab	AsCuCr(21)	1011 (4 C) (1)	093	06/20/2014 15:47	
NK-SS-094-062014	MC0AB2	Soil/ START	Grab	AsCuCr(21)	1012 (4 C) (1)	094	06/20/2014 15:49	QA 06/24/14
NK-SS-096-062014	MC0AB3	Soil/ START	Grab	AsCuCr(21)	1013 (4 C) (1)	096	06/20/2014 15:51	
NK-SS-097-062014	MC0AB4	Soil/ START	Grab	AsCuCr(21)	1014 (4 C) (1)	097	06/20/2014 15:53	
NK-SS-098-062014	MC0AB5	Soil/ START	Grab	AsCuCr(21)	1015 (4 C) (1)	098	06/20/2014 15:55	
NK-SS-100-062014	MC0AB6	Soil/ START	Grab	AsCuCr(21)	1016 (4 C) (1)	100	06/20/2014 16:00	
NK-SS-101-062014	MC0AB7	Soil/ START	Grab	AsCuCr(21)	1017 (4 C) (1)	101	06/20/2014 16:02	
NK-SS-104-062014	MC0AB8	Soil/ START	Grab	AsCuCr(21)	1018 (4 C) (1)	104	06/20/2014 16:05	
NK-SS-154-062014	MC0AB9	Soil/ START	Grab	AsCuCr(21)	1019 (4 C) (1)	154	06/20/2014 16:13	FINAL SDG SAMPLE

Sample(s) to be used for Lab QC: NK-SS-093-062014 Tag 1011, NK-SS-155-062014 Tag 1020	**Shipment for Case Complete? Y**
	Samples Transferred From Chain of Custody #
Analysis Key: AsCuCr=Arsenic, Copper, Chromium only	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Erik Christ	6/23/14 1200	Agnetta Allstrum / DATAC	06/24/14 10:00	Intact

USEPA - CLP
COVER PAGE

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

SOW No.: ISM01.3

EPA Sample No.	Lab Sample ID
MC0AA0	1417548001
MC0AA1	1417548002
MC0AA2	1417548003
MC0AA3	1417548004
MC0AA4	1417548005
MC0AA5	1417548006
MC0AA6	1417548007
MC0AA7	1417548008
MC0AA8	1417548009
MC0AA9	1417548010
MC0AB0	1417548011
MC0AB1	1417548012
MC0AB1D	1417548014
MC0AB1S	1417548013
MC0AB2	1417548015
MC0AB3	1417548016
MC0AB4	1417548017
MC0AB5	1417548018
MC0AB6	1417548019
MC0AB7	1417548020
MC0AB8	1417548021
MC0AB9	1417548022

		ICP-AES	ICP-MS
Were ICP-AES and ICP-MS Interelement corrections applied?	(Yes/No)	Yes	
Were ICP-AES and ICP-MS background corrections applied?	(Yes/No)	Yes	
If yes - were raw data generated before application of background corrections?	(Yes/No)	No	

The laboratory did not receive any instructions with this SDG to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy Data Package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Name: Neil Edwards

Date: 07/14/2014 Title: Chemist

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AA0

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548001

% Solids: 77.1 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3860			P
7440-36-0	Antimony	6.4	U	N	P
7440-38-2	Arsenic	1.8			P
7440-39-3	Barium	56.0			P
7440-41-7	Beryllium	0.19	J		P
7440-43-9	Cadmium	0.063	J		P
7440-70-2	Calcium	2540		*	P
7440-47-3	Chromium	4.3			P
7440-48-4	Cobalt	0.72	J		P
7440-50-8	Copper	2.9			P
7439-89-6	Iron	3680		*	P
7439-92-1	Lead	18.1			P
7439-95-4	Magnesium	258	J		P
7439-96-5	Manganese	179			P
7439-97-6	Mercury				
7440-02-0	Nickel	2.3	J		P
7440-09-7	Potassium	212	J		P
7782-49-2	Selenium	3.8	U		P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	11.7	J		P
7440-28-0	Thallium	2.7	U		P
7440-62-2	Vanadium	8.5			P
7440-66-6	Zinc	13.2			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AA1

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548002

% Solids: 70.5 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4700			P
7440-36-0	Antimony	6.3	U	N	P
7440-38-2	Arsenic	1.8			P
7440-39-3	Barium	83.0			P
7440-41-7	Beryllium	0.33	J		P
7440-43-9	Cadmium	0.13	J		P
7440-70-2	Calcium	2180		*	P
7440-47-3	Chromium	4.3			P
7440-48-4	Cobalt	1.3	J		P
7440-50-8	Copper	3.3			P
7439-89-6	Iron	3520		*	P
7439-92-1	Lead	14.2			P
7439-95-4	Magnesium	481	J		P
7439-96-5	Manganese	150			P
7439-97-6	Mercury				
7440-02-0	Nickel	2.9	J		P
7440-09-7	Potassium	274	J		P
7782-49-2	Selenium	3.7	U		P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	11.4	J		P
7440-28-0	Thallium	2.6	U		P
7440-62-2	Vanadium	7.6			P
7440-66-6	Zinc	29.9			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AA2

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548003

% Solids: 66.4 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3230			P
7440-36-0	Antimony	7.4	U	N	P
7440-38-2	Arsenic	2.3			P
7440-39-3	Barium	54.9			P
7440-41-7	Beryllium	0.13	J		P
7440-43-9	Cadmium	0.28	J		P
7440-70-2	Calcium	3850		*	P
7440-47-3	Chromium	4.6			P
7440-48-4	Cobalt	0.94	J		P
7440-50-8	Copper	6.5			P
7439-89-6	Iron	4670		*	P
7439-92-1	Lead	28.9			P
7439-95-4	Magnesium	366	J		P
7439-96-5	Manganese	147			P
7439-97-6	Mercury				
7440-02-0	Nickel	2.6	J		P
7440-09-7	Potassium	307	J		P
7782-49-2	Selenium	4.3	U		P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	11.8	J		P
7440-28-0	Thallium	3.1	U		P
7440-62-2	Vanadium	8.3			P
7440-66-6	Zinc	62.6			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AA3

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548004

% Solids: 84.1 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2360			P
7440-36-0	Antimony	5.6	U	N	P
7440-38-2	Arsenic	101			P
7440-39-3	Barium	22.2			P
7440-41-7	Beryllium	0.24	J		P
7440-43-9	Cadmium	0.32	J		P
7440-70-2	Calcium	1690		*	P
7440-47-3	Chromium	134			P
7440-48-4	Cobalt	2.5	J		P
7440-50-8	Copper	75.5			P
7439-89-6	Iron	8120		*	P
7439-92-1	Lead	12.9			P
7439-95-4	Magnesium	345	J		P
7439-96-5	Manganese	82.3			P
7439-97-6	Mercury				
7440-02-0	Nickel	3.1	J		P
7440-09-7	Potassium	233	J		P
7782-49-2	Selenium	3.3	U		P
7440-22-4	Silver	0.94	U		P
7440-23-5	Sodium	16.2	J		P
7440-28-0	Thallium	2.3	U		P
7440-62-2	Vanadium	7.2			P
7440-66-6	Zinc	41.1			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AA4

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548005

% Solids: 94.3 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4170			P
7440-36-0	Antimony	4.3	U	N	P
7440-38-2	Arsenic	26.3			P
7440-39-3	Barium	31.9			P
7440-41-7	Beryllium	0.27	J		P
7440-43-9	Cadmium	0.20	J		P
7440-70-2	Calcium	831		*	P
7440-47-3	Chromium	49.4			P
7440-48-4	Cobalt	8.3			P
7440-50-8	Copper	22.3			P
7439-89-6	Iron	13500		*	P
7439-92-1	Lead	16.9			P
7439-95-4	Magnesium	204	J		P
7439-96-5	Manganese	166			P
7439-97-6	Mercury				
7440-02-0	Nickel	7.1			P
7440-09-7	Potassium	210	J		P
7782-49-2	Selenium	0.39	J		P
7440-22-4	Silver	0.72	U		P
7440-23-5	Sodium	10.9	J		P
7440-28-0	Thallium	1.8	U		P
7440-62-2	Vanadium	12.9			P
7440-66-6	Zinc	16.0			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AA5

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548006

% Solids: 93.0 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3020			P
7440-36-0	Antimony	5.1	U	N	P
7440-38-2	Arsenic	21.9			P
7440-39-3	Barium	29.8			P
7440-41-7	Beryllium	0.17	J		P
7440-43-9	Cadmium	0.18	J		P
7440-70-2	Calcium	4650		*	P
7440-47-3	Chromium	46.8			P
7440-48-4	Cobalt	2.9	J		P
7440-50-8	Copper	25.7			P
7439-89-6	Iron	9050		*	P
7439-92-1	Lead	10.2			P
7439-95-4	Magnesium	896			P
7439-96-5	Manganese	116			P
7439-97-6	Mercury				
7440-02-0	Nickel	4.6			P
7440-09-7	Potassium	404	J		P
7782-49-2	Selenium	3.0	U		P
7440-22-4	Silver	0.85	U		P
7440-23-5	Sodium	23.3	J		P
7440-28-0	Thallium	2.1	U		P
7440-62-2	Vanadium	9.5			P
7440-66-6	Zinc	22.7			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AA6

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548007

% Solids: 88.8 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2570			P
7440-36-0	Antimony	0.33	J	N	P
7440-38-2	Arsenic	229			P
7440-39-3	Barium	35.8			P
7440-41-7	Beryllium	0.16	J		P
7440-43-9	Cadmium	0.29	J		P
7440-70-2	Calcium	12900		*	P
7440-47-3	Chromium	143			P
7440-48-4	Cobalt	1.2	J		P
7440-50-8	Copper	332			P
7439-89-6	Iron	5330		*	P
7439-92-1	Lead	19.0			P
7439-95-4	Magnesium	5210			P
7439-96-5	Manganese	87.4			P
7439-97-6	Mercury				
7440-02-0	Nickel	3.2			P
7440-09-7	Potassium	258	J		P
7782-49-2	Selenium	2.7	U		P
7440-22-4	Silver	0.78	U		P
7440-23-5	Sodium	30.0	J		P
7440-28-0	Thallium	2.0	U		P
7440-62-2	Vanadium	6.6			P
7440-66-6	Zinc	93.7			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AA7

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548008

% Solids: 75.6 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5780			P
7440-36-0	Antimony	6.4	U	N	P
7440-38-2	Arsenic	52.1			P
7440-39-3	Barium	61.2			P
7440-41-7	Beryllium	0.30	J		P
7440-43-9	Cadmium	0.37	J		P
7440-70-2	Calcium	5830		*	P
7440-47-3	Chromium	71.6			P
7440-48-4	Cobalt	5.1	J		P
7440-50-8	Copper	69.2			P
7439-89-6	Iron	11400		*	P
7439-92-1	Lead	24.0			P
7439-95-4	Magnesium	1090			P
7439-96-5	Manganese	208			P
7439-97-6	Mercury				
7440-02-0	Nickel	5.9			P
7440-09-7	Potassium	532	J		P
7782-49-2	Selenium	0.68	J		P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	40.7	J		P
7440-28-0	Thallium	2.7	U		P
7440-62-2	Vanadium	15.8			P
7440-66-6	Zinc	73.0			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AA8

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548009

% Solids: 85.3 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1620			P
7440-36-0	Antimony	6.2	U	N	P
7440-38-2	Arsenic	54.9			P
7440-39-3	Barium	17.1	J		P
7440-41-7	Beryllium	0.084	J		P
7440-43-9	Cadmium	0.16	J		P
7440-70-2	Calcium	1910		*	P
7440-47-3	Chromium	62.4			P
7440-48-4	Cobalt	0.95	J		P
7440-50-8	Copper	47.1			P
7439-89-6	Iron	3250		*	P
7439-92-1	Lead	8.8			P
7439-95-4	Magnesium	318	J		P
7439-96-5	Manganese	48.5			P
7439-97-6	Mercury				
7440-02-0	Nickel	2.2	J		P
7440-09-7	Potassium	143	J		P
7782-49-2	Selenium	3.6	U		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	15.9	J		P
7440-28-0	Thallium	2.6	U		P
7440-62-2	Vanadium	3.8	J		P
7440-66-6	Zinc	25.4			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AA9

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548010

% Solids: 89.8 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3110			P
7440-36-0	Antimony	0.30	J	N	P
7440-38-2	Arsenic	53.0			P
7440-39-3	Barium	43.2			P
7440-41-7	Beryllium	0.15	J		P
7440-43-9	Cadmium	0.26	J		P
7440-70-2	Calcium	2080		*	P
7440-47-3	Chromium	51.8			P
7440-48-4	Cobalt	3.3	J		P
7440-50-8	Copper	29.0			P
7439-89-6	Iron	8960		*	P
7439-92-1	Lead	20.9			P
7439-95-4	Magnesium	433			P
7439-96-5	Manganese	165			P
7439-97-6	Mercury				
7440-02-0	Nickel	8.5			P
7440-09-7	Potassium	228	J		P
7782-49-2	Selenium	2.8	U		P
7440-22-4	Silver	0.80	U		P
7440-23-5	Sodium	28.6	J		P
7440-28-0	Thallium	2.0	U		P
7440-62-2	Vanadium	7.1			P
7440-66-6	Zinc	333			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AB0

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548011

% Solids: 84.3 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4260			P
7440-36-0	Antimony	5.4	U	N	P
7440-38-2	Arsenic	128			P
7440-39-3	Barium	38.9			P
7440-41-7	Beryllium	0.18	J		P
7440-43-9	Cadmium	0.49			P
7440-70-2	Calcium	8530		*	P
7440-47-3	Chromium	148			P
7440-48-4	Cobalt	3.3	J		P
7440-50-8	Copper	96.4			P
7439-89-6	Iron	15600		*	P
7439-92-1	Lead	17.8			P
7439-95-4	Magnesium	924			P
7439-96-5	Manganese	149			P
7439-97-6	Mercury				
7440-02-0	Nickel	12.9			P
7440-09-7	Potassium	268	J		P
7782-49-2	Selenium	3.2	U		P
7440-22-4	Silver	0.91	U		P
7440-23-5	Sodium	33.7	J		P
7440-28-0	Thallium	2.3	U		P
7440-62-2	Vanadium	9.7			P
7440-66-6	Zinc	156			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AB1

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548012

% Solids: 95.7 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4240			P
7440-36-0	Antimony	6.0	U	N	P
7440-38-2	Arsenic	198			P
7440-39-3	Barium	30.3			P
7440-41-7	Beryllium	0.10	J		P
7440-43-9	Cadmium	0.094	J		P
7440-70-2	Calcium	2010		*	P
7440-47-3	Chromium	130			P
7440-48-4	Cobalt	1.1	J		P
7440-50-8	Copper	96.4			P
7439-89-6	Iron	4360		*	P
7439-92-1	Lead	5.2			P
7439-95-4	Magnesium	324	J		P
7439-96-5	Manganese	45.6			P
7439-97-6	Mercury				
7440-02-0	Nickel	3.4	J		P
7440-09-7	Potassium	274	J		P
7782-49-2	Selenium	3.5	U		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	18.9	J		P
7440-28-0	Thallium	2.5	U		P
7440-62-2	Vanadium	7.7			P
7440-66-6	Zinc	19.9			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AB2

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548015

% Solids: 93.1 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5980			P
7440-36-0	Antimony	0.42	J	N	P
7440-38-2	Arsenic	115			P
7440-39-3	Barium	48.4			P
7440-41-7	Beryllium	0.25	J		P
7440-43-9	Cadmium	0.18	J		P
7440-70-2	Calcium	3830		*	P
7440-47-3	Chromium	119			P
7440-48-4	Cobalt	3.2	J		P
7440-50-8	Copper	76.1			P
7439-89-6	Iron	6740		*	P
7439-92-1	Lead	12.3			P
7439-95-4	Magnesium	947			P
7439-96-5	Manganese	84.4			P
7439-97-6	Mercury				
7440-02-0	Nickel	4.6			P
7440-09-7	Potassium	544			P
7782-49-2	Selenium	3.6	U		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	40.0	J		P
7440-28-0	Thallium	2.6	U		P
7440-62-2	Vanadium	12.0			P
7440-66-6	Zinc	25.6			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AB3

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548016

% Solids: 94.2 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9990			P
7440-36-0	Antimony	6.1	U	N	P
7440-38-2	Arsenic	126			P
7440-39-3	Barium	82.2			P
7440-41-7	Beryllium	0.34	J		P
7440-43-9	Cadmium	0.41	J		P
7440-70-2	Calcium	6470		*	P
7440-47-3	Chromium	401			P
7440-48-4	Cobalt	8.3			P
7440-50-8	Copper	99.8			P
7439-89-6	Iron	22400		*	P
7439-92-1	Lead	16.5			P
7439-95-4	Magnesium	1990			P
7439-96-5	Manganese	195			P
7439-97-6	Mercury				
7440-02-0	Nickel	42.8			P
7440-09-7	Potassium	598			P
7782-49-2	Selenium	3.6	U		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	168	J		P
7440-28-0	Thallium	2.6	U		P
7440-62-2	Vanadium	22.3			P
7440-66-6	Zinc	283			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AB4

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548017

% Solids: 89.1 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5760			P
7440-36-0	Antimony	0.44	J	N	P
7440-38-2	Arsenic	177			P
7440-39-3	Barium	133			P
7440-41-7	Beryllium	0.29	J		P
7440-43-9	Cadmium	1.5			P
7440-70-2	Calcium	3040		*	P
7440-47-3	Chromium	171			P
7440-48-4	Cobalt	15.6			P
7440-50-8	Copper	123			P
7439-89-6	Iron	10500		*	P
7439-92-1	Lead	39.4			P
7439-95-4	Magnesium	764			P
7439-96-5	Manganese	177			P
7439-97-6	Mercury				
7440-02-0	Nickel	14.2			P
7440-09-7	Potassium	486			P
7782-49-2	Selenium	3.1	U		P
7440-22-4	Silver	0.89	U		P
7440-23-5	Sodium	48.6	J		P
7440-28-0	Thallium	2.2	U		P
7440-62-2	Vanadium	13.3			P
7440-66-6	Zinc	120			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AB5

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548018

% Solids: 90.5 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2470			P
7440-36-0	Antimony	1.0	J	N	P
7440-38-2	Arsenic	449			P
7440-39-3	Barium	71.5			P
7440-41-7	Beryllium	0.15	J		P
7440-43-9	Cadmium	0.70			P
7440-70-2	Calcium	19900		*	P
7440-47-3	Chromium	281			P
7440-48-4	Cobalt	1.3	J		P
7440-50-8	Copper	1040			P
7439-89-6	Iron	6400		*	P
7439-92-1	Lead	47.4			P
7439-95-4	Magnesium	9400			P
7439-96-5	Manganese	125			P
7439-97-6	Mercury				
7440-02-0	Nickel	3.7	J		P
7440-09-7	Potassium	213	J		P
7782-49-2	Selenium	3.5	U		P
7440-22-4	Silver	0.99	U		P
7440-23-5	Sodium	44.6	J		P
7440-28-0	Thallium	2.5	U		P
7440-62-2	Vanadium	6.5			P
7440-66-6	Zinc	210			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AB6

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548019

% Solids: 85.6 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4760			P
7440-36-0	Antimony	6.1	U	N	P
7440-38-2	Arsenic	51.0			P
7440-39-3	Barium	46.6			P
7440-41-7	Beryllium	0.24	J		P
7440-43-9	Cadmium	0.31	J		P
7440-70-2	Calcium	4160		*	P
7440-47-3	Chromium	77.7			P
7440-48-4	Cobalt	5.6			P
7440-50-8	Copper	47.8			P
7439-89-6	Iron	10600		*	P
7439-92-1	Lead	23.7			P
7439-95-4	Magnesium	618			P
7439-96-5	Manganese	166			P
7439-97-6	Mercury				
7440-02-0	Nickel	6.3			P
7440-09-7	Potassium	378	J		P
7782-49-2	Selenium	3.6	U		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	28.0	J		P
7440-28-0	Thallium	2.5	U		P
7440-62-2	Vanadium	13.3			P
7440-66-6	Zinc	53.3			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AB7

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548020

% Solids: 84.5 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3680			P
7440-36-0	Antimony	6.3	U	N	P
7440-38-2	Arsenic	53.6			P
7440-39-3	Barium	68.2			P
7440-41-7	Beryllium	0.21	J		P
7440-43-9	Cadmium	0.44	J		P
7440-70-2	Calcium	2150		*	P
7440-47-3	Chromium	73.1			P
7440-48-4	Cobalt	4.4	J		P
7440-50-8	Copper	61.2			P
7439-89-6	Iron	17800		*	P
7439-92-1	Lead	14.3			P
7439-95-4	Magnesium	560			P
7439-96-5	Manganese	173			P
7439-97-6	Mercury				
7440-02-0	Nickel	9.5			P
7440-09-7	Potassium	247	J		P
7782-49-2	Selenium	3.7	U		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	95.4	J		P
7440-28-0	Thallium	2.6	U		P
7440-62-2	Vanadium	10.9			P
7440-66-6	Zinc	155			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

00027

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AB8

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548021

% Solids: 84.2 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2650			P
7440-36-0	Antimony	6.3	U	N	P
7440-38-2	Arsenic	24.9			P
7440-39-3	Barium	44.7			P
7440-41-7	Beryllium	0.11	J		P
7440-43-9	Cadmium	0.25	J		P
7440-70-2	Calcium	6240		*	P
7440-47-3	Chromium	26.3			P
7440-48-4	Cobalt	1.9	J		P
7440-50-8	Copper	18.8			P
7439-89-6	Iron	6820		*	P
7439-92-1	Lead	12.0			P
7439-95-4	Magnesium	1040			P
7439-96-5	Manganese	95.3			P
7439-97-6	Mercury				
7440-02-0	Nickel	3.8	J		P
7440-09-7	Potassium	822			P
7782-49-2	Selenium	3.7	U		P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	35.7	J		P
7440-28-0	Thallium	2.6	U		P
7440-62-2	Vanadium	8.6			P
7440-66-6	Zinc	50.5			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AB9

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil Lab Sample ID: 1417548022

% Solids: 68.4 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9410			P
7440-36-0	Antimony	0.66	J	N	P
7440-38-2	Arsenic	287			P
7440-39-3	Barium	60.5			P
7440-41-7	Beryllium	0.44	J		P
7440-43-9	Cadmium	0.44	J		P
7440-70-2	Calcium	2310		*	P
7440-47-3	Chromium	335			P
7440-48-4	Cobalt	7.6			P
7440-50-8	Copper	193			P
7439-89-6	Iron	17100		*	P
7439-92-1	Lead	23.9			P
7439-95-4	Magnesium	785			P
7439-96-5	Manganese	150			P
7439-97-6	Mercury				
7440-02-0	Nickel	8.9			P
7440-09-7	Potassium	580			P
7782-49-2	Selenium	3.8	U		P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	37.6	J		P
7440-28-0	Thallium	2.7	U		P
7440-62-2	Vanadium	23.8			P
7440-66-6	Zinc	121			P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

00029

USEPA - CLP
2A-IN
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Initial Calibration Verification Source: EPA ICV-1(0307)

Continuing Calibration Verification Source: 24220

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	2521	2610	104	250000	239000	95	242000	97	P
Antimony	994	995	100	25000	24100	96	24000	96	P
Arsenic	999	993	99	10000	10200	102	10200	102	P
Barium	497	526	106	25000	24100	96	24900	99	P
Beryllium	495	513	104	10000	9550	96	9710	97	P
Cadmium	496	538	108	10000	10100	101	10100	101	P
Calcium	10026	10900	108	250000	245000	98	245000	98	P
Chromium	490	523	107	25000	25200	101	25200	101	P
Cobalt	499	519	104	25000	24500	98	24500	98	P
Copper	492	521	106	25000	24100	97	24400	97	P
Iron	5082	5420	107	250000	240000	96	243000	97	P
Lead	1002	1030	103	25000	23800	95	23800	95	P
Magnesium	6074	6260	103	250000	241000	96	242000	97	P
Manganese	499	525	105	25000	23600	95	23600	94	P
Mercury									
Nickel	503	529	105	25000	24400	98	24400	97	P
Potassium	10021	10200	102	250000	242000	97	246000	98	P
Selenium	1029	995	97	10000	9680	97	9650	96	P
Silver	501	509	102	1000	1010	101	1000	100	P
Sodium	10097	10400	103	250000	245000	98	248000	99	P
Thallium	1028	1080	105	10000	9220	92	9200	92	P
Vanadium	501	525	105	25000	24200	97	24300	97	P
Zinc	1025	1090	106	25000	25400	101	25200	101	P
Cyanide									

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

USEPA - CLP
3-IN
BLANKS

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Preparation Blank Matrix (soil/water/wipe/filter): Soil

Preparation Blank Concentration Units (ug/L, ug or mg/kg): mg/kg

Analyte	Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		
		C	1	C	2	C	3	C		C	M
Aluminum	200	U	200	U	200	U			20.0	U	P
Antimony	60.0	U	60.0	U	60.0	U			6.0	U	P
Arsenic	10.0	U	10.0	U	10.0	U			0.42	J	P
Barium	200	U	0.89	J	200	U			20.0	U	P
Beryllium	5.0	U	0.50	J	0.42	J			0.50	U	P
Cadmium	0.40	J	0.47	J	0.43	J			0.035	J	P
Calcium	5000	U	5000	U	5000	U			4.7	J	P
Chromium	10.0	U	10.0	U	10.0	U			1.0	U	P
Cobalt	50.0	U	0.55	J	50.0	U			5.0	U	P
Copper	25.0	U	25.0	U	25.0	U			2.5	U	P
Iron	100	U	100	U	100	U			10.0	U	P
Lead	10.0	U	3.4	J	3.9	J			1.0	U	P
Magnesium	5000	U	5000	U	5000	U			500	U	P
Manganese	15.0	U	1.3	J	1.3	J			1.5	U	P
Mercury											
Nickel	3.1	J	2.3	J	3.4	J			0.15	J	P
Potassium	80.4	J	130	J	108	J			7.8	J	P
Selenium	35.0	U	35.0	U	35.0	U			3.5	U	P
Silver	10.0	U	10.0	U	10.0	U			1.0	U	P
Sodium	81.6	J	106	J	72.1	J			6.8	J	P
Thallium	25.0	U	25.0	U	25.0	U			2.5	U	P
Vanadium	50.0	U	1.2	J	50.0	U			5.0	U	P
Zinc	60.0	U	60.0	U	60.0	U			6.0	U	P
Cyanide											

USEPA - CLP
4A-IN
ICP-AES INTERFERENCE CHECK SAMPLE

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

ICP-AES Instrument ID: ICP07 ICSA Source: ICSA (1206

ICSB Source: ICSB (1206/0203)

Concentration Units: ug/L

Analyte	True		Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R
Aluminum	244100	241100	238000	98	248000	103
Antimony	0	589	2.5		600	102
Arsenic	0	101	-1.1		101	100
Barium	2	495	1.8	89	523	106
Beryllium	0	475	0.51		523	110
Cadmium	0	940	-0.89		1110	118
Calcium	234900	231100	252000	107	261000	113
Chromium	43	511	46.7	109	593	116
Cobalt	4	461	3.9	98	524	114
Copper	23	548	23.2	101	558	102
Iron	95600	94800	99000	104	103000	109
Lead	10	61	7.6	76	59.8	98
Magnesium	247500	251100	248000	100	258000	103
Manganese	19	502	25.4	134	544	108
Nickel	21	984	22.7	108	1090	110
Potassium	0	0	81.0		44.4	
Selenium	0	53	-2.1		50.4	95
Silver	0	206	-0.98		216	105
Sodium	0	0	858		884	
Thallium	0	103	4.2		105	101
Vanadium	0	494	1.6		524	106
Zinc	28	1028	33.0	118	1160	113

USEPA - CLP
5A-IN
MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
MC0AB1S

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil

% Solids for Sample: 95.7

Concentration Units (ug/L or mg/kg dry weight): mg/kg

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	9.5		6.0	U	19.9	47	N	P
Arsenic		201		198		8.0	37		P
Barium	75-125	460		30.3		398	108		P
Beryllium	75-125	10.4		0.10	J	10	104		P
Cadmium	75-125	10.8		0.094	J	10	107		P
Calcium									NR
Chromium	75-125	161		130		39.8	78		P
Cobalt	75-125	104		1.1	J	99.6	104		P
Copper	75-125	145		96.4		49.8	97		P
Iron									NR
Lead	75-125	9.3		5.2		4.0	102		P
Magnesium									NR
Manganese	75-125	151		45.6		99.6	106		P
Mercury									
Nickel	75-125	108		3.4	J	99.6	105		P
Potassium									NR
Selenium	75-125	9.2		3.5	U	10	93		P
Silver	75-125	9.9		1.0	U	10	100		P
Sodium									NR
Thallium	75-125	10.2		2.5	U	10	103		P
Vanadium	75-125	110		7.7		99.6	103		P
Zinc	75-125	126		19.9		99.6	106		P
Cyanide									

Comments:

USEPA - CLP
5B-IN
POST-DIGESTION SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
MC0AB1A

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: _____ SDG No.: MC0AA0

Matrix: Soil

Concentration Units (ug/L or mg/kg dry weight): mg/kg

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony		11.3		6.0	U	11.9	94		P
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese									NR
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

USEPA - CLP
6-IN
DUPLICATES

EPA SAMPLE NO.
MC0AB1D

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil

% Solids for Sample: 95.7

Concentration Units (ug/L or mg/kg dry weight): mg/kg

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		4240		4780		12		P
Antimony		6.0	U	6.0	U			P
Arsenic		198		212		7		P
Barium	19.9	30.3		34.7		14		P
Beryllium		0.10	J	0.13	J	23		P
Cadmium		0.094	J	0.10	J	8		P
Calcium	498	2010		1270		45	*	P
Chromium		130		119		9		P
Cobalt		1.1	J	1.1	J	1		P
Copper		96.4		84.1		14		P
Iron		4360		5720		27	*	P
Lead		5.2		6.2		16		P
Magnesium		324	J	408	J	23		P
Manganese		45.6		47.5		4		P
Mercury								
Nickel		3.4	J	3.3	J	2		P
Potassium		274	J	359	J	27		P
Selenium		3.5	U	3.5	U			P
Silver		1.0	U	1.0	U			P
Sodium		18.9	J	24.2	J	25		P
Thallium		2.5	U	2.5	U			P
Vanadium	5.0	7.7		10.4		30		P
Zinc	6.0	19.9		17.5		13		P
Cyanide								

USEPA - CLP
7-IN
LABORATORY CONTROL SAMPLE

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: _____ SDG No.: MC0AA0

Analyte	Aqueous/Water (ug/L), Soil/Sediment (mg/kg), Wipe/Filter (ug)		
	True	Found	%R
Aluminum	40.0	43.4	108
Antimony	12.0	12.0	100
Arsenic	2.0	2.2	109
Barium	40.0	42.2	105
Beryllium	1.0	1.0	102
Cadmium	1.0	1.1	111
Calcium	1000	1090	109
Chromium	2.0	2.2	108
Cobalt	10.0	10.4	104
Copper	5.0	5.3	106
Iron	20.0	21.7	109
Lead	2.0	2.4	121
Magnesium	1000	1040	104
Manganese	3.0	3.2	108
Mercury			
Nickel	8.0	8.8	110
Potassium	1000	1010	101
Selenium	7.0	7.2	103
Silver	2.0	2.1	103
Sodium	1000	1050	105
Thallium	5.0	5.1	103
Vanadium	10.0	10.5	105
Zinc	12.0	13.1	109
Cyanide			

USEPA - CLP
8-IN
ICP-AES and ICP-MS SERIAL DILUTIONS

EPA SAMPLE NO.
MC0AB1L

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Matrix: Soil

Concentration Units (ug/L or mg/kg dry weight): mg/kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	4240		4190		1		P
Antimony	6.0	U	29.9	U			P
Arsenic	198		194		2		P
Barium	30.3		29.9	J	2		P
Beryllium	0.10	J	0.10	J	0		P
Cadmium	0.094	J	2.5	U	100		P
Calcium	2010		2010	J	0		P
Chromium	130		130		0		P
Cobalt	1.1	J	1.1	J	2		P
Copper	96.4		95.6		1		P
Iron	4360		4360		0		P
Lead	5.2		5.5		5		P
Magnesium	324	J	322	J	1		P
Manganese	45.6		45.6		0		P
Nickel	3.4	J	4.8	J	43		P
Potassium	274	J	286	J	4		P
Selenium	3.5	U	17.4	U			P
Silver	1.0	U	5.0	U			P
Sodium	18.9	J	30.4	J	61		P
Thallium	2.5	U	12.4	U			P
Vanadium	7.7		8.0	J	4		P
Zinc	19.9		19.8	J	1		P

USEPA - CLP
9-IN
METHOD DETECTION LIMIT (MDL) (ANNUALLY)

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Instrument Type: P Instrument ID: ICP07 Date: 05/28/2014

Preparation Method: 3050B

Concentration Units (ug/L, mg/kg or ug): mg/kg

Analyte	Wavelength/Mass	MDL
Aluminum	308.22	6.2
Antimony	206.83	0.33
Arsenic	189.04	0.32
Barium	455.40	0.076
Beryllium	313.11	0.018
Cadmium	214.44	0.017
Calcium	317.93	1.6
Chromium	205.55	0.059
Cobalt	228.62	0.050
Copper	324.75	0.22
Iron	259.84	3.0
Lead	220.35	0.30
Magnesium	279.08	2.8
Manganese	257.61	0.075
Mercury		
Nickel	231.60	0.13
Potassium	766.49	4.0
Selenium	196.09	0.52
Silver	328.07	0.12
Sodium	589.59	3.0
Thallium	190.86	0.34
Vanadium	292.40	0.077
Zinc	206.20	0.18
Cyanide		

Comments:

USEPA - CLP
10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

ICP-AES Instrument ID: ICP07 Date: 05/15/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	Ba
Aluminum	308.22	0	0	0	0	0
Antimony	206.83	0	0	0.000031	0	0
Arsenic	189.04	-0.000029	0	0	0	0
Barium	455.40	0	0	0	0	0
Beryllium	313.11	0	0	0	0	0
Cadmium	214.44	-0.000020	0	0.000034	0	0
Calcium	317.93	0	0	0	0	0
Chromium	205.55	0	0	0	0	0
Cobalt	228.62	0	0	0.000022	0	0.000199
Copper	324.75	0	0	0.000016	0	0
Iron	259.84	0	0	0	0	0
Lead	220.35	0.000326	0	0.000029	0	0
Magnesium	279.08	0	0	0	0	0
Manganese	257.61	0	0	0	0	0
Nickel	231.60	0	0	0.000157	0	0
Potassium	766.49	0	0	0	0	0
Selenium	196.09	0	0	0.000011	0	0
Silver	328.07	0	0	0	0	0
Sodium	589.59	0	0	0	0	0
Thallium	190.86	0	0	-0.000015	0	0
Vanadium	292.40	0	0	0.000012	0	0
Zinc	206.20	0	0	0.000010	0	0

Comments:

USEPA - CLP
10B-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

ICP-AES Instrument ID: ICP07 Date: 05/15/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for:				
		Be	Co	Cr	Cu	Mn
Aluminum	308.22	0	0	0	0	0
Antimony	206.83	0	0	0.013965	0	0
Arsenic	189.04	0	0	0.000418	0	-0.000068
Barium	455.40	0	0	0	0	0
Beryllium	313.11	0	0	0	0	0
Cadmium	214.44	0	0	0	0	0
Calcium	317.93	0	0	0	0	0
Chromium	205.55	0.000369	0	0	0	0
Cobalt	228.62	0	0	0	0	0
Copper	324.75	0	0	0	0	0
Iron	259.84	0	0	0	0	0.003157
Lead	220.35	0	-0.000054	0	0.000346	0
Magnesium	279.08	0	0	0	0	-0.006705
Manganese	257.61	0	0	0	0	0
Nickel	231.60	-0.000620	0.000457	0	0	0
Potassium	766.49	0	0	0	0	0
Selenium	196.09	0	0	0	0	0.000570
Silver	328.07	0	0	0	0	0.000198
Sodium	589.59	0	0	0	0	0
Thallium	190.86	0	0.002342	0.000151	0	0.001219
Vanadium	292.40	0	0	0	0	0
Zinc	206.20	0	0	-0.000162	0	0

Comments:

USEPA - CLP
10B-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

ICP-AES Instrument ID: ICP07 Date: 05/15/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Mo	Ni	Ti	Tl	V
Aluminum	308.22	0.031398	0	0	0	0.043018
Antimony	206.83	-0.001807	0	0	0	0
Arsenic	189.04	0.000617	0	0	0	0.000078
Barium	455.40	0	0	0	0	0
Beryllium	313.11	0	0	0	0	0.003050
Cadmium	214.44	0	0	0	0	0.000026
Calcium	317.93	0	0	0	0	0
Chromium	205.55	0.000537	0	0	0	0.000043
Cobalt	228.62	0	0.000221	0.002076	0	0
Copper	324.75	0.000628	0	0	0	-0.000077
Iron	259.84	0	0	0	0	0
Lead	220.35	0	0.000332	0	0	-0.000072
Magnesium	279.08	0	0	0	0	0
Manganese	257.61	0	0	0	0	0
Nickel	231.60	0.002671	0	0	0.000413	0
Potassium	766.49	0	0	0	0	0
Selenium	196.09	0	0	0	0	-0.000070
Silver	328.07	0.000178	0	-0.000006	0	0.000043
Sodium	589.59	0	0	0	0	0
Thallium	190.86	0	0	0.000382	0	0.001729
Vanadium	292.40	-0.001190	0	0.000781	0	0
Zinc	206.20	0.000344	0	0	0	0

Comments:

USEPA - CLP
12-IN
PREPARATION LOG

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Preparation Method: 3050B

EPA Sample No.	Preparation Date	Initial Weight/Volume (g) or (ml)	Final Volume (mL)
PBS1	07/07/2014	1.00	100
LCS1	07/07/2014	1.00	100
MC0AA0	07/07/2014	1.21	100
MC0AA1	07/07/2014	1.35	100
MC0AA2	07/07/2014	1.23	100
MC0AA3	07/07/2014	1.27	100
MC0AA4	07/07/2014	1.47	100
MC0AA5	07/07/2014	1.27	100
MC0AA6	07/07/2014	1.44	100
MC0AA7	07/07/2014	1.24	100
MC0AA8	07/07/2014	1.13	100
MC0AA9	07/07/2014	1.40	100
MC0AB0	07/07/2014	1.31	100
MC0AB1	07/07/2014	1.05	100
MC0AB1D	07/07/2014	1.05	100
MC0AB1S	07/07/2014	1.05	100
MC0AB2	07/07/2014	1.05	100
MC0AB3	07/07/2014	1.04	100
MC0AB4	07/07/2014	1.26	100
MC0AB5	07/07/2014	1.12	100
MC0AB6	07/07/2014	1.15	100
MC0AB7	07/07/2014	1.13	100
MC0AB8	07/07/2014	1.13	100
MC0AB9	07/07/2014	1.34	100

USEPA - CLP
13-IN
ANALYSIS RUN LOG

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Instrument ID: ICP07 Analysis Method: P

Start Date: 07/10/2014 End Date: 07/10/2014

EPA Sample No.	D/F	Time	Analytes																									
			Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn	Cn		
S0	1.0	1355	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
SA	1.0	1358	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
SB	1.0	1401	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
SC	1.0	1404	X	X	X	X	X	X		X	X	X	X	X		X		X		X	X		X	X	X			
SD	1.0	1406	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
SE	1.0	1409	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
SF	1.0	1412		X	X	X	X	X		X	X	X		X		X		X		X	X		X	X	X			
S500000	1.0	1416	X						X				X		X				X			X						
ICV1	1.0	1419	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ICB1	1.0	1422	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ICSA1	1.0	1425	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ICSAB1	1.0	1428	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCV1	1.0	1431	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB1	1.0	1434	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
PBS1	1.0	1437	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
LCS1	1.0	1440	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AA0	1.0	1443	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AA1	1.0	1446	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AA2	1.0	1449	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AA3	1.0	1452	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AA4	1.0	1454	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AA5	1.0	1457	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AA6	1.0	1500	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AA7	1.0	1503	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AA8	1.0	1506	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AA9	1.0	1508	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AB0	1.0	1511	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AB1	1.0	1514	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AB1S	1.0	1517		X	X	X	X	X		X	X	X		X		X		X		X	X		X	X	X			
MC0AB1D	1.0	1519	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AB1L	5.0	1522	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AB2	1.0	1525	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			

USEPA - CLP
13-IN
ANALYSIS RUN LOG

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Instrument ID: ICP07 Analysis Method: P

Start Date: 07/10/2014 End Date: 07/10/2014

EPA Sample No.	D/F	Time	Analytes																										
			Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn	Cn			
MC0AB3	1.0	1528	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AB4	1.0	1531	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AB5	1.0	1533	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AB6	1.0	1536	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AB7	1.0	1539	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AB8	1.0	1542	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AB9	1.0	1545	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AB1A	1.0	1547		X																									
CCV2	1.0	1550	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB2	1.0	1554	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				

USEPA - CLP
16-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Instrument ID: ICP07 Start Date: 07/10/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	0.0	0.020		200	200	0	1000	982	2
Antimony	0.0	0.0		60.0	60.0	0	200	191	5
Arsenic	0.0	0.0		10.0	11.7	-17	80.0	80.1	0
Barium	0.0	-0.010		200	211	-5	750	746	1
Beryllium	0.0	0.0		5.0	5.1	-1	80.0	78.9	1
Cadmium	0.0	0.0		5.0	5.5	-10	80.0	84.5	-6
Calcium	0.0	-0.66		5000	5470	-9	25000	25700	-3
Chromium	0.0	0.0		10.0	10.4	-4	200	205	-2
Cobalt	0.0	0.0		50.0	52.0	-4	200	200	0
Copper	0.0	0.0		25.0	25.9	-4	200	195	2
Iron	0.0	-0.010		100	110	-10	1000	1020	-2
Lead	0.0	0.0		10.0	11.3	-13	200	197	2
Magnesium	0.0	-0.14		5000	5230	-5	25000	24800	1
Manganese	0.0	0.0		15.0	16.3	-9	200	199	0
Mercury									
Nickel	0.0	0.0		40.0	42.2	-5	200	204	-2
Potassium	0.0	0.22		5000	5070	-1	25000	23900	4
Selenium	0.0	0.0		35.0	34.2	2	80.0	79.6	1
Silver	0.0	0.0		10.0	10.3	-3	125	122	3
Sodium	0.0	-0.13		5000	5200	-4	25000	24700	1
Thallium	0.0	0.0		25.0	29.2	-17	80.0	80.7	-1
Vanadium	0.0	0.0		50.0	52.5	-5	200	201	0
Zinc	0.0	-0.020		60.0	65.0	-8	200	210	-5
Cyanide									

Control Limits ±30

USEPA - CLP
16-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Instrument ID: ICP07 Start Date: 07/10/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	5000	4840	3	50000	49000	2	250000	244000	2
Antimony	2000	1950	2	5000	4990	0	25000	24500	2
Arsenic	800	762	5	2000	2070	-4	10000	10500	-5
Barium	2000	2000	0	5000	5040	-1	25000	24400	3
Beryllium	800	785	2	2000	2030	-2	10000	9830	2
Cadmium	800	842	-5	2000	2130	-7	10000	10200	-2
Calcium				125000	128000	-3	250000	246000	2
Chromium	2000	2040	-2	5000	5260	-5	25000	25700	-3
Cobalt	2000	2020	-1	5000	5060	-1	25000	24800	1
Copper	2000	2040	-2	5000	5000	0	25000	24500	2
Iron	5000	5080	-2	50000	50800	-2	250000	247000	1
Lead	2000	2010	0	5000	4930	1	25000	24200	3
Magnesium				125000	124000	0	250000	246000	1
Manganese	2000	2010	0	5000	5010	0	25000	24200	3
Mercury									
Nickel	2000	2050	-2	5000	5080	-2	25000	24700	1
Potassium				125000	123000	2	250000	247000	1
Selenium	800	779	3	2000	2020	-1	10000	9860	1
Silver	250	246	1	500	497	1	1000	1020	-2
Sodium				125000	125000	0	250000	250000	0
Thallium	800	831	-4	2000	2000	0	10000	9390	6
Vanadium	2000	2020	-1	5000	5060	-1	25000	24600	2
Zinc	2000	2090	-4	5000	5360	-7	25000	25800	-3
Cyanide									

Control Limits ±30

USEPA - CLP
16-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AA0

Instrument ID: ICP07 Start Date: 07/10/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum				500000	507000	-1			
Antimony	50000	50600	-1						
Arsenic	20000	19500	3						
Barium	50000	50600	-1						
Beryllium	20000	20200	-1						
Cadmium	20000	19600	2						
Calcium				500000	499000	0			
Chromium	50000	49000	2						
Cobalt	50000	50100	0						
Copper	50000	50500	-1						
Iron				500000	502000	0			
Lead	50000	50900	-2						
Magnesium				500000	504000	-1			
Manganese	50000	50800	-2						
Mercury									
Nickel	50000	50200	0						
Potassium				500000	506000	-1			
Selenium	20000	20100	-1						
Silver	2000	1990	0						
Sodium				500000	500000	0			
Thallium	20000	20600	-3						
Vanadium	50000	50400	-1						
Zinc	50000	48800	2						
Cyanide									

Control Limits ±30

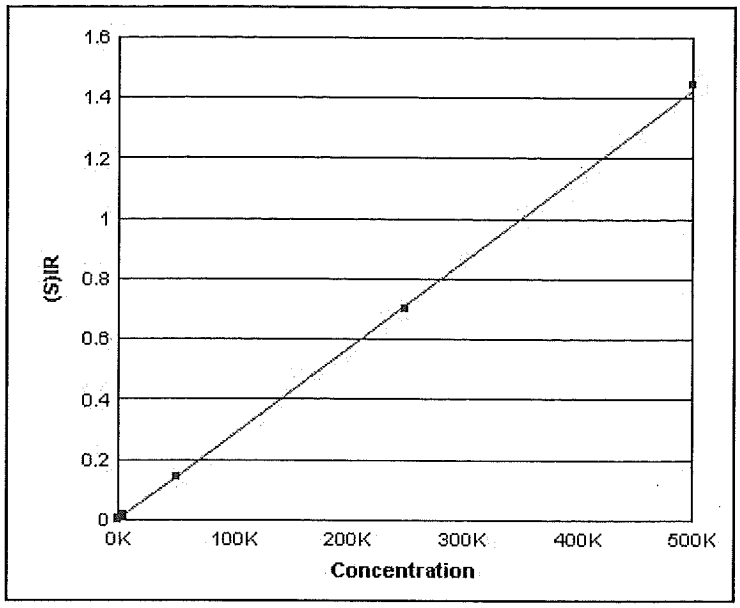
Run# i14045		Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908	V_2924	Zn2062
		Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
S0	07/10/2014 13:55:32	0.00063	0.00041	-0.00133	0.00243	-0.00011	-0.00082	0.00301	0.00033	0.00054	0.00104	0.00006	0.00066	-0.00007	0.00005	-0.00207	-0.00329	0.00024	-0.00001	-0.00393	0.00024	-0.00005	0.0001
SA	07/10/2014 13:58:30	0.0012	0.00594	-0.0004	0.10377	0.00507	0.00868	0.13394	0.0101	0.02922	0.00233	0.00145	0.0029	0.01713	0.00316	0.00687	0.04201	0.00182	0.00058	0.2215	0.00462	0.0009	0.03012
SB	07/10/2014 14:01:25	0.00345	0.01823	0.00506	0.36109	0.07879	0.14471	0.61719	0.19283	0.1108	0.01081	0.01292	0.03962	0.08146	0.03803	0.04109	0.21034	0.00392	0.00695	1.0653	0.01241	0.00358	0.09684
SC	07/10/2014 14:04:11	0.0147	0.18283	0.05953	0.96298	0.78535	1.4493		1.9209	1.1121	0.10332	0.0644	0.39747		0.38332	0.43144		0.03621	0.01413		0.12546	0.0364	0.96265
SD	07/10/2014 14:06:49	0.14086	0.46662	0.1641	2.4259	2.0315	3.6747	3.0766	4.9404	2.789	0.25135	0.64268	0.97807	0.40896	0.95481	1.0742	1.0937	0.09346	0.02855	5.4067	0.30139	0.09146	2.4739
SE	07/10/2014 14:09:20	0.69929	2.2848	0.83571	11.719	9.8403	17.636	5.8914	24.116	13.697	1.2255	3.118	4.7917	0.80938	4.6088	5.2393	2.204	0.45559	0.05857	10.826	1.4162	0.4439	11.889
SF	07/10/2014 14:12:52		4.7206	1.5539	24.318	20.159	33.723		46.097	27.615	2.5273		10.054		9.6937	10.616		0.93066	0.11496		3.0999	0.91045	22.524
S500000	07/10/2014 14:16:31	1.4422						11.944				6.3494		1.6574			4.5142			21.681			
		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ICV1	07/10/2014 14:19:44	2610.3	994.96	992.57	526.46	513.1	537.54	10866	523.24	518.71	521.34	5415.8	1031.8	6259.3	525.36	529.31	10229	995.03	508.68	10439	1075.8	524.67	1091
ICB1	07/10/2014 14:22:19	-3.2559	-0.7676	1.6703	-0.38496	0.12315	0.39736	-0.57098	0.00458	-0.07788	0.63052	3.5569	1.6812	2.6754	0.51192	3.116	80.372	0.82534	-0.12932	81.615	-0.5355	0.36031	0.66793
ICSA1	07/10/2014 14:25:18	238440	2.4618	-1.0744	1.7731	0.51058	-0.88711	251830	46.696	3.924	23.182	99026	7.6275	247970	25.404	22.676	81.022	-2.1362	-0.97564	857.57	4.1888	1.5788	32.982
ICSAB1	07/10/2014 14:28:20	247870	600.36	100.6	523.18	522.73	1107.3	261290	592.95	524.21	558.19	103120	59.848	257530	544.4	1085.9	44.395	50.44	215.82	883.58	104.53	524.26	1158.5
CCV1	07/10/2014 14:31:08	238610	24064	10240	24119	9553.6	10099	244820	25174	24517	24139	240370	23839	240690	23630	24392	241930	9676	1012.4	244590	9220.8	24223	25351
CCB1	07/10/2014 14:34:39	19.59	1.7121	2.4696	0.89408	0.49592	0.47134	10.733	0.19234	0.55333	0.97635	5.4832	3.437	3.9482	1.3259	2.255	129.5	0.25616	-0.0894	106.08	2.2418	1.1736	0.55356
PBS1	07/10/2014 14:37:38	2.873	1.9104	4.1744	0.12907	0.17124	0.35392	46.996	0.25979	0.20711	0.76968	21.314	1.1311	1.5584	0.49251	1.4616	77.512	-3.6869	-0.17557	68.375	0.06603	0.14443	1.2576
LCS1	07/10/2014 14:40:37	433.71	120.44	21.737	421.55	10.196	11.059	10909	21.678	104.13	53.047	217.37	24.143	10430	32.317	87.611	10112	72.429	20.664	10451	51.272	104.58	130.68
MC0AA0	07/10/2014 14:43:31	36009	0.0884	16.633	521.92	1.7305	0.59166	23689	40.189	6.7015	26.974	34340	168.43	2407.9	1666.3	21.019	1972.1	-0.56695	-0.96339	108.62	-2.2376	79.58	122.78
MC0AA1	07/10/2014 14:46:24	44765	-0.07937	17.177	790.49	3.1625	1.2235	20765	40.745	12.33	31.714	33489	135.62	4580.9	1429	27.858	2606	5.0563	-1.6146	108.69	-1.9587	72.012	285.05
MC0AA2	07/10/2014 14:49:14	26346	1.378	19.046	448	1.0453	2.3058	31395	37.322	7.65	52.811	38107	236.23	2983.8	1199.1	21.552	2506.5	-0.19094	-0.61493	96.393	-2.8484	68.134	510.64
MC0AA3	07/10/2014 14:52:04	25173	-4.9019	1081.5	236.88	2.5492	3.4158	18079	1425.8	27.05	806.35	86695	137.73	3679.4	879.22	32.866	2484.7	-0.09943	-1.8548	172.9	-3.6802	77.116	439.36
MC0AA4	07/10/2014 14:54:50	57753	-4.4738	364.57	441.95	3.8098	2.7789	11515	684.99	114.79	309.3	187420	234.51	2823	2305.1	97.813	2917.9	5.438	-3.2851	151.59	-5.1242	178.67	222.17
MC0AA5	07/10/2014 14:57:37	35682	-1.1551	258.62	352.19	2.0364	2.1371	54973	552.34	34.298	303.98	106880	120.83	10581	1374.4	53.933	4774.9	2.1082	-2.466	274.71	-2.9409	111.93	267.83
MC0AA6	07/10/2014 15:00:24	32915	4.2701	2932.3	457.18	2.0091	3.7694	165430	1834.6	14.999	4250.7	68201	243.12	66665	1118	40.705	3297.1	-0.78356	-0.05858	383.92	-1.3658	84.328	1198
MC0AA7	07/10/2014 15:03:18	54179	0.96022	488.41	572.88	2.8054	3.509	54615	670.73	48.079	648.69	106820	225.01	10185	1950.9	54.881	4985.6	6.3991	-1.5871	381.63	-3.0812	148.32	683.51
MC0AA8	07/10/2014 15:06:04	15639	-2.6491	529.24	164.74	0.80926	1.5371	18364	601.72	9.1311	453.53	31303	84.427	3060.6	467.43	21.079	1382.2	0.95467	-0.13562	153.53	-2.3506	36.895	244.44
MC0AA9	07/10/2014 15:08:53	39138	3.7693	666.42	542.98	1.9045	3.2272	26131	650.35	41.308	364.03	112600	263.23	5436.9	2072.3	107.3	2871	0.69927	-1.4998	359.15	-3.466	89.388	4181.7
MC0AB0	07/10/2014 15:11:40	47065	1.5967	1419.4	429.97	1.9929	5.4193	94221	1634.7	36.619	1065.1	172380	196.8	10206	1644.4	143.01	2957.9	4.57	-0.57948	371.94	-6.4921	107.16	1718.7
MC0AB1	07/10/2014 15:14:25	42619	-1.3697	1989.3	304.69	1.024	0.94003	20176	1309.3	10.947	968.26	43811	52.688	3249.9	457.59	33.692	2753.5	-4.3208	-0.11488	189.36	-1.9188	77.695	199.89
MC0AB1S	07/10/2014 15:17:12	47947	F 94.927	F 2018.5	4620.2	104.82	108.3	13443	1621.2	1047	1453.6	48094	93.406	3247.2	1512.9	1083.7	3018.9	92.523	99.644	196.42	102.84	1103	1262.7
MC0AB1D	07/10/2014 15:19:52	48044	2.8197	2125.1	348.97	1.2876	1.0234	12731	1197.8	11.072	844.62	57465	61.79	4100	476.73	33.055	3604.4	0.66293	-0.60621	243.23	-2.441	104.75	176.21
MC0AB1L	07/10/2014 15:22:40	8419.4	-0.27841	389.08	59.967	0.20436	0.16174	4029.5	261.06	2.237	191.97	8754.4	11.089	646	91.513	9.6567	574.2	-1.1333	-0.28505	61.09	-1.8145	16.141	39.744
MC0AB2	07/10/2014 15:25:34	58414	4.0797	1128.6	472.79	2.442	1.7671	37424	1160.2	31.351	743.78	65904	120.23	9260.7	824.94	44.919	5316	-1.2615	-1.808	391.25	-2.9504	117.75	250.24
MC0AB3	07/10/2014 15:28:19	97941	1.4651	1232.3	806.11	3.3104	4.0236	63402	3931.6	81.62	977.97	219080	162.18	19525	1907.9	419.73	5860.6	4.3838	0.19574	1646	-5.6844	219.01	2771.9
MC0AB4	07/10/2014 15:31:01	64719	4.9251	1985.6	1495.7	3.2012	16.565	34172	1916.1	175.23	1375.8	118240	442.41	8580.8	1992.4	159.6	5460.1	1.98	-0.56286	545.21	-5.0862	148.99	1344.8
MC0AB5	07/10/2014 15:33:43	25033	10.343	4554	724.78	1.4875	7.1362	201300	2848.2	13.495	10560	64869	480.48	95223	1270.4	37.708	2157.6	4.9576	0.11318	451.86	-3.3394	65.579	2126.7
MC0AB6	07/10/2014 15:36:44	46826	-2.3683	502.4	458.71	2.3355	3.0423	40960	765.09	55.031	470.21	104220	233.51	6080.9	1634	61.802	3720.5	4.7853	-1.2697	275.79	-4.1299	130.63	524.92
MC0AB7	07/10/2014 15:39:30	35192	-0.46433	512.03	651.17	2.03	4.1994	20499	697.95	41.714	584.24	170470	136.66	5351.9	1648	90.451	2359.3	2.3173	-0.31121	911.5	-7.5627	104.56	1476.7
MC0AB8	07/10/2014 15:42:18	25244	0.04765	237.02	425.04	0.99923	2.3781	59371	250.21	17.729	179.3	64919	114.41	9889.1	906.62	36.166	7821.7	-0.08011	-0.74564	339.9	-2.7114	81.845	479.99
MC0AB9	07/10/2014 15:45:04	86248	6.0653	2626.2	554.28	4.0358	4.0028	21217	3066.9	69.634	1773.2	156820	219.36	7196.5	1378.1	81.267	5313.9	3.4977	-3.1202	345	-4.5239	217.81	1109.3
MC0AB1A	07/10/2014 15:47:50	42946	113.18	1990.3	306.19	0.96765	0.91805	20241	1319.4	10.858	981.16	44118	52.682	3275.3	462.36	33.431	2756.1	1.5669	-1.2204	194.39	-1.0537	77.697	200.87
CCV2	07/10/2014 15:50:37	241650	24012	10231	24864	9712.2	10058	244980	25196	24503	24362	242570	23758	242430	23563	24372	245580	9645.3	1001.4	248130	9203.1	24270	25172
CCB2	07/10/2014 15:54:08	31.23	2.1829	2.6149	0.41271	0.42186	0.43056	5.8784	0.04465	0.12229	1.738	9.6416	3.91	26.425	1.2937	3.4262	108.09	-1.14	-0.02875	72.127	1.9916	0.73353	1.0313

Calibration curves for i14045

Report Author: Joanna Sanchez

Published: 07/14/2014 09:42:36

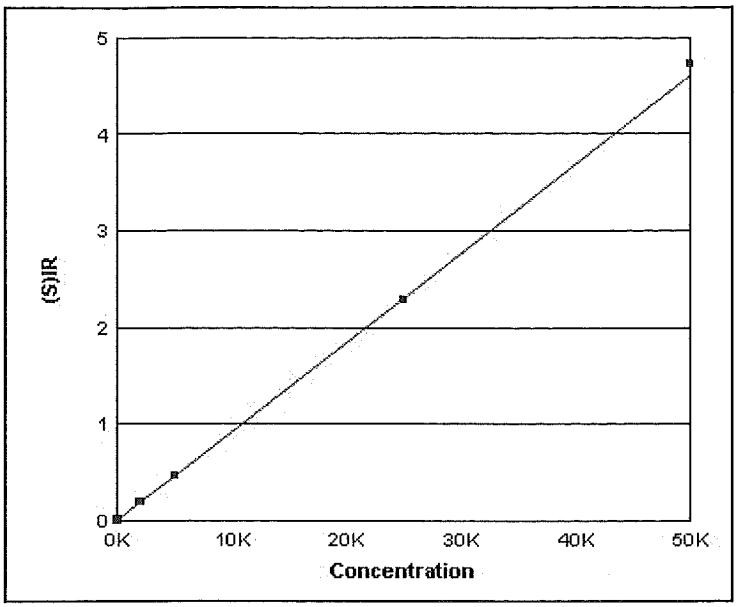
Method Name: ICP07 ISM01.3 2014 (10)



Element Name:	Al
Element Wavelength:	Al 308.215 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:19:32PM
Date of Fit:	7/10/2014 2:19:32PM
Type of Fit:	Linear
Correlation:	0.999846
A0 (Offset):	0.000627
A1 (Gain):	0.000003
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

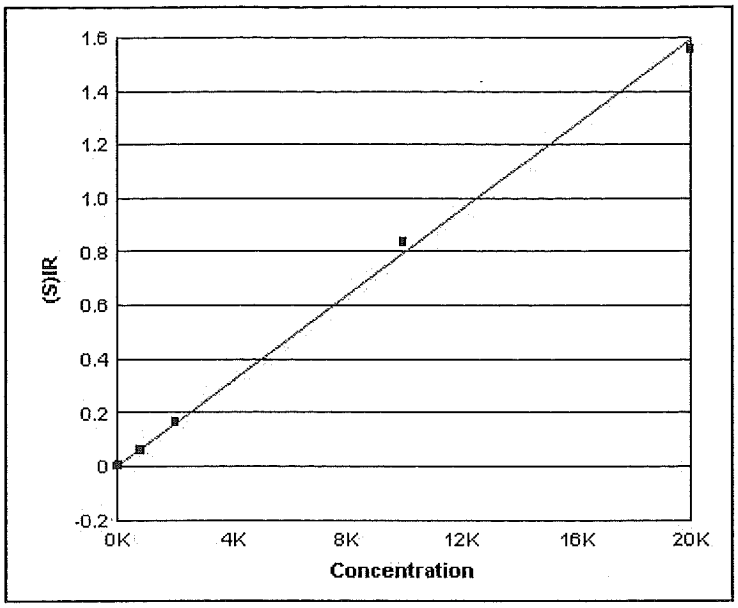
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.02	0.02	0.00	0.00	0.00	1
SA	200.00	199.77	-0.23	-0.11	0.00	0.00	1
SB	1,000.00	982.08	-17.92	-1.79	0.00	0.00	1
SC	5,000.00	4,838.58	-161.42	-3.23	0.01	0.00	1
SD	50,000.00	49,033.55	-966.45	-1.93	0.14	0.00	1
SE	250,000.00	244,288.55	-5,711.45	-2.28	0.70	0.00	1
S500000	500,000.00	506,898.36	6,898.36	1.38	1.44	0.01	1



Element Name:	Sb
Element Wavelength:	Sb 206.833 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:16PM
Date of Fit:	7/10/2014 2:16:16PM
Type of Fit:	Linear
Correlation:	0.999883
A0 (Offset):	0.000409
A1 (Gain):	0.000092
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

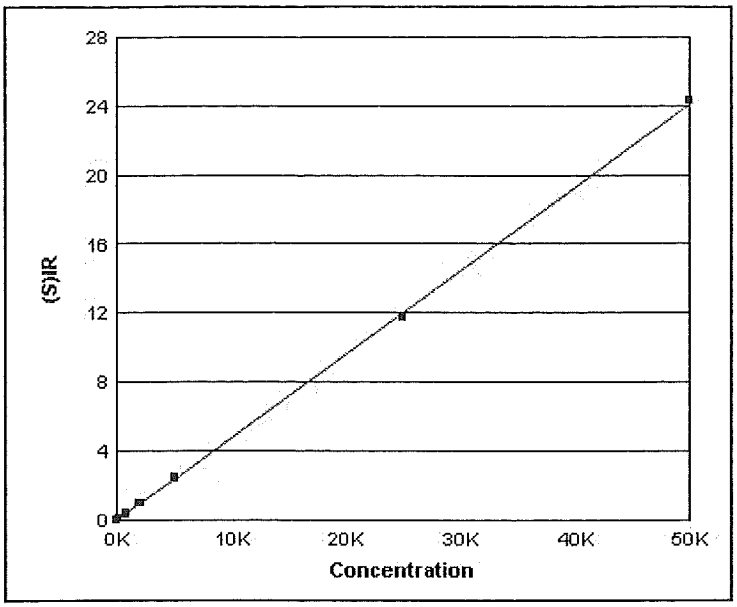
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	60.00	59.96	-0.04	-0.07	0.01	0.00	1
SB	200.00	190.81	-9.19	-4.60	0.02	0.00	1
SC	2,000.00	1,954.23	-45.77	-2.29	0.18	0.00	1
SD	5,000.00	4,994.71	-5.29	-0.11	0.47	0.01	1
SE	25,000.00	24,467.45	-532.55	-2.13	2.28	0.02	1
SF	50,000.00	50,593.01	593.01	1.19	4.72	0.01	1



Element Name:	As
Element Wavelength:	As 189.042 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:16PM
Date of Fit:	7/10/2014 2:16:16PM
Type of Fit:	Linear
Correlation:	0.999356
A0 (Offset):	-0.001334
A1 (Gain):	0.000080
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

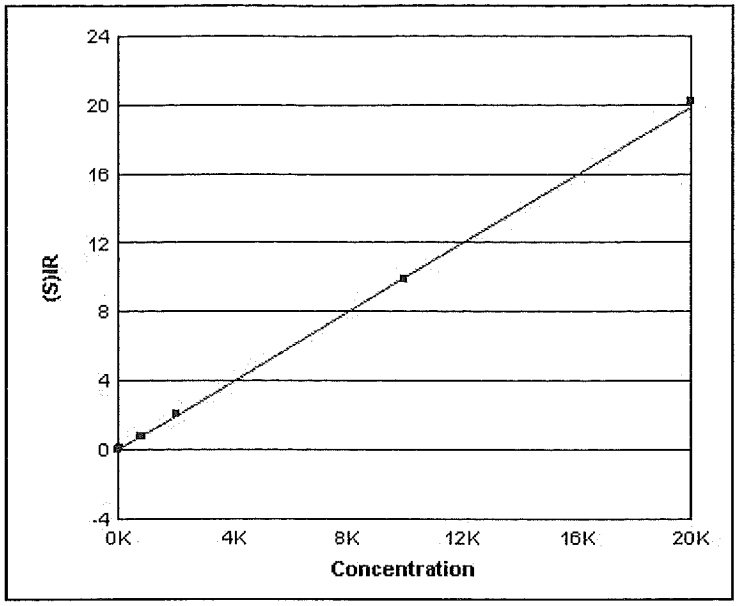
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	10.00	11.70	1.70	17.03	0.00	0.00	1
SB	80.00	80.05	0.05	0.07	0.01	0.00	1
SC	800.00	762.27	-37.73	-4.72	0.06	0.00	1
SD	2,000.00	2,073.18	73.18	3.66	0.16	0.00	1
SE	10,000.00	10,489.45	489.45	4.89	0.84	0.01	1
SF	20,000.00	19,473.75	-526.25	-2.63	1.55	0.01	1



Element Name:	Ba
Element Wavelength:	Ba 455.403 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:16PM
Date of Fit:	7/10/2014 2:16:16PM
Type of Fit:	Linear
Correlation:	0.999859
A0 (Offset):	0.002432
A1 (Gain):	0.000481
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

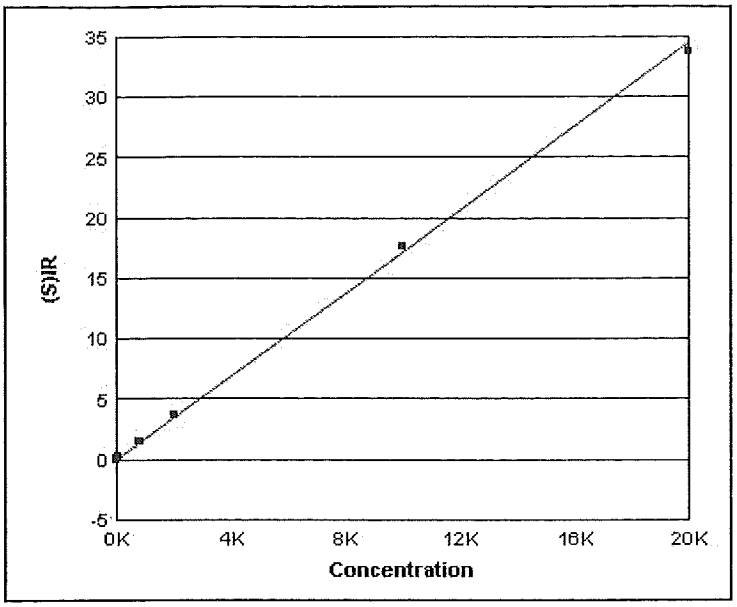
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.01	-0.01	0.00	0.00	0.00	1
SA	200.00	210.80	10.80	5.40	0.10	0.00	1
SB	750.00	746.09	-3.91	-0.52	0.36	0.00	1
SC	2,000.00	1,998.15	-1.85	-0.09	0.96	0.00	1
SD	5,000.00	5,041.30	41.30	0.83	2.43	0.01	1
SE	25,000.00	24,372.77	-627.23	-2.51	11.72	0.23	1
SF	50,000.00	50,580.89	580.89	1.16	24.32	0.39	1



Element Name:	Be
Element Wavelength:	Be 313.107 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:16PM
Date of Fit:	7/10/2014 2:16:16PM
Type of Fit:	Linear
Correlation:	0.999930
A0 (Offset):	-0.000109
A1 (Gain):	0.000993
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

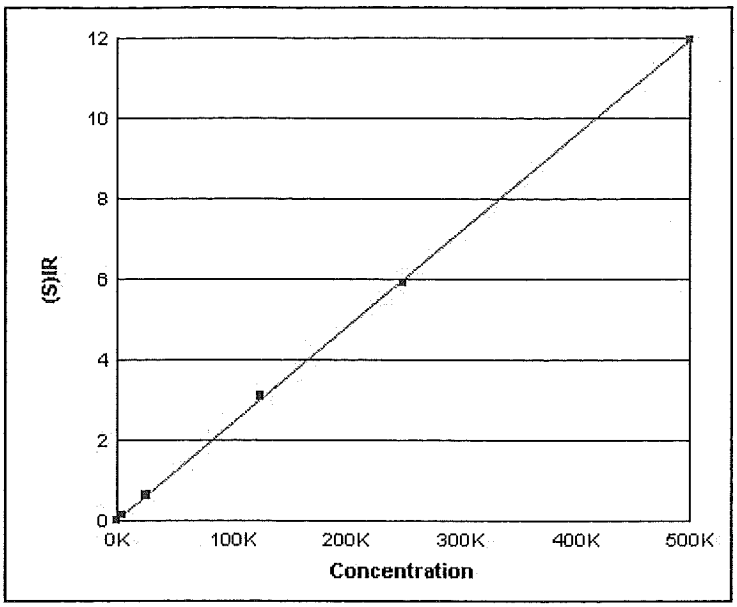
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	5.00	5.06	0.06	1.28	0.01	0.00	1
SB	80.00	78.85	-1.15	-1.44	0.08	0.00	1
SC	800.00	784.98	-15.02	-1.88	0.79	0.00	1
SD	2,000.00	2,030.84	30.84	1.54	2.03	0.01	1
SE	10,000.00	9,834.54	-165.46	-1.65	9.84	0.04	1
SF	20,000.00	20,150.73	150.73	0.75	20.16	0.27	1



Element Name:	Cd
Element Wavelength:	Cd 214.438 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:16PM
Date of Fit:	7/10/2014 2:16:16PM
Type of Fit:	Linear
Correlation:	0.999608
A0 (Offset):	-0.000814
A1 (Gain):	0.001722
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

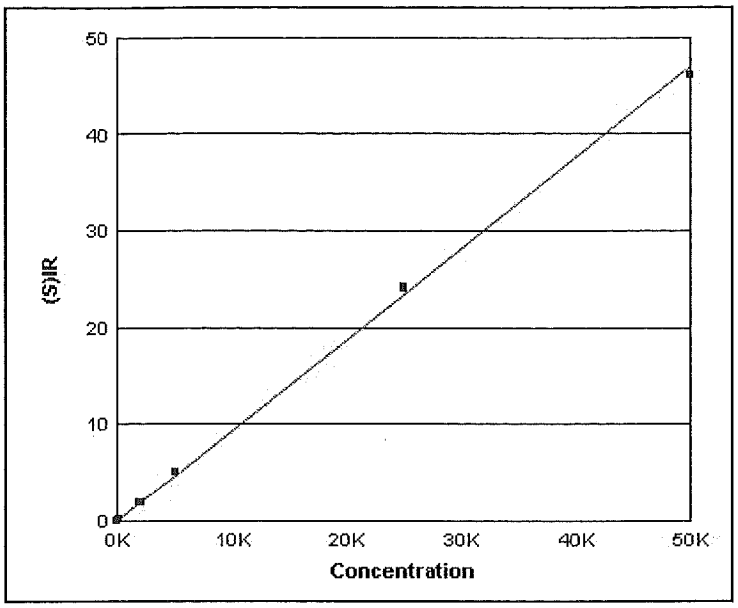
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	5.00	5.51	0.51	10.22	0.01	0.00	1
SB	80.00	84.48	4.48	5.61	0.14	0.00	1
SC	800.00	841.95	41.95	5.24	1.45	0.01	1
SD	2,000.00	2,133.53	133.53	6.68	3.67	0.04	1
SE	10,000.00	10,237.37	237.37	2.37	17.64	0.14	1
SF	20,000.00	19,582.02	-417.98	-2.09	33.72	0.26	1



Element Name:	Ca
Element Wavelength:	Ca 317.933 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:19:32PM
Date of Fit:	7/10/2014 2:19:32PM
Type of Fit:	Linear
Correlation:	0.999878
A0 (Offset):	0.003023
A1 (Gain):	0.000024
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

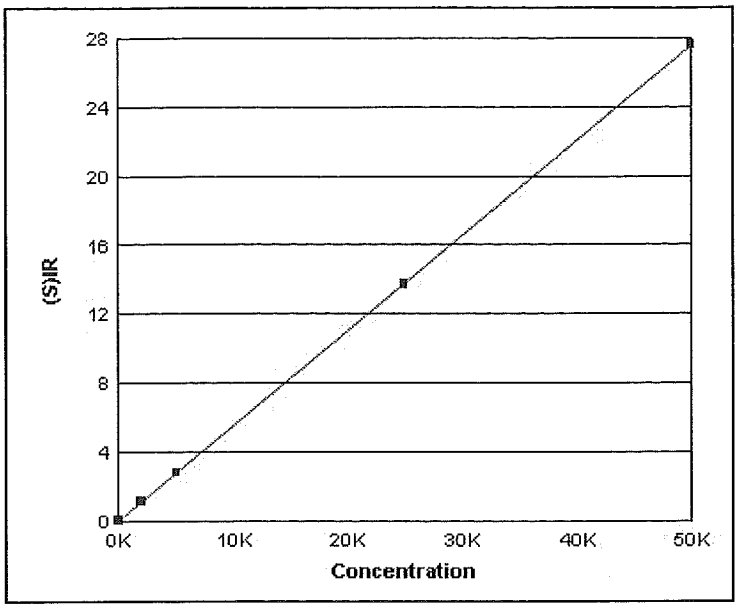
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.66	-0.66	0.00	0.00	0.00	1
SA	5,000.00	5,472.93	472.93	9.46	0.13	0.00	1
SB	25,000.00	25,674.99	674.99	2.70	0.62	0.00	1
SD	125,000.00	128,489.04	3,489.04	2.79	3.08	0.02	1
SE	250,000.00	246,164.20	-3,835.80	-1.53	5.89	0.03	1
S500000	500,000.00	499,198.84	-801.16	-0.16	11.94	0.09	1



Element Name:	Cr
Element Wavelength:	Cr 205.552 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:16PM
Date of Fit:	7/10/2014 2:16:16PM
Type of Fit:	Linear
Correlation:	0.999698
A0 (Offset):	0.000335
A1 (Gain):	0.000940
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

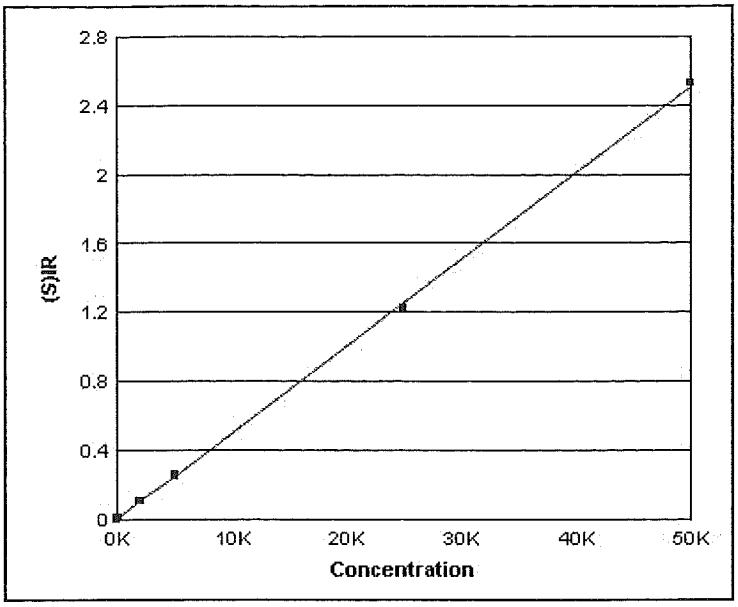
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	10.00	10.38	0.38	3.80	0.01	0.00	1
SB	200.00	204.79	4.79	2.39	0.19	0.00	1
SC	2,000.00	2,043.23	43.23	2.16	1.92	0.01	1
SD	5,000.00	5,255.68	255.68	5.11	4.94	0.06	1
SE	25,000.00	25,655.44	655.44	2.62	24.12	0.19	1
SF	50,000.00	49,040.48	-959.52	-1.92	46.10	0.37	1



Element Name:	Co
Element Wavelength:	Co 228.616 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:16PM
Date of Fit:	7/10/2014 2:16:16PM
Type of Fit:	Linear
Correlation:	0.999988
A0 (Offset):	0.000538
A1 (Gain):	0.000551
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

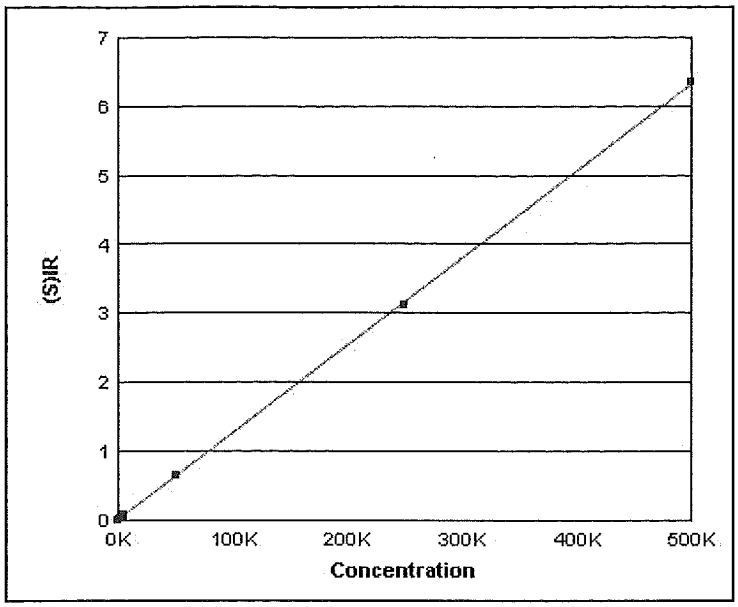
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	50.00	51.99	1.99	3.98	0.03	0.00	1
SB	200.00	199.86	-0.14	-0.07	0.11	0.00	1
SC	2,000.00	2,016.13	16.13	0.81	1.11	0.01	1
SD	5,000.00	5,056.71	56.71	1.13	2.79	0.03	1
SE	25,000.00	24,837.60	-162.40	-0.65	13.70	0.10	1
SF	50,000.00	50,087.72	87.72	0.18	27.61	0.10	1



Element Name:	Cu
Element Wavelength:	Cu 324.754 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:16PM
Date of Fit:	7/10/2014 2:16:16PM
Type of Fit:	Linear
Correlation:	0.999895
A0 (Offset):	0.001039
A1 (Gain):	0.000050
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

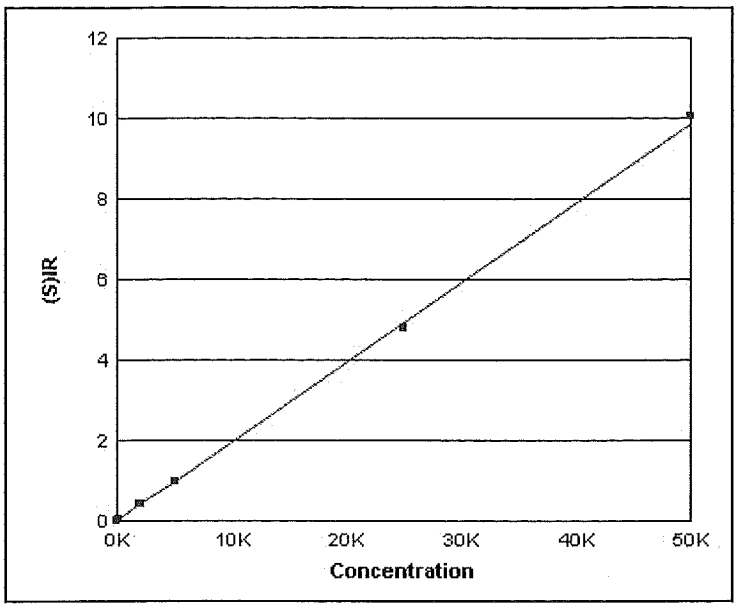
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	25.00	25.91	0.91	3.62	0.00	0.00	1
SB	200.00	195.29	-4.71	-2.35	0.01	0.00	1
SC	2,000.00	2,044.14	44.14	2.21	0.10	0.00	1
SD	5,000.00	5,001.83	1.83	0.04	0.25	0.00	1
SE	25,000.00	24,468.32	-531.68	-2.13	1.23	0.01	1
SF	50,000.00	50,489.60	489.60	0.98	2.53	0.02	1



Element Name:	Fe
Element Wavelength:	Fe 259.837 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:19:32PM
Date of Fit:	7/10/2014 2:19:32PM
Type of Fit:	Linear
Correlation:	0.999954
A0 (Offset):	0.000056
A1 (Gain):	0.000013
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

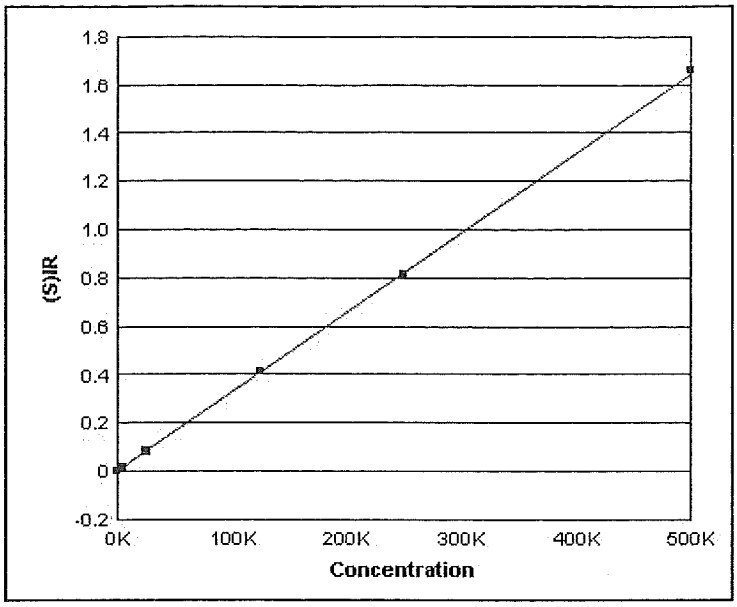
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.01	-0.01	0.00	0.00	0.00	1
SA	100.00	110.31	10.31	10.31	0.00	0.00	1
SB	1,000.00	1,017.68	17.68	1.77	0.01	0.00	1
SC	5,000.00	5,084.88	84.88	1.70	0.06	0.00	1
SD	50,000.00	50,833.86	833.86	1.67	0.64	0.00	1
SE	250,000.00	246,640.28	-3,359.72	-1.34	3.12	0.02	1
S500000	500,000.00	502,413.68	2,413.68	0.48	6.35	0.04	1



Element Name:	Pb
Element Wavelength:	Pb 220.353 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:17PM
Date of Fit:	7/10/2014 2:16:17PM
Type of Fit:	Linear
Correlation:	0.999727
A0 (Offset):	0.000663
A1 (Gain):	0.000197
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

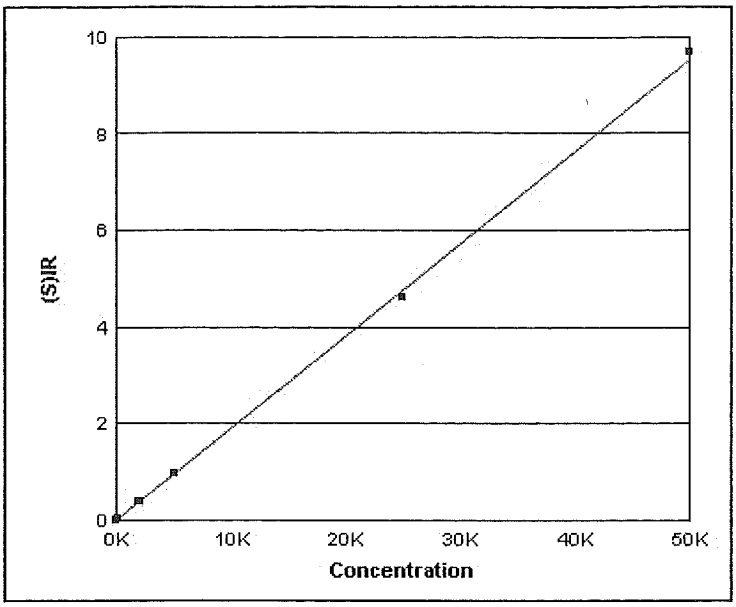
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	10.00	11.25	1.25	12.50	0.00	0.00	1
SB	200.00	196.86	-3.14	-1.57	0.04	0.00	1
SC	2,000.00	2,007.25	7.25	0.36	0.40	0.00	1
SD	5,000.00	4,930.82	-69.18	-1.38	0.98	0.01	1
SE	25,000.00	24,167.70	-832.30	-3.33	4.79	0.04	1
SF	50,000.00	50,899.31	899.31	1.80	10.05	0.03	1



Element Name:	Mg
Element Wavelength:	Mg 279.079 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:19:32PM
Date of Fit:	7/10/2014 2:19:32PM
Type of Fit:	Linear
Correlation:	0.999944
A0 (Offset):	-0.000073
A1 (Gain):	0.000003
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

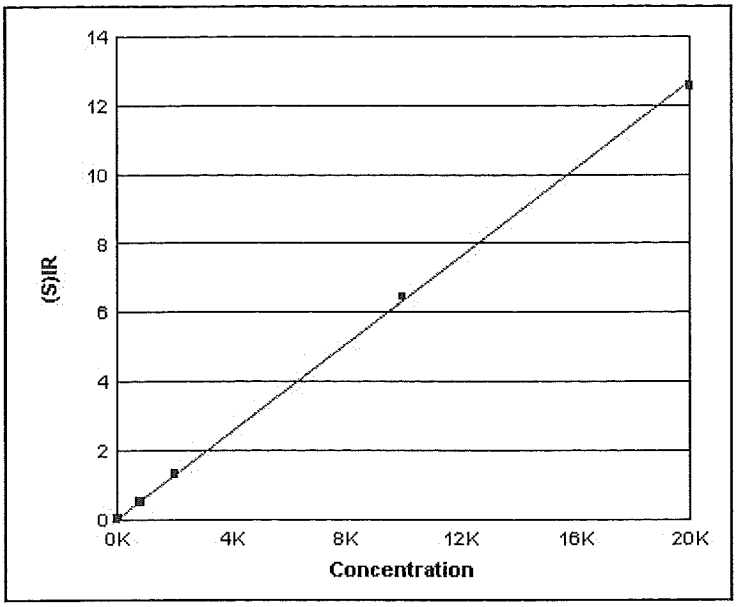
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.14	-0.14	0.00	0.00	0.00	1
SA	5,000.00	5,233.24	233.24	4.66	0.02	0.00	1
SB	25,000.00	24,800.17	-199.83	-0.80	0.08	0.00	1
SD	125,000.00	124,449.13	-550.87	-0.44	0.41	0.00	1
SE	250,000.00	246,376.34	-3,623.66	-1.45	0.81	0.01	1
S500000	500,000.00	504,138.53	4,138.53	0.83	1.66	0.01	1



Element Name:	Mn
Element Wavelength:	Mn 257.610 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:17PM
Date of Fit:	7/10/2014 2:16:17PM
Type of Fit:	Linear
Correlation:	0.999746
A0 (Offset):	0.000047
A1 (Gain):	0.000191
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

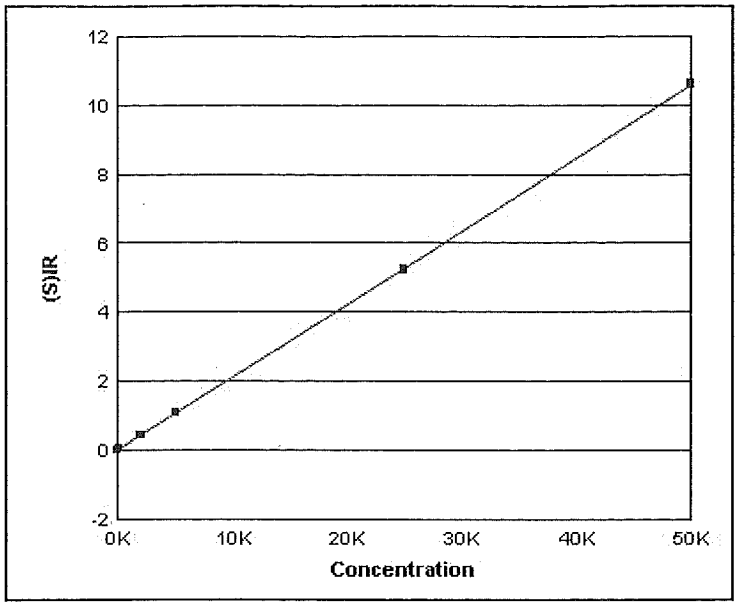
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	15.00	16.31	1.31	8.73	0.00	0.00	1
SB	200.00	199.14	-0.86	-0.43	0.04	0.00	1
SC	2,000.00	2,009.42	9.42	0.47	0.38	0.00	1
SD	5,000.00	5,005.61	5.61	0.11	0.95	0.01	1
SE	25,000.00	24,162.88	-837.12	-3.35	4.61	0.05	1
SF	50,000.00	50,821.64	821.64	1.64	9.69	0.02	1



Element Name:	Mo
Element Wavelength:	Mo 202.030 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:17PM
Date of Fit:	7/10/2014 2:16:17PM
Type of Fit:	Linear
Correlation:	0.999898
A0 (Offset):	0.000742
A1 (Gain):	0.000634
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

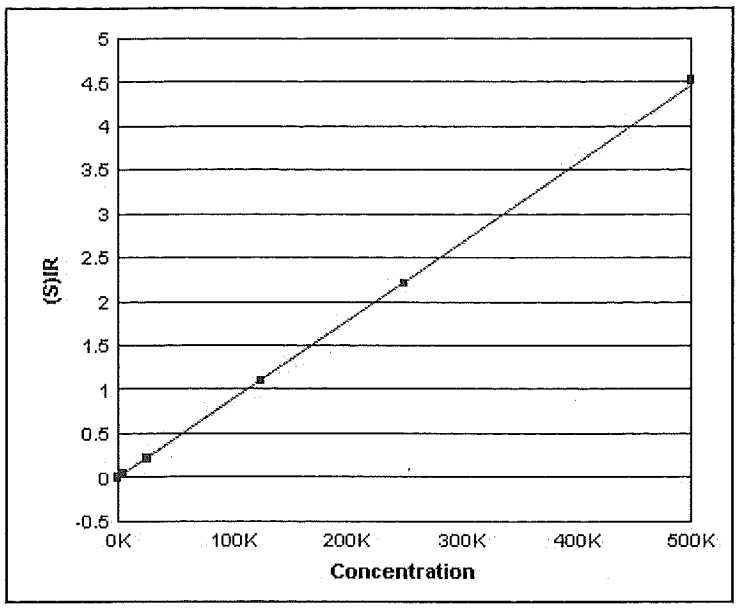
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	10.00	9.69	-0.31	-3.13	0.01	0.00	1
SB	80.00	79.22	-0.78	-0.97	0.05	0.00	1
SC	800.00	787.07	-12.93	-1.62	0.50	0.00	1
SD	2,000.00	2,065.76	65.76	3.29	1.31	0.02	1
SE	10,000.00	10,150.37	150.37	1.50	6.44	0.05	1
SF	20,000.00	19,797.90	-202.10	-1.01	12.55	0.04	1



Element Name:	Ni
Element Wavelength:	Ni 231.604 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:17PM
Date of Fit:	7/10/2014 2:16:17PM
Type of Fit:	Linear
Correlation:	0.999963
A0 (Offset):	-0.002066
A1 (Gain):	0.000211
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

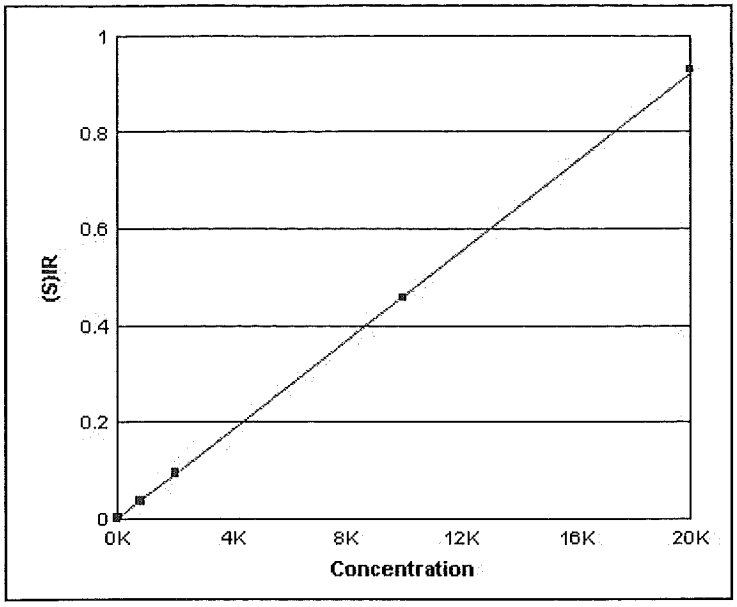
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	40.00	42.19	2.19	5.48	0.01	0.00	1
SB	200.00	203.68	3.68	1.84	0.04	0.00	1
SC	2,000.00	2,046.94	46.94	2.35	0.43	0.00	1
SD	5,000.00	5,075.86	75.86	1.52	1.07	0.01	1
SE	25,000.00	24,717.69	-282.31	-1.13	5.24	0.04	1
SF	50,000.00	50,153.95	153.95	0.31	10.62	0.04	1



Element Name:	K
Element Wavelength:	K 766.490 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:19:32PM
Date of Fit:	7/10/2014 2:19:32PM
Type of Fit:	Linear
Correlation:	0.999897
A0 (Offset):	-0.003288
A1 (Gain):	0.000009
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

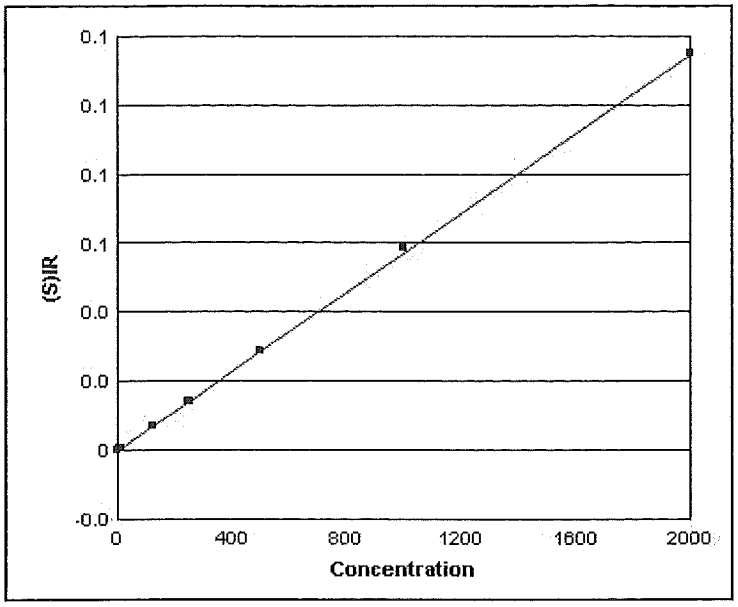
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.22	0.22	0.00	0.00	0.00	1
SA	5,000.00	5,073.49	73.49	1.47	0.04	0.00	1
SB	25,000.00	23,925.32	-1,074.68	-4.30	0.21	0.00	1
SD	125,000.00	122,861.06	-2,138.94	-1.71	1.09	0.01	1
SE	250,000.00	247,206.21	-2,793.79	-1.12	2.20	0.02	1
S500000	500,000.00	505,933.91	5,933.91	1.19	4.51	0.02	1



Element Name:	Se
Element Wavelength:	Se 196.090 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:17PM
Date of Fit:	7/10/2014 2:16:17PM
Type of Fit:	Linear
Correlation:	0.999941
A0 (Offset):	0.000244
A1 (Gain):	0.000046
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

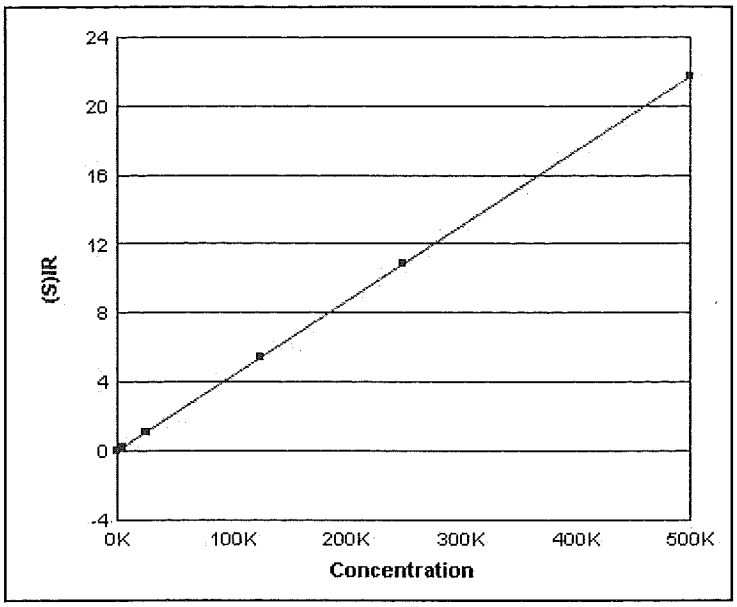
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	35.00	34.17	-0.83	-2.38	0.00	0.00	1
SB	80.00	79.56	-0.44	-0.55	0.00	0.00	1
SC	800.00	778.77	-21.23	-2.65	0.04	0.00	1
SD	2,000.00	2,018.01	18.01	0.90	0.09	0.00	1
SE	10,000.00	9,857.15	-142.85	-1.43	0.46	0.00	1
SF	20,000.00	20,147.38	147.38	0.74	0.93	0.00	1



Element Name:	Ag
Element Wavelength:	Ag 328.068 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:17PM
Date of Fit:	7/10/2014 2:16:17PM
Type of Fit:	Linear
Correlation:	0.999945
A0 (Offset):	-0.000012
A1 (Gain):	0.000057
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

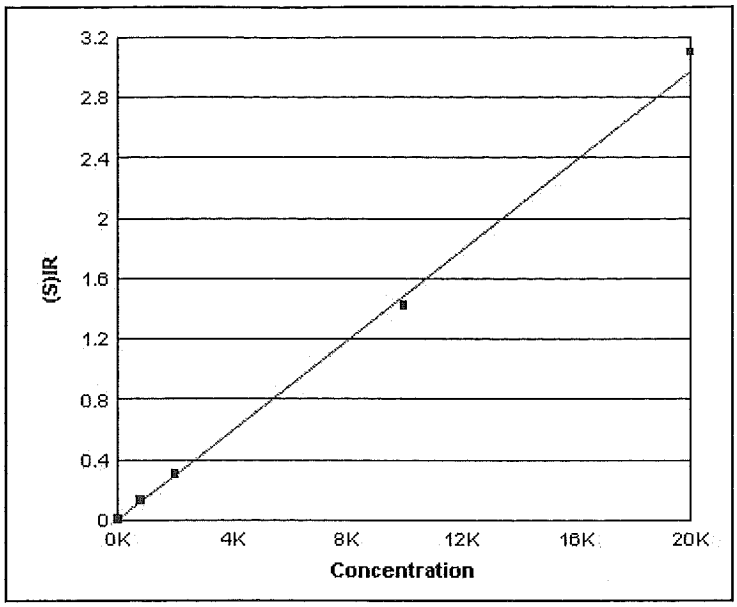
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	10.00	10.30	0.30	3.00	0.00	0.00	1
SB	125.00	121.59	-3.41	-2.73	0.01	0.00	1
SC	250.00	246.46	-3.54	-1.42	0.01	0.00	1
SD	500.00	497.49	-2.51	-0.50	0.03	0.00	1
SE	1,000.00	1,015.76	15.76	1.58	0.06	0.00	1
SF	2,000.00	1,993.35	-6.65	-0.33	0.11	0.00	1



Element Name:	Na
Element Wavelength:	Na 589.592 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:19:32PM
Date of Fit:	7/10/2014 2:19:32PM
Type of Fit:	Linear
Correlation:	0.999993
A0 (Offset):	-0.003927
A1 (Gain):	0.000043
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

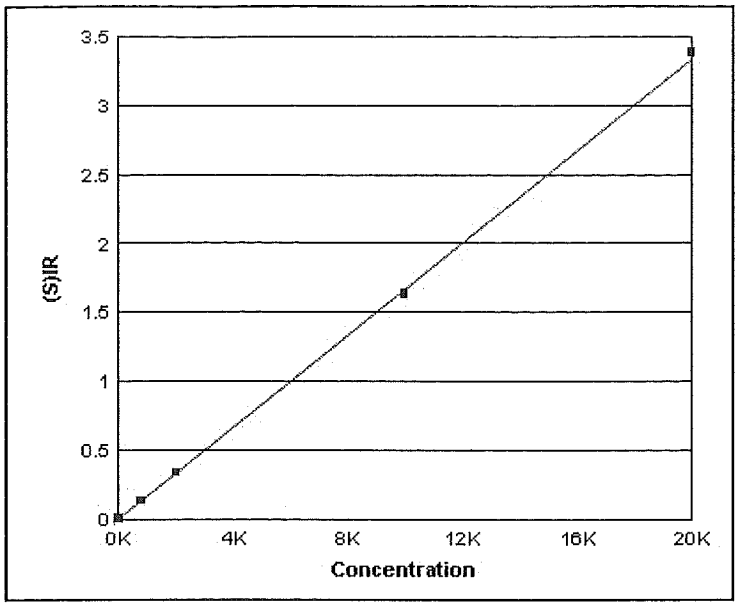
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.13	-0.13	0.00	0.00	0.00	1
SA	5,000.00	5,201.65	201.65	4.03	0.22	0.00	1
SB	25,000.00	24,672.83	-327.17	-1.31	1.07	0.00	1
SD	125,000.00	124,848.39	-151.61	-0.12	5.41	0.04	1
SE	250,000.00	249,904.41	-95.59	-0.04	10.83	0.03	1
S500000	500,000.00	500,372.72	372.72	0.07	21.68	0.22	1



Element Name:	Tl
Element Wavelength:	Tl 190.856 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:17PM
Date of Fit:	7/10/2014 2:16:17PM
Type of Fit:	Linear
Correlation:	0.999179
A0 (Offset):	0.000245
A1 (Gain):	0.000149
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

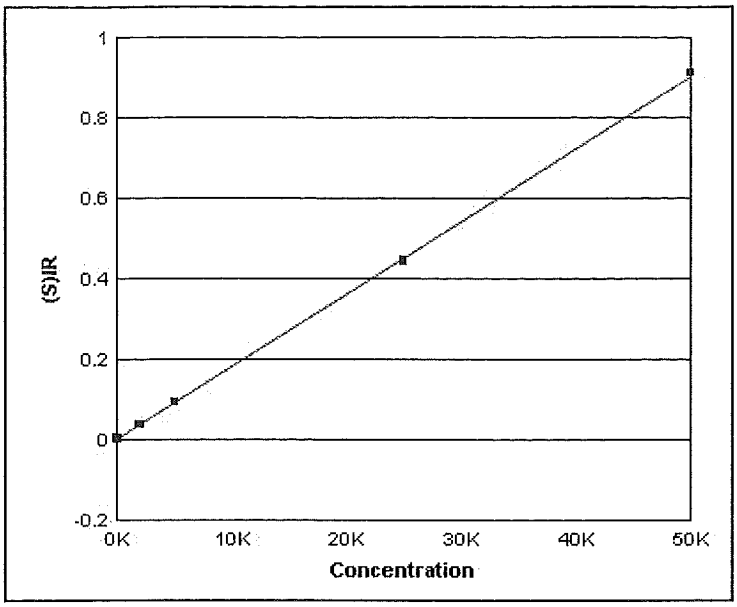
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	25.00	29.20	4.20	16.79	0.00	0.00	1
SB	80.00	80.72	0.72	0.91	0.01	0.00	1
SC	800.00	831.31	31.31	3.91	0.13	0.00	1
SD	2,000.00	1,998.84	-1.16	-0.06	0.30	0.00	1
SE	10,000.00	9,390.16	-609.84	-6.10	1.42	0.01	1
SF	20,000.00	20,574.57	574.57	2.87	3.10	0.01	1



Element Name:	Ti
Element Wavelength:	Ti 334.941 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:17PM
Date of Fit:	7/10/2014 2:16:17PM
Type of Fit:	Linear
Correlation:	0.999841
A0 (Offset):	0.000081
A1 (Gain):	0.000167
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

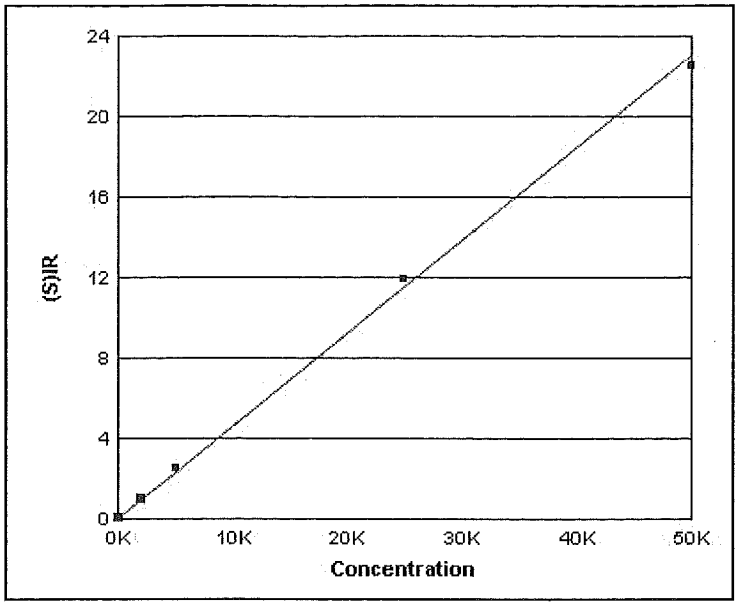
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	25.00	25.24	0.24	0.97	0.00	0.00	1
SB	80.00	77.76	-2.24	-2.80	0.01	0.00	1
SC	800.00	772.00	-28.00	-3.50	0.13	0.00	1
SD	2,000.00	1,991.96	-8.04	-0.40	0.33	0.00	1
SE	10,000.00	9,763.25	-236.75	-2.37	1.63	0.01	1
SF	20,000.00	20,275.57	275.57	1.38	3.38	0.01	1



Element Name:	V
Element Wavelength:	V 292.402 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:17PM
Date of Fit:	7/10/2014 2:16:17PM
Type of Fit:	Linear
Correlation:	0.999929
A0 (Offset):	-0.000048
A1 (Gain):	0.000018
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	50.00	52.45	2.45	4.89	0.00	0.00	1
SB	200.00	200.54	0.54	0.27	0.00	0.00	1
SC	2,000.00	2,015.96	15.96	0.80	0.04	0.00	1
SD	5,000.00	5,061.38	61.38	1.23	0.09	0.00	1
SE	25,000.00	24,554.67	-445.33	-1.78	0.44	0.00	1
SF	50,000.00	50,365.05	365.05	0.73	0.91	0.01	1



Element Name:	Zn
Element Wavelength:	Zn 206.200 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 2:16:17PM
Date of Fit:	7/10/2014 2:16:17PM
Type of Fit:	Linear
Correlation:	0.999502
A0 (Offset):	0.000104
A1 (Gain):	0.000462
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.02	-0.02	0.00	0.00	0.00	1
SA	60.00	65.01	5.01	8.36	0.03	0.00	1
SB	200.00	209.54	9.54	4.77	0.10	0.00	1
SC	2,000.00	2,085.01	85.01	4.25	0.96	0.01	1
SD	5,000.00	5,358.21	358.21	7.16	2.47	0.03	1
SE	25,000.00	25,751.05	751.05	3.00	11.89	0.10	1
SF	50,000.00	48,791.06	-1,208.94	-2.42	22.52	0.15	1

Sample Name: S0 Acquired: 7/10/2014 13:55:32 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00063**	**.00041**	**-.00133**	**.00243**	**-.00011**	**-.00082**	**.00301**
Stddev	.00010	.00007	.00013	.00020	.00010	.00008	.00003
%RSD	15.492	16.085	9.5024	8.0629	93.619	9.4594	.89749
#1	.00069	.00040	-.00145	.00265	-.00020	-.00087	.00298
#2	.00068	.00048	-.00135	.00227	-.00012	-.00085	.00301
#3	.00051	.00035	-.00120	.00236	.00000	-.00073	.00303

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00033**	**.00054**	**.00104**	**.00006**	**.00066**	**-.00007**	**.00005**
Stddev	.00024	.00019	.00001	.00007	.00047	.00003	.00004
%RSD	73.396	36.005	.63807	132.51	71.567	36.947	83.460
#1	.00026	.00052	.00104	-.00001	.00107	-.00010	.00009
#2	.00013	.00035	.00103	.00014	.00078	-.00007	.00005
#3	.00061	.00074	.00105	.00004	.00014	-.00005	.00001

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00074**	**-.00207**	**-.00329**	**.00024**	**-.00001**	**-.00393**	**.00024**
Stddev	.00009	.00008	.00019	.00022	.00004	.00034	.00021
%RSD	12.592	3.9520	5.7517	91.903	326.76	8.5717	87.691
#1	.00075	-.00210	-.00323	-.00001	.00003	-.00422	.00030
#2	.00083	-.00213	-.00313	.00034	-.00002	-.00356	.00001
#3	.00065	-.00197	-.00350	.00040	-.00005	-.00402	.00042

Elem	Ti3349	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S
Avg	**.00008**	**-.00005**	**.00010**
Stddev	.00003	.00001	.00025
%RSD	40.814	22.239	259.22
#1	.00010	-.00004	.00037
#2	.00010	-.00004	-.00012
#3	.00004	-.00006	.00004

Sample Name: S0 Acquired: 7/10/2014 13:55:32 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6254.0**	**38099.**	**617380.**	**6890.5**	**24965.**	**298500.**
Stddev	38.6	161.	1831.	50.3	113.	1555.
%RSD	.61668	.42267	.29651	.72946	.45128	.52090
#1	6296.1	38058.	616110.	6943.9	24939.	299470.
#2	6220.5	37963.	619480.	6844.1	24868.	299320.
#3	6245.3	38277.	616540.	6883.6	25089.	296710.

Sample Name: SA Acquired: 7/10/2014 13:58:30 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00120**	**.00594**	**-.00040**	**.10377**	**.00507**	**.00868**	**.13394**
Stddev	.00012	.00012	.00014	.00053	.00008	.00014	.00048
%RSD	10.392	1.9463	34.599	.51396	1.5271	1.6411	.35803
#1	.00120	.00605	-.00027	.10317	.00501	.00856	.13349
#2	.00133	.00596	-.00055	.10419	.00505	.00884	.13388
#3	.00108	.00582	-.00039	.10394	.00516	.00864	.13445

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.01010**	**.02922**	**.00233**	**.00145**	**.00290**	**.01713**	**.00316**
Stddev	.00028	.00010	.00004	.00005	.00032	.00010	.00007
%RSD	2.7830	.34372	1.6202	3.4565	11.061	.55776	2.3623
#1	.00978	.02912	.00237	.00149	.00257	.01717	.00312
#2	.01019	.02932	.00235	.00139	.00291	.01702	.00324
#3	.01032	.02922	.00229	.00147	.00322	.01720	.00311

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00691**	**.00687**	**.04201**	**.00182**	**.00058**	**.22150**	**.00462**
Stddev	.00002	.00011	.00058	.00018	.00001	.00061	.00008
%RSD	.27805	1.6177	1.3819	9.8866	1.6116	.27699	1.6628
#1	.00689	.00689	.04170	.00202	.00057	.22106	.00454
#2	.00693	.00675	.04166	.00167	.00059	.22220	.00470
#3	.00691	.00697	.04268	.00178	.00058	.22124	.00462

Elem	Ti3349	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S
Avg	**.00438**	**.00090**	**.03012**
Stddev	.00012	.00002	.00018
%RSD	2.6731	2.0996	.59453
#1	.00429	.00091	.02999
#2	.00435	.00091	.03032
#3	.00451	.00088	.03004

Sample Name: SA Acquired: 7/10/2014 13:58:30 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6260.8**	**37674.**	**617900.**	**6860.4**	**24660.**	**297410.**
Stddev	13.9	268.	6643.	21.2	178.	2760.
%RSD	.22142	.71049	1.0750	.30893	.72060	.92802
#1	6263.5	37745.	618560.	6884.2	24652.	294390.
#2	6273.0	37898.	610950.	6853.2	24841.	298050.
#3	6245.7	37378.	624190.	6843.6	24486.	299800.

Sample Name: SB Acquired: 7/10/2014 14:01:25 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00345**	**.01823**	**.00506**	**.36109**	**.07879**	**.14471**	**.61719**	**.19283**
Stddev	.00006	.00023	.00013	.00073	.00044	.00079	.00275	.00150
%RSD	1.7400	1.2574	2.6490	.20225	.56127	.54710	.44482	.77745
#1	.00352	.01849	.00491	.36076	.07829	.14436	.61658	.19229
#2	.00340	.01814	.00518	.36059	.07893	.14415	.61479	.19167
#3	.00343	.01806	.00508	.36193	.07914	.14561	.62018	.19452

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.11080**	**.01081**	**.01292**	**.03962**	**.08146**	**.03803**	**.05108**	**.04109**
Stddev	.00040	.00004	.00007	.00048	.00073	.00043	.00020	.00019
%RSD	.36334	.37247	.52391	1.2193	.89572	1.1254	.39619	.47398
#1	.11077	.01082	.01298	.03926	.08134	.03830	.05084	.04093
#2	.11041	.01077	.01295	.03942	.08079	.03754	.05119	.04103
#3	.11122	.01084	.01285	.04017	.08224	.03826	.05120	.04130

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.21034**	**.00392**	**.00695**	**1.0653**	**.01241**	**.01352**	**.00358**	**.09684**
Stddev	.00083	.00001	.00005	.0026	.00013	.00006	.00001	.00099
%RSD	.39340	.35015	.70610	.24461	1.0236	.42116	.21249	1.0271
#1	.21050	.00391	.00693	1.0641	.01233	.01358	.00358	.09605
#2	.20945	.00393	.00701	1.0636	.01234	.01353	.00358	.09653
#3	.21108	.00391	.00692	1.0683	.01255	.01346	.00357	.09796

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6088.1**	**37477.**	**611520.**	**6709.4**	**24395.**	**291620.**
Stddev	13.5	343.	1447.	13.6	188.	3050.
%RSD	.22178	.91541	.23667	.20235	.76940	1.0458
#1	6078.8	37429.	612580.	6695.3	24366.	293990.
#2	6103.6	37842.	609870.	6722.4	24596.	288180.
#3	6082.0	37161.	612110.	6710.4	24224.	292680.

Sample Name: SC Acquired: 7/10/2014 14:04:11 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Cr2055	Co2286
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.01470**	**.18283**	**.05953**	**.96298**	**.78535**	**1.4493**	**1.9209**	**1.1121**
Stddev	.00011	.00113	.00034	.00221	.00196	.0112	.0143	.0083
%RSD	.74960	.61635	.57743	.22916	.25015	.77191	.74215	.74484
#1	.01478	.18385	.05988	.96207	.78359	1.4564	1.9330	1.1191
#2	.01475	.18162	.05920	.96550	.78747	1.4364	1.9052	1.1030
#3	.01458	.18301	.05952	.96138	.78499	1.4551	1.9246	1.1143

Elem	Cu3247	Fe2598	Pb2203	Mn2576	Mo2020	Ni2316	Se1960	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.10332**	**.06440**	**.39747**	**.38332**	**.49975**	**.43144**	**.03621**	**.01413**
Stddev	.00025	.00007	.00385	.00174	.00448	.00345	.00048	.00006
%RSD	.23977	.11390	.96928	.45487	.89685	.79877	1.3338	.42577
#1	.10327	.06437	.40021	.38136	.50346	.43467	.03674	.01408
#2	.10310	.06448	.39307	.38470	.49477	.42781	.03580	.01420
#3	.10359	.06434	.39913	.38390	.50102	.43185	.03609	.01411

Elem	Tl1908	Ti3349	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.12546**	**.12893**	**.03640**	**.96265**
Stddev	.00086	.00066	.00013	.00680
%RSD	.68573	.51382	.36075	.70637
#1	.12616	.12873	.03652	.96757
#2	.12450	.12967	.03626	.95489
#3	.12572	.12840	.03642	.96550

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6325.9**	**38374.**	**621540.**	**6926.8**	**299220.**
Stddev	53.3	223.	3270.	55.9	1069.
%RSD	.84244	.58029	.52613	.80704	.35730
#1	6264.7	38631.	617770.	6862.3	299140.
#2	6361.6	38245.	623320.	6960.2	298180.
#3	6351.5	38246.	623540.	6958.0	300320.

Sample Name: SD Acquired: 7/10/2014 14:06:49 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.14086**	**.46662**	**.16410**	**2.4259**	**2.0315**	**3.6747**	**3.0766**	**4.9404**
Stddev	.00083	.00594	.00208	.0145	.0111	.0424	.0199	.0591
%RSD	.58723	1.2724	1.2661	.59866	.54595	1.1538	.64848	1.1956
#1	.14147	.47144	.16515	2.4352	2.0415	3.7034	3.0962	4.9820
#2	.13992	.45999	.16171	2.4092	2.0196	3.6260	3.0563	4.8728
#3	.14119	.46843	.16545	2.4333	2.0333	3.6947	3.0772	4.9665

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2.7890**	**.25135**	**.64268**	**.97807**	**.40896**	**.95481**	**1.3107**	**1.0742**
Stddev	.0333	.00007	.00409	.01298	.00368	.00635	.0157	.0129
%RSD	1.1944	.02743	.63641	1.3271	.89954	.66522	1.1970	1.2050
#1	2.8128	.25132	.64588	.98743	.41201	.95882	1.3222	1.0828
#2	2.7509	.25143	.63807	.96326	.40488	.94749	1.2929	1.0593
#3	2.8032	.25131	.64408	.98354	.41000	.95812	1.3172	1.0804

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.0937**	**.09346**	**.02855**	**5.4067**	**.30139**	**.33486**	**.09146**	**2.4739**
Stddev	.0072	.00142	.00010	.0422	.00316	.00236	.00005	.0277
%RSD	.65699	1.5241	.34721	.78004	1.0479	.70508	.05388	1.1179
#1	1.0954	.09490	.02852	5.4179	.30352	.33692	.09141	2.4944
#2	1.0859	.09206	.02866	5.3601	.29776	.33228	.09149	2.4425
#3	1.1000	.09342	.02847	5.4422	.30288	.33538	.09149	2.4849

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5733.6**	**37343.**	**588310.**	**6553.9**	**24335.**	**282340.**
Stddev	46.6	337.	2043.	57.3	223.	1529.
%RSD	.81234	.90241	.34722	.87410	.91618	.54149
#1	5691.2	36954.	588690.	6495.0	24081.	282910.
#2	5783.4	37539.	586110.	6609.5	24497.	280610.
#3	5726.1	37537.	590140.	6557.3	24428.	283500.

Sample Name: SE Acquired: 7/10/2014 14:09:20 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.69929**	**2.2848**	**.83571**	**11.719**	**9.8403**	**17.636**	**5.8914**	**24.116**
Stddev	.00429	.0242	.00724	.228	.0390	.141	.0350	.194
%RSD	.61308	1.0603	.86614	1.9463	.39667	.80032	.59364	.80292
#1	.69707	2.3037	.84223	11.521	9.8824	17.777	5.8532	24.298
#2	.70424	2.2575	.82792	11.968	9.8331	17.495	5.9218	23.913
#3	.69657	2.2934	.83697	11.668	9.8054	17.636	5.8994	24.136

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**13.697**	**1.2255**	**3.1180**	**4.7917**	**.80938**	**4.6088**	**6.4360**	**5.2393**
Stddev	.103	.0116	.0194	.0392	.00673	.0546	.0512	.0407
%RSD	.75086	.94373	.62174	.81746	.83103	1.1843	.79624	.77604
#1	13.794	1.2384	3.1072	4.8316	.80448	4.6285	6.4846	5.2761
#2	13.589	1.2221	3.1404	4.7533	.81705	4.6508	6.3825	5.1956
#3	13.708	1.2161	3.1064	4.7902	.80660	4.5471	6.4409	5.2462

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2.2040**	**.45559**	**.05857**	**10.826**	**1.4162**	**1.6343**	**.44390**	**11.889**
Stddev	.0164	.00421	.00020	.035	.0123	.0100	.00344	.100
%RSD	.74298	.92420	.34834	.32300	.86793	.61037	.77599	.83989
#1	2.1873	.45948	.05839	10.837	1.4291	1.6285	.44758	11.993
#2	2.2201	.45112	.05879	10.855	1.4046	1.6458	.44338	11.794
#3	2.2047	.45617	.05851	10.787	1.4148	1.6285	.44075	11.879

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5460.0**	**37313.**	**570120.**	**6419.5**	**24325.**	**272560.**
Stddev	25.2	241.	4580.	33.6	181.	954.
%RSD	.46125	.64480	.80326	.52410	.74350	.34992
#1	5434.2	37431.	566400.	6386.1	24416.	272370.
#2	5484.6	37036.	568720.	6453.4	24117.	271720.
#3	5461.1	37472.	575230.	6419.0	24442.	273600.

Sample Name: SF Acquired: 7/10/2014 14:12:52 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Sb2068	As1890	Ba4554	Be3131	Cd2144	Cr2055	Co2286	Cu3247
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**4.7206**	**1.5539**	**24.318**	**20.159**	**33.723**	**46.097**	**27.615**	**2.5273**
Stddev	.0054	.0051	.389	.271	.255	.366	.101	.0217
%RSD	.11438	.32788	1.5992	1.3456	.75728	.79506	.36681	.85782
#1	4.7150	1.5485	23.999	20.235	33.881	46.478	27.590	2.5523
#2	4.7208	1.5546	24.203	19.858	33.860	46.068	27.528	2.5128
#3	4.7258	1.5586	24.751	20.384	33.428	45.747	27.726	2.5170

Elem	Pb2203	Mn2576	Mo2020	Ni2316	Se1960	Ag3280	Tl1908	Ti3349
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**10.054**	**9.6937**	**12.553**	**10.616**	**.93066**	**.11496**	**3.0999**	**3.3841**
Stddev	.026	.0163	.045	.043	.00096	.00205	.0126	.0069
%RSD	.26094	.16843	.35540	.40912	.10319	1.7804	.40619	.20227
#1	10.040	9.6779	12.530	10.610	.92955	.11729	3.0859	3.3920
#2	10.037	9.6926	12.525	10.576	.93123	.11345	3.1036	3.3800
#3	10.084	9.7105	12.605	10.662	.93120	.11414	3.1103	3.3804

Elem	V_2924	Zn2062
Units	Cts/S	Cts/S
Avg	**.91045**	**22.524**
Stddev	.01350	.146
%RSD	1.4832	.64913
#1	.92154	22.586
#2	.91440	22.357
#3	.89541	22.629

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6286.7**	**38449.**	**624270.**	**6778.8**	**299310.**
Stddev	37.1	313.	6699.	23.3	3998.
%RSD	.59030	.81482	1.0731	.34445	1.3358
#1	6325.3	38089.	618790.	6798.7	294800.
#2	6283.4	38660.	622280.	6784.5	302410.
#3	6251.3	38598.	631740.	6753.1	300740.

Sample Name: S500000 Acquired: 7/10/2014 14:16:31 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Al3082	Ca3179	Fe2598	Mg2790	K_7664	Na5895
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.4422**	**11.944**	**6.3494**	**1.6574**	**4.5142**	**21.681**
Stddev	.0070	.086	.0362	.0097	.0167	.218
%RSD	.48495	.71699	.57087	.58774	.36893	1.0051
#1	1.4486	12.042	6.3415	1.6665	4.5311	21.430
#2	1.4432	11.911	6.3889	1.6585	4.5138	21.807
#3	1.4347	11.880	6.3177	1.6471	4.4978	21.807

Int. Std.	Sc3613	Y_3710
Units	Cts/S	Cts/S
Avg	**36134.**	**23576.**
Stddev	117.	86.
%RSD	.32433	.36341
#1	36111.	23567.
#2	36030.	23495.
#3	36261.	23666.

Sample Name: ICV1 Acquired: 7/10/2014 14:19:44 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2610.3**	**994.96**	**992.57**	**526.46**	**513.10**	**537.54**	**10866.**
Stddev	7.0	15.06	22.80	2.43	2.55	7.44	33.
%RSD	.26706	1.5137	2.2972	.46225	.49603	1.3837	.30326
#1	2603.8	1004.5	1011.4	528.19	514.87	542.24	10878.
#2	2617.7	977.60	967.23	527.53	514.25	528.97	10892.
#3	2609.3	1002.8	999.04	523.68	510.19	541.43	10829.
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**523.24**	**518.71**	**521.34**	**5415.8**	**1031.8**	**6259.3**	**525.36**
Stddev	9.05	8.96	6.05	29.1	18.8	73.0	2.89
%RSD	1.7288	1.7266	1.1612	.53645	1.8175	1.1658	.55059
#1	529.38	525.05	524.57	5437.8	1041.1	6200.8	526.03
#2	512.85	508.47	525.10	5426.8	1010.2	6341.1	527.85
#3	527.49	522.63	514.36	5382.9	1044.0	6236.0	522.19
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	F **-.41727**	**529.31**	**10229.**	**995.03**	**508.68**	**10439.**	**1075.8**
Stddev	.29586	8.83	11.	20.59	3.19	47.	21.5
%RSD	70.905	1.6682	.11133	2.0695	.62735	.45058	2.0023
#1	-.69787	535.52	10240.	1004.9	509.07	10438.	1089.4
#2	-.10820	519.20	10230.	971.36	511.65	10486.	1051.0
#3	-.44572	533.20	10218.	1008.8	505.30	10392.	1087.0
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	500.00						
Range	-10.501%						

Sample Name: ICV1 Acquired: 7/10/2014 14:19:44 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	F **2.6516**	**524.67**	**1091.0**
Stddev	.2437	4.12	17.5
%RSD	9.1899	.78598	1.6035
#1	2.8307	526.26	1104.4
#2	2.3741	527.76	1071.2
#3	2.7499	519.99	1097.3
Check ?	Chk Fail	Chk Pass	Chk Pass
Value	500.00		
Range	-10.501%		

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6369.1**	**38130.**	**629580.**	**7002.9**	**24857.**	**300700.**
Stddev	64.5	167.	5445.	59.7	135.	1696.
%RSD	1.0127	.43719	.86485	.85188	.54439	.56408
#1	6322.3	38208.	627550.	6960.3	24964.	300130.
#2	6442.7	37939.	625430.	7071.1	24705.	299360.
#3	6342.4	38243.	635740.	6977.3	24902.	302610.

Sample Name: ICB1 Acquired: 7/10/2014 14:22:19 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-3.2559**	**-.76760**	**1.6703**	**-.38496**	**.12315**	**.39736**	**-.57098**	**.00458**
Stddev	21.105	.55311	2.7609	.42754	.14505	.05337	1.2401	.11649
%RSD	648.21	72.057	165.30	111.06	117.79	13.430	217.19	2542.2
#1	12.821	-1.2726	3.2403	-.11582	.19043	.37262	-1.9564	-.12910
#2	4.5673	-.85375	3.2881	-.87794	.22234	.45861	-.19192	.08435
#3	-27.156	-.17647	-1.5177	-.16111	-.04333	.36086	.43534	.05850
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.07788**	**.63052**	**3.5569**	**1.6812**	**2.6754**	**.51192**	**.01630**	**3.1160**
Stddev	.25044	.40144	4.1265	2.8478	18.650	.16136	.11471	.7985
%RSD	321.58	63.669	116.01	169.40	697.08	31.521	703.90	25.627
#1	.15457	1.0709	8.1819	4.9259	-.84934	.32607	.06201	2.1982
#2	-.34308	.53560	2.2366	-.40357	-13.961	.61638	.10111	3.4986
#3	-.04513	.28504	.25215	.52114	22.836	.59330	-.11423	3.6513
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**80.372**	**.82534**	**-.12932**	**81.615**	**-.53550**	**.67792**	**.36031**	**.66793**
Stddev	1.595	1.9966	.50636	3.049	.38289	.31809	.20038	.24240
%RSD	1.9846	241.92	391.57	3.7353	71.501	46.921	55.614	36.292
#1	82.209	2.6332	-.23104	79.252	-.76705	.87322	.47214	.86079
#2	79.350	-1.3176	-.57709	80.536	-.09355	.84966	.12897	.74719
#3	79.556	1.1605	.42019	85.056	-.74590	.31087	.47982	.39582
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Sample Name: ICB1 Acquired: 7/10/2014 14:22:19 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6375.4**	**37949.**	**630060.**	**6997.7**	**24859.**	**302220.**
Stddev	23.0	349.	3594.	20.1	244.	3523.
%RSD	.36108	.92088	.57040	.28700	.98165	1.1659
#1	6388.7	37773.	630280.	7014.2	24706.	300830.
#2	6348.8	37723.	626360.	6975.3	24730.	306220.
#3	6388.7	38352.	633540.	7003.5	25140.	299590.

Sample Name: ICSA1 Acquired: 7/10/2014 14:25:18 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**238440.**	**2.4618**	**-1.0744**	**1.7731**	**.51058**	**-.88711**	**251830.**
Stddev	566.	2.7055	4.5118	.1725	.07533	.12319	1022.
%RSD	.23719	109.90	419.94	9.7274	14.754	13.887	.40603
#1	238750.	3.0326	3.8138	1.9536	.42387	-.86824	250650.
#2	238790.	4.8364	-1.9578	1.7560	.54800	-1.0186	252300.
#3	237790.	-.48355	-5.0792	1.6099	.55987	-.77444	252530.
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**46.696**	**3.9240**	**23.182**	**99026.**	**7.6275**	**247970.**	**25.404**
Stddev	.886	.5953	.610	170.	3.5219	403.	.110
%RSD	1.8974	15.171	2.6334	.17161	46.173	.16233	.43311
#1	45.691	4.3232	22.589	99156.	3.7161	247670.	25.344
#2	47.367	4.2090	23.809	99089.	10.547	247810.	25.531
#3	47.029	3.2397	23.149	98834.	8.6196	248430.	25.337
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.93249**	**22.676**	**81.022**	**-2.1362**	**-.97564**	**857.57**	**4.1888**
Stddev	.74418	.511	15.160	3.4086	.29895	14.17	2.5877
%RSD	79.806	2.2546	18.711	159.56	30.641	1.6519	61.777
#1	-.65056	22.828	73.232	.43921	-.64191	841.27	2.8326
#2	-.37046	23.095	71.341	-6.0015	-1.0661	866.93	7.1726
#3	-1.7764	22.107	98.493	-.84638	-1.2189	864.51	2.5610
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Sample Name: ICSA1 Acquired: 7/10/2014 14:25:18 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**-11.651**	**1.5788**	**32.982**
Stddev	1.713	.3432	.460
%RSD	14.702	21.739	1.3937
#1	-10.353	1.9504	32.834
#2	-13.593	1.5126	32.614
#3	-11.008	1.2735	33.497
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5647.8**	**37338.**	**587280.**	**6650.0**	**24443.**	**279160.**
Stddev	53.6	137.	275.	61.6	113.	585.
%RSD	.94879	.36819	.04674	.92559	.46209	.20958
#1	5700.3	37254.	587410.	6716.8	24405.	278940.
#2	5593.2	37497.	586960.	6595.6	24570.	278720.
#3	5650.0	37264.	587470.	6637.4	24354.	279820.

Sample Name: ICSAB1 Acquired: 7/10/2014 14:28:20 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**247870.**	**600.36**	**100.60**	**523.18**	**522.73**	**1107.3**	**261290.**
Stddev	1209.	3.92	1.92	1.75	3.08	10.6	3987.
%RSD	.48778	.65326	1.9064	.33453	.58933	.95920	1.5259
#1	246960.	596.94	98.765	521.60	520.19	1095.7	260090.
#2	249240.	604.64	102.59	525.06	526.16	1109.7	265740.
#3	247410.	599.51	100.44	522.87	521.84	1116.5	258040.
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**592.95**	**524.21**	**558.19**	**103120.**	**59.848**	**257530.**	**544.40**
Stddev	4.75	3.74	4.00	604.	2.525	2076.	3.22
%RSD	.80175	.71338	.71728	.58547	4.2196	.80592	.59128
#1	587.67	520.00	562.40	102840.	58.110	256310.	542.18
#2	594.30	525.51	554.44	103810.	58.689	259930.	548.09
#3	596.89	527.13	557.73	102710.	62.745	256350.	542.91
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.55660**	**1085.9**	**44.395**	**50.440**	**215.82**	**883.58**	**104.53**
Stddev	.23157	10.5	13.665	1.238	2.53	14.20	3.56
%RSD	41.605	.96500	30.782	2.4537	1.1736	1.6068	3.4047
#1	-.29173	1074.9	60.014	51.203	218.39	898.51	104.40
#2	-.72076	1086.9	38.525	49.012	213.32	881.97	101.04
#3	-.65731	1095.8	34.645	51.105	215.75	870.26	108.16
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Sample Name: ICSAB1 Acquired: 7/10/2014 14:28:20 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**-10.603**	**524.26**	**1158.5**
Stddev	.863	1.93	10.9
%RSD	8.1404	.36830	.93980
#1	-9.6432	523.82	1146.2
#2	-11.316	522.59	1162.7
#3	-10.849	526.37	1166.7
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5567.8**	**37385.**	**582250.**	**6560.4**	**24436.**	**276470.**
Stddev	18.5	434.	2216.	19.5	302.	1367.
%RSD	.33188	1.1611	.38052	.29745	1.2348	.49447
#1	5587.4	37634.	584340.	6581.1	24571.	275590.
#2	5565.2	36884.	582490.	6557.7	24091.	278050.
#3	5550.7	37638.	579930.	6542.4	24647.	275780.

Sample Name: CCV1 Acquired: 7/10/2014 14:31:08 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**238610.**	**24064.**	**10240.**	**24119.**	**9553.6**	**10099.**	**244820.**
Stddev	1213.	166.	101.	605.	54.6	81.	2847.
%RSD	.50817	.68800	.98253	2.5100	.57100	.80010	1.1627
#1	239970.	24255.	10356.	24818.	9572.0	10186.	244150.
#2	237630.	23966.	10178.	23793.	9492.2	10027.	242380.
#3	238250.	23971.	10185.	23747.	9596.6	10083.	247950.
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**25174.**	**24517.**	**24139.**	**240370.**	**23839.**	**240690.**	**23630.**
Stddev	254.	224.	474.	955.	201.	921.	433.
%RSD	1.0088	.91301	1.9619	.39738	.84362	.38286	1.8307
#1	25463.	24768.	23995.	241470.	24066.	241300.	24067.
#2	24985.	24339.	23754.	239700.	23683.	239630.	23202.
#3	25075.	24442.	24668.	239940.	23769.	241140.	23622.
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**9976.7**	**24392.**	**241930.**	**9676.0**	**1012.4**	**244590.**	**9220.8**
Stddev	95.7	202.	799.	70.5	2.1	1452.	77.2
%RSD	.95878	.83006	.33033	.72828	.20943	.59366	.83716
#1	10086.	24622.	241240.	9756.9	1014.0	246090.	9307.3
#2	9907.1	24242.	241730.	9627.7	1010.0	243190.	9159.0
#3	9937.2	24311.	242810.	9643.4	1013.3	244500.	9196.1
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Sample Name: CCV1 Acquired: 7/10/2014 14:31:08 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**9573.4**	**24223.**	**25351.**
Stddev	25.8	246.	215.
%RSD	.26947	1.0150	.84631
#1	9599.6	23974.	25577.
#2	9548.0	24230.	25150.
#3	9572.5	24466.	25326.
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5498.6**	**37319.**	**575090.**	**6446.6**	**24233.**	**272090.**
Stddev	32.8	233.	2537.	25.1	128.	1697.
%RSD	.59644	.62444	.44113	.38901	.53000	.62355
#1	5466.4	37052.	578020.	6423.7	24085.	270650.
#2	5532.0	37476.	573680.	6473.4	24309.	271660.
#3	5497.6	37430.	573580.	6442.7	24306.	273960.

Sample Name: CCB1 Acquired: 7/10/2014 14:34:39 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**19.590**	**1.7121**	**2.4696**	**.89408**	**.49592**	**.47134**	**10.733**	**.19234**
Stddev	55.152	1.8429	3.0961	.35887	.10539	.09162	4.054	.12153
%RSD	281.52	107.64	125.37	40.139	21.252	19.437	37.773	63.185
#1	-13.073	1.5238	4.2871	1.2987	.61311	.55390	15.115	.33217
#2	-11.423	-.02936	4.2269	.76913	.46574	.37278	7.1150	.13277
#3	83.267	3.6419	-1.1053	.61438	.40891	.48735	9.9692	.11209
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.55333**	**.97635**	**5.4832**	**3.4370**	**3.9482**	**1.3259**	**.08053**	**2.2550**
Stddev	.42889	.16858	5.2421	.6409	15.091	.4604	.04267	.1866
%RSD	77.511	17.266	95.602	18.646	382.22	34.719	52.987	8.2755
#1	.26690	1.1700	10.639	2.7041	21.248	1.8473	.03438	2.1891
#2	.34666	.86207	.15849	3.7144	-2.8912	1.1550	.11854	2.4656
#3	1.0464	.89702	5.6526	3.8924	-6.5120	.97546	.08867	2.1103
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**129.50**	**.25616**	**-.08940**	**106.08**	**2.2418**	**.18639**	**1.1736**	**.55356**
Stddev	25.58	1.1351	.30533	17.33	.7147	1.2669	.1903	.31512
%RSD	19.750	443.10	341.53	16.334	31.883	679.66	16.211	56.925
#1	114.19	1.3824	-.16269	113.45	2.8925	-.72793	1.3449	.84268
#2	159.03	-.88747	-.35141	86.289	2.3561	1.6325	.96885	.21767
#3	115.29	.27352	.24590	118.51	1.4768	-.34534	1.2070	.60034
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Sample Name: CCB1 Acquired: 7/10/2014 14:34:39 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6401.1**	**37848.**	**632270.**	**7021.1**	**24851.**	**301510.**
Stddev	25.0	383.	1827.	27.9	188.	2282.
%RSD	.39062	1.0125	.28893	.39668	.75490	.75687
#1	6429.9	37801.	630360.	7051.6	24796.	298980.
#2	6384.9	37490.	632460.	7014.8	24697.	302130.
#3	6388.4	38252.	633990.	6997.0	25060.	303410.

Sample Name: PBS1 Acquired: 7/10/2014 14:37:38 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2.8730**	**1.9104**	**4.1744**	**.12907**	**.17124**	**.35392**	**46.996**	**.25979**
Stddev	5.5044	1.5139	2.1691	.14772	.02139	.08255	3.583	.19523
%RSD	191.59	79.244	51.962	114.45	12.491	23.325	7.6247	75.147
#1	5.1089	.20618	1.9370	.17658	.15448	.33775	50.887	.37001
#2	6.9076	3.0995	4.3179	-.03656	.16390	.44336	46.271	.37499
#3	-3.3975	2.4255	6.2681	.24720	.19533	.28065	43.831	.03438

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.20711**	**.76968**	**21.314**	**1.1311**	**1.5584**	**.49251**	**-.31226**	**1.4616**
Stddev	.22895	.89555	6.515	1.1342	15.821	.22657	.17406	1.0564
%RSD	110.54	116.35	30.568	100.27	1015.2	46.003	55.742	72.275
#1	.16309	.05641	28.814	-.10803	8.9142	.31199	-.15582	2.1662
#2	.45487	1.7747	17.052	1.3836	12.362	.41878	-.49976	.24699
#3	.00337	.47791	18.077	2.1178	-16.601	.74677	-.28120	1.9717

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**77.512**	**-3.6869**	**-.17557**	**68.375**	**.06603**	**.81911**	**.14443**	**1.2576**
Stddev	54.985	5.3037	.25893	4.310	.70429	.71338	.04879	.1039
%RSD	70.938	143.85	147.48	6.3038	1066.6	87.093	33.781	8.2583
#1	61.537	-5.9632	-.21157	73.064	.85299	.80015	.10044	1.1377
#2	138.72	-7.4726	.09948	64.586	-.14982	1.5418	.19690	1.3191
#3	32.283	2.3750	-.41461	67.473	-.50507	.11539	.13593	1.3161

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6464.3**	**38213.**	**632680.**	**7039.6**	**25048.**	**305150.**
Stddev	24.2	101.	1748.	36.4	44.	2853.
%RSD	.37366	.26504	.27622	.51690	.17648	.93483
#1	6491.3	38122.	631040.	7081.3	25004.	302730.
#2	6444.8	38196.	634520.	7014.2	25047.	308300.
#3	6456.9	38322.	632480.	7023.5	25092.	304430.

Sample Name: LCS1 Acquired: 7/10/2014 14:40:37 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**433.71**	**120.44**	**21.737**	**421.55**	**10.196**	**11.059**	**10909.**
Stddev	25.65	.19	3.198	1.09	.064	.023	30.
%RSD	5.9141	.15836	14.713	.25971	.62948	.21110	.27682
#1	463.32	120.33	25.342	422.55	10.182	11.032	10919.
#2	418.44	120.66	19.243	421.72	10.266	11.071	10932.
#3	419.36	120.34	20.624	420.38	10.139	11.075	10874.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**21.678**	**104.13**	**53.047**	**217.37**	**24.143**	**10430.**	**32.317**
Stddev	.134	.89	.655	5.35	.775	16.	.188
%RSD	.61971	.85185	1.2343	2.4603	3.2084	.15797	.58257
#1	21.615	105.13	53.767	218.54	25.026	10429.	32.258
#2	21.587	103.45	52.887	211.54	23.820	10447.	32.527
#3	21.832	103.80	52.487	222.04	23.581	10414.	32.165

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	F **-.30566**	**87.611**	**10112.**	**72.429**	**20.664**	**10451.**	**51.272**
Stddev	.19176	.321	8.	3.215	.165	48.	2.434
%RSD	62.735	.36649	.08392	4.4384	.80043	.46281	4.7473
#1	-.52455	87.279	10104.	76.115	20.742	10494.	53.977
#2	-.16725	87.635	10121.	70.967	20.776	10460.	49.260
#3	-.22519	87.920	10112.	70.205	20.474	10399.	50.578

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	F **.63536**	**104.58**	**130.68**
Stddev	.23240	.83	.62
%RSD	36.578	.79282	.47192
#1	.37315	105.48	131.36
#2	.81592	103.86	130.16
#3	.71701	104.39	130.52

Sample Name: LCS1 Acquired: 7/10/2014 14:40:37 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6332.4**	**38073.**	**622600.**	**6917.4**	**24852.**	**299580.**
Stddev	22.2	161.	2811.	17.1	93.	2995.
%RSD	.35002	.42238	.45154	.24770	.37393	.99960
#1	6306.9	38231.	619400.	6897.7	24943.	297630.
#2	6343.7	37910.	623690.	6928.9	24757.	298070.
#3	6346.7	38080.	624690.	6925.6	24857.	303030.

Sample Name: MC0AA0 Acquired: 7/10/2014 14:43:31 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**36009.**	**.08840**	**16.633**	**521.92**	**1.7305**	**.59166**	**23689.**	**40.189**
Stddev	128.	.36373	1.426	2.07	.0738	.08020	116.	.406
%RSD	.35589	411.48	8.5701	.39611	4.2638	13.555	.49060	1.0090
#1	36131.	-.26508	14.988	520.02	1.8150	.52847	23813.	40.605
#2	36019.	.46159	17.407	521.62	1.6786	.56462	23669.	39.795
#3	35875.	.06867	17.504	524.12	1.6980	.68188	23583.	40.168

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**6.7015**	**26.974**	**34340.**	**168.43**	**2407.9**	**1666.3**	**2.2330**	**21.019**
Stddev	.4049	.237	90.	1.44	20.0	2.7	.3323	.801
%RSD	6.0413	.88005	.26164	.85687	.83020	.16294	14.880	3.8119
#1	6.5584	27.196	34441.	169.30	2419.8	1669.0	1.9591	20.999
#2	6.3877	27.004	34310.	166.76	2419.1	1666.2	2.1373	20.228
#3	7.1585	26.724	34269.	169.21	2384.9	1663.6	2.6026	21.831

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1972.1**	**-.56695**	**-.96339**	**108.62**	**-2.2376**	**986.16**	**79.580**	**122.78**
Stddev	41.3	5.8051	.22361	6.24	.6976	4.97	.180	.80
%RSD	2.0927	1023.9	23.211	5.7415	31.179	.50432	.22675	.64830
#1	1929.2	4.8513	-.88879	103.75	-1.4389	987.47	79.714	123.41
#2	1975.8	-6.6939	-.78662	115.65	-2.7282	980.66	79.375	121.89
#3	2011.5	.14181	-1.2148	106.46	-2.5455	990.35	79.652	123.05

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6341.4**	**38587.**	**625230.**	**7027.4**	**25432.**	**302320.**
Stddev	29.8	658.	2165.	43.9	482.	1098.
%RSD	.46992	1.7050	.34632	.62521	1.8965	.36318
#1	6314.9	37920.	622830.	6980.7	24928.	303180.
#2	6373.7	38604.	627050.	7067.8	25477.	301080.
#3	6335.5	39236.	625800.	7033.7	25890.	302700.

Sample Name: MC0AA1 Acquired: 7/10/2014 14:46:24 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**44765.**	**-.07937**	**17.177**	**790.49**	**3.1625**	**1.2235**	**20765.**	**40.745**
Stddev	112.	2.9471	2.636	3.82	.0986	.0414	76.	.190
%RSD	.24978	3713.2	15.349	.48353	3.1174	3.3827	.36444	.46508
#1	44657.	3.0200	18.682	787.60	3.0490	1.2711	20710.	40.947
#2	44880.	-2.8459	18.716	794.82	3.2116	1.1962	20851.	40.571
#3	44758.	-.41221	14.133	789.05	3.2270	1.2032	20734.	40.718

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**12.330**	**31.714**	**33489.**	**135.62**	**4580.9**	**1429.0**	**2.2285**	**27.858**
Stddev	.460	.261	174.	.47	21.0	2.2	.1382	.795
%RSD	3.7288	.82179	.51866	.34328	.45788	.15414	6.2000	2.8543
#1	12.053	31.847	33361.	135.23	4556.8	1426.7	2.2887	26.946
#2	12.076	31.881	33687.	136.14	4595.2	1431.1	2.0704	28.221
#3	12.860	31.414	33419.	135.50	4590.7	1429.2	2.3263	28.407

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2606.0**	**5.0563**	**-1.6146**	**108.69**	**-1.9587**	**867.99**	**72.012**	**285.05**
Stddev	24.7	1.0689	.6090	9.79	.5878	3.49	.102	1.45
%RSD	.94696	21.140	37.717	9.0100	30.010	.40245	.14220	.50842
#1	2578.8	6.1979	-2.0289	110.38	-1.3425	869.94	71.982	285.86
#2	2612.2	4.8918	-.91542	117.52	-2.5133	863.96	71.928	283.38
#3	2627.0	4.0792	-1.8996	98.157	-2.0203	870.07	72.126	285.91

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6302.6**	**38649.**	**631230.**	**7120.7**	**25757.**	**307340.**
Stddev	4.1	197.	5607.	22.3	114.	2836.
%RSD	.06500	.51023	.88823	.31296	.44294	.92268
#1	6298.1	38864.	625840.	7096.6	25875.	306050.
#2	6303.5	38476.	630820.	7140.5	25647.	305370.
#3	6306.1	38607.	637030.	7125.0	25750.	310590.

Sample Name: MC0AA2 Acquired: 7/10/2014 14:49:14 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**26346.**	**1.3780**	**19.046**	**448.00**	**1.0453**	**2.3058**	**31395.**	**37.322**
Stddev	85.	1.9338	2.856	4.29	.0547	.0503	239.	.274
%RSD	.32199	140.34	14.995	.95724	5.2368	2.1797	.75992	.73520
#1	26329.	-.04439	20.772	447.72	1.1001	2.3413	31342.	37.564
#2	26271.	3.5798	15.749	443.86	1.0452	2.3277	31187.	37.024
#3	26438.	.59843	20.616	452.42	.99059	2.2483	31656.	37.377

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**7.6500**	**52.811**	**38107.**	**236.23**	**2983.8**	**1199.1**	**3.1131**	**21.552**
Stddev	.2112	.726	265.	.28	21.8	9.5	.3195	1.367
%RSD	2.7605	1.3748	.69620	.11811	.73069	.79369	10.262	6.3416
#1	7.8572	52.040	38084.	236.38	2981.5	1195.4	3.4122	22.835
#2	7.6577	53.483	37854.	235.91	2963.3	1191.9	3.1504	21.706
#3	7.4351	52.909	38383.	236.40	3006.7	1209.9	2.7766	20.115

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2506.5**	**-.19094**	**-.61493**	**96.393**	**-2.8484**	**567.84**	**68.134**	**510.64**
Stddev	32.8	1.9002	.20205	2.147	1.6904	5.51	.681	1.33
%RSD	1.3081	995.18	32.857	2.2278	59.345	.96958	.99912	.26075
#1	2533.2	1.9989	-.77985	97.973	-4.1241	567.76	67.797	511.68
#2	2469.9	-1.4050	-.38955	93.948	-.93118	562.37	67.687	509.14
#3	2516.4	-1.1667	-.67538	97.259	-3.4900	573.38	68.917	511.11

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6342.7**	**38530.**	**630340.**	**7041.1**	**25253.**	**303030.**
Stddev	16.0	105.	3208.	20.8	64.	1592.
%RSD	.25213	.27237	.50892	.29557	.25400	.52528
#1	6326.1	38644.	633720.	7019.0	25322.	301430.
#2	6344.1	38438.	627340.	7044.1	25195.	303050.
#3	6357.9	38507.	629970.	7060.3	25242.	304610.

Sample Name: MC0AA3 Acquired: 7/10/2014 14:52:04 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**25173.**	**-4.9019**	**1081.5**	**236.88**	**2.5492**	**3.4158**	**18079.**	**1425.8**
Stddev	36.	1.1561	5.0	.70	.0742	.1676	29.	3.0
%RSD	.14195	23.585	.46620	.29692	2.9126	4.9080	.16002	.20845
#1	25173.	-6.1444	1077.8	237.63	2.5074	3.4410	18088.	1427.2
#2	25209.	-4.7034	1087.3	236.77	2.6349	3.5695	18103.	1427.8
#3	25138.	-3.8579	1079.5	236.23	2.5053	3.2370	18047.	1422.4

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**27.050**	**806.35**	**86695.**	**137.73**	**3679.4**	**879.22**	**6.2566**	**32.866**
Stddev	.533	2.83	10.	1.24	28.6	2.24	.1981	.789
%RSD	1.9705	.35062	.01145	.89690	.77812	.25490	3.1670	2.4015
#1	26.906	807.93	86705.	138.43	3646.4	876.92	6.0279	32.074
#2	27.640	808.04	86696.	136.30	3697.4	879.34	6.3771	33.652
#3	26.604	803.09	86685.	138.45	3694.4	881.40	6.3648	32.873

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2484.7**	**-.09943**	**-1.8548**	**172.90**	**-3.6802**	**796.04**	**77.116**	**439.36**
Stddev	26.4	7.5006	.4730	8.54	2.9152	.96	.213	1.30
%RSD	1.0624	7544.0	25.503	4.9396	79.213	.12073	.27671	.29519
#1	2513.1	6.4353	-1.9766	165.26	-.61197	797.07	76.965	439.27
#2	2460.8	1.5559	-1.3328	171.30	-4.0152	795.17	77.023	440.69
#3	2480.3	-8.2894	-2.2550	182.12	-6.4134	795.88	77.360	438.10

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6331.2**	**38516.**	**634060.**	**7063.4**	**25307.**	**301640.**
Stddev	16.8	52.	3031.	20.8	87.	2078.
%RSD	.26539	.13604	.47808	.29418	.34357	.68873
#1	6316.5	38574.	630990.	7046.2	25407.	301090.
#2	6327.7	38502.	634140.	7057.5	25261.	299890.
#3	6349.5	38472.	637050.	7086.5	25253.	303940.

Sample Name: MC0AA4 Acquired: 7/10/2014 14:54:50 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**57753.**	**-4.4738**	**364.57**	**441.95**	**3.8098**	**2.7789**	**11515.**
Stddev	674.	1.9711	2.47	4.74	.0067	.0989	137.
%RSD	1.1668	44.059	.67806	1.0728	.17729	3.5581	1.1927
#1	57169.	-3.8795	364.13	438.80	3.8022	2.8661	11391.
#2	58490.	-2.8683	362.35	447.40	3.8153	2.6715	11663.
#3	57599.	-6.6737	367.24	439.65	3.8117	2.7991	11493.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**684.99**	**114.79**	**309.30**	**187420.**	**234.51**	**2823.0**	**2305.1**
Stddev	2.44	.69	1.27	2121.	.55	30.0	24.6
%RSD	.35588	.60058	.41008	1.1315	.23435	1.0642	1.0654
#1	687.27	115.02	310.22	185570.	234.00	2796.3	2281.2
#2	685.28	115.34	307.85	189730.	235.10	2855.5	2330.3
#3	682.42	114.02	309.82	186950.	234.44	2817.1	2303.8

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**6.8943**	**97.813**	**2917.9**	**5.4380**	**-3.2851**	**151.59**	**-5.1242**
Stddev	.1024	1.352	14.0	2.7097	.4173	3.40	1.8731
%RSD	1.4858	1.3825	.47809	49.829	12.704	2.2417	36.554
#1	6.9095	98.803	2911.0	5.3586	-2.8942	152.37	-5.4869
#2	6.9883	98.363	2908.9	8.1865	-3.2364	147.87	-3.0963
#3	6.7851	96.272	2934.0	2.7689	-3.7246	154.53	-6.7894

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**741.29**	**178.67**	**222.17**
Stddev	8.00	.17	.80
%RSD	1.0788	.09553	.36174
#1	734.22	178.80	222.91
#2	749.97	178.74	221.32
#3	739.68	178.48	222.28

Sample Name: MC0AA4 Acquired: 7/10/2014 14:54:50 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6255.2**	**38551.**	**630320.**	**7123.8**	**25642.**	**304320.**
Stddev	23.7	446.	2066.	24.1	221.	1290.
%RSD	.37931	1.1577	.32772	.33880	.86095	.42379
#1	6234.7	39036.	627940.	7096.0	25881.	303790.
#2	6249.5	38158.	631670.	7138.5	25446.	303370.
#3	6281.2	38460.	631350.	7137.0	25599.	305790.

Sample Name: MC0AA5 Acquired: 7/10/2014 14:57:37 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**35682.**	**-1.1551**	**258.62**	**352.19**	**2.0364**	**2.1371**	**54973.**
Stddev	154.	2.6435	3.29	2.14	.1172	.0837	354.
%RSD	.43048	228.85	1.2719	.60624	5.7568	3.9174	.64484
#1	35709.	-2.5749	261.48	351.58	2.1477	2.1489	55096.
#2	35517.	-2.7853	255.03	350.43	1.9140	2.0481	54574.
#3	35820.	1.8949	259.36	354.56	2.0474	2.2143	55250.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**552.34**	**34.298**	**303.98**	**106880.**	**120.83**	**10581.**	**1374.4**
Stddev	2.91	.607	4.83	523.	.93	37.	7.5
%RSD	.52676	1.7695	1.5875	.48899	.77028	.34738	.54608
#1	553.42	34.487	299.35	107240.	121.80	10623.	1377.3
#2	549.04	33.619	303.61	106280.	120.74	10554.	1365.8
#3	554.54	34.788	308.98	107130.	119.94	10567.	1380.0

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**6.0803**	**53.933**	**4774.9**	**2.1082**	**-2.4660**	**274.71**	**-2.9409**
Stddev	.2599	.424	84.9	3.7086	.2939	6.59	.3636
%RSD	4.2742	.78684	1.7776	175.91	11.917	2.3996	12.362
#1	5.8753	54.415	4743.4	-2.1435	-2.5330	270.55	-3.2056
#2	5.9930	53.615	4710.3	3.7919	-2.7205	271.26	-3.0907
#3	6.3726	53.768	4871.1	4.6763	-2.1444	282.31	-2.5263

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**1823.5**	**111.93**	**267.83**
Stddev	11.7	1.04	.43
%RSD	.64072	.92986	.16234
#1	1823.0	110.80	267.86
#2	1812.1	112.13	267.38
#3	1835.4	112.86	268.25

Sample Name: MC0AA5 Acquired: 7/10/2014 14:57:37 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6216.2**	**38913.**	**625270.**	**6971.7**	**25562.**	**299170.**
Stddev	27.1	293.	1352.	18.7	173.	1141.
%RSD	.43648	.75212	.21621	.26889	.67724	.38154
#1	6185.3	38662.	626610.	6950.4	25414.	298810.
#2	6235.9	39235.	623910.	6985.9	25752.	298240.
#3	6227.5	38843.	625280.	6978.6	25519.	300440.

Sample Name: MC0AA6 Acquired: 7/10/2014 15:00:24 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**32915.**	**4.2701**	**2932.3**	**457.18**	**2.0091**	**3.7694**	**165430.**
Stddev	134.	1.7795	27.0	1.90	.1504	.0826	267.
%RSD	.40691	41.673	.92109	.41508	7.4844	2.1917	.16128
#1	33069.	4.1480	2905.4	459.17	2.0799	3.6769	165670.
#2	32857.	6.1075	2932.2	456.99	2.1110	3.7951	165140.
#3	32821.	2.5548	2959.4	455.39	1.8364	3.8360	165480.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1834.6**	**14.999**	**4250.7**	**68201.**	**243.12**	**66665.**	**1118.0**
Stddev	21.8	.176	35.5	211.	3.93	182.	2.2
%RSD	1.1873	1.1739	.83405	.30870	1.6171	.27324	.19520
#1	1810.3	14.843	4290.9	68442.	238.66	66833.	1120.5
#2	1840.8	15.190	4237.1	68051.	246.10	66472.	1116.3
#3	1852.5	14.963	4224.0	68110.	244.59	66691.	1117.2

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**4.4526**	**40.705**	**3297.1**	**-.78356**	**-.05858**	**383.92**	**-1.3658**
Stddev	.2890	.222	38.5	2.7937	.16347	12.55	.7946
%RSD	6.4897	.54485	1.1663	356.54	279.07	3.2675	58.177
#1	4.5946	40.477	3278.4	-3.9051	.11268	389.68	-1.8916
#2	4.1201	40.920	3271.5	.07217	-.21296	369.53	-.45174
#3	4.6431	40.718	3341.3	1.4822	-.07545	392.55	-1.7540

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**852.10**	**84.328**	**1198.0**
Stddev	3.55	.385	13.8
%RSD	.41679	.45600	1.1498
#1	853.52	84.764	1182.6
#2	848.05	84.184	1202.2
#3	854.72	84.036	1209.2

Sample Name: MC0AA6 Acquired: 7/10/2014 15:00:24 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6085.3**	**38242.**	**603640.**	**6875.4**	**25187.**	**289830.**
Stddev	37.2	221.	2745.	43.3	157.	269.
%RSD	.61186	.57684	.45468	.63040	.62199	.09297
#1	6125.9	38310.	601830.	6925.3	25267.	289550.
#2	6077.4	38420.	602300.	6846.9	25287.	289850.
#3	6052.7	37995.	606800.	6854.1	25006.	290080.

Sample Name: MC0AA7 Acquired: 7/10/2014 15:03:18 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**54179.**	**.96022**	**488.41**	**572.88**	**2.8054**	**3.5090**	**54615.**
Stddev	619.	5.1291	3.45	6.16	.1668	.0714	705.
%RSD	1.1431	534.16	.70552	1.0747	5.9466	2.0340	1.2900
#1	54726.	6.3894	489.97	577.53	2.9077	3.4279	55042.
#2	53507.	-3.8038	484.46	565.90	2.6129	3.5623	53802.
#3	54304.	.29509	490.80	575.20	2.8957	3.5368	55002.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**670.73**	**48.079**	**648.69**	**106820.**	**225.01**	**10185.**	**1950.9**
Stddev	6.68	.596	2.55	1187.	2.84	145.	23.1
%RSD	.99578	1.2399	.39347	1.1108	1.2604	1.4222	1.1854
#1	669.53	48.249	650.39	107740.	222.22	10269.	1969.1
#2	664.74	47.417	649.92	105480.	224.93	10017.	1924.8
#3	677.93	48.572	645.75	107240.	227.89	10268.	1958.6

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**12.852**	**54.881**	**4985.6**	**6.3991**	**-1.5871**	**381.63**	**-3.0812**
Stddev	.461	.876	25.3	4.2592	.3103	9.72	1.0067
%RSD	3.5900	1.5960	.50681	66.559	19.551	2.5482	32.672
#1	12.436	54.937	4983.1	1.9229	-1.4238	386.10	-2.1480
#2	13.348	53.978	4961.7	10.402	-1.9450	370.48	-4.1481
#3	12.772	55.728	5012.0	6.8728	-1.3926	388.33	-2.9476

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**1680.7**	**148.32**	**683.51**
Stddev	19.4	.83	4.95
%RSD	1.1516	.55766	.72408
#1	1698.0	148.13	682.72
#2	1659.8	149.23	679.00
#3	1684.2	147.61	688.80

Sample Name: MC0AA7 Acquired: 7/10/2014 15:03:18 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6233.3**	**38733.**	**619700.**	**7001.6**	**25637.**	**299630.**
Stddev	35.5	429.	4706.	32.5	255.	2006.
%RSD	.56888	1.1064	.75946	.46444	.99474	.66962
#1	6216.6	38501.	616760.	6975.6	25487.	299090.
#2	6274.0	39227.	617210.	7038.0	25932.	297940.
#3	6209.2	38470.	625130.	6991.2	25492.	301850.

Sample Name: MC0AA8 Acquired: 7/10/2014 15:06:04 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**15639.**	**-2.6491**	**529.24**	**164.74**	**.80926**	**1.5371**	**18364.**	**601.72**
Stddev	86.	.9602	.62	1.28	.09061	.1815	129.	2.15
%RSD	.54871	36.245	.11794	.77880	11.197	11.805	.70484	.35786
#1	15725.	-1.5954	529.33	166.08	.77543	1.4335	18512.	603.15
#2	15553.	-2.8773	529.82	163.52	.74042	1.4311	18313.	599.24
#3	15637.	-3.4746	528.58	164.64	.91191	1.7466	18268.	602.76

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**9.1311**	**453.53**	**31303.**	**84.427**	**3060.6**	**467.43**	**1.7827**	**21.079**
Stddev	.4338	5.27	229.	1.645	30.1	3.97	.2115	1.241
%RSD	4.7503	1.1616	.73174	1.9480	.98382	.85011	11.863	5.8865
#1	9.5697	449.05	31567.	85.876	3095.1	471.97	2.0065	21.657
#2	8.7023	459.33	31184.	82.640	3039.5	464.56	1.7556	19.654
#3	9.1214	452.20	31158.	84.766	3047.2	465.76	1.5861	21.925

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1382.2**	**.95467**	**-.13562**	**153.53**	**-2.3506**	**771.03**	**36.895**	**244.44**
Stddev	17.5	4.6472	.24214	4.65	.9702	3.70	.357	1.86
%RSD	1.2634	486.79	178.53	3.0300	41.275	.47932	.96848	.76056
#1	1395.1	-1.0784	.05411	158.00	-3.4528	774.89	36.913	246.27
#2	1362.3	-2.3296	-.05264	148.71	-1.9733	767.52	37.243	242.55
#3	1389.3	6.2720	-.40834	153.86	-1.6258	770.67	36.529	244.51

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6353.2**	**38815.**	**629900.**	**6948.3**	**25452.**	**301010.**
Stddev	20.8	211.	2127.	16.1	173.	1528.
%RSD	.32725	.54414	.33769	.23164	.67929	.50773
#1	6342.6	38582.	631620.	6939.5	25254.	301170.
#2	6377.2	38868.	627520.	6966.9	25528.	299410.
#3	6339.9	38995.	630550.	6938.5	25574.	302460.

Sample Name: MC0AA9 Acquired: 7/10/2014 15:08:53 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**39138.**	**3.7693**	**666.42**	**542.98**	**1.9045**	**3.2272**	**26131.**
Stddev	130.	.5225	5.17	.73	.0934	.1303	59.
%RSD	.33206	13.862	.77626	.13381	4.9024	4.0386	.22745
#1	39234.	3.2289	671.66	543.71	1.8233	3.2408	26114.
#2	39190.	4.2719	661.32	542.99	2.0065	3.0906	26197.
#3	38990.	3.8072	666.30	542.25	1.8835	3.3502	26082.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**650.35**	**41.308**	**364.03**	**112600.**	**263.23**	**5436.9**	**2072.3**
Stddev	6.42	.102	1.06	255.	2.05	42.7	3.5
%RSD	.98707	.24592	.29194	.22668	.78052	.78574	.16708
#1	657.51	41.422	364.81	112760.	264.25	5393.6	2075.1
#2	645.12	41.227	362.82	112720.	260.86	5479.0	2068.4
#3	648.43	41.275	364.45	112300.	264.57	5438.2	2073.3

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**8.0065**	**107.30**	**2871.0**	**.69927**	**-1.4998**	**359.15**	**-3.4660**
Stddev	.2075	1.92	8.4	6.8844	.2651	7.17	.3602
%RSD	2.5913	1.7882	.29337	984.51	17.674	1.9962	10.394
#1	7.8224	108.80	2869.9	8.6265	-1.2562	351.00	-3.6656
#2	8.2313	105.14	2879.9	-3.7784	-1.7821	364.48	-3.0501
#3	7.9657	107.95	2863.2	-2.7503	-1.4611	361.98	-3.6822

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**1337.7**	**89.388**	**4181.7**
Stddev	4.8	.355	43.6
%RSD	.35641	.39724	1.0431
#1	1342.0	89.406	4232.0
#2	1338.6	89.734	4154.2
#3	1332.6	89.024	4158.9

Sample Name: MC0AA9 Acquired: 7/10/2014 15:08:53 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6235.8**	**38424.**	**623790.**	**6964.7**	**25254.**	**300960.**
Stddev	43.8	268.	3004.	52.5	191.	3015.
%RSD	.70306	.69864	.48149	.75440	.75710	1.0018
#1	6185.1	38497.	621370.	6904.9	25297.	297540.
#2	6260.6	38127.	627150.	6985.8	25045.	302130.
#3	6261.5	38649.	622840.	7003.4	25420.	303220.

Sample Name: MC0AB0 Acquired: 7/10/2014 15:11:40 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**47065.**	**1.5967**	**1419.4**	**429.97**	**1.9929**	**5.4193**	**94221.**
Stddev	224.	.8198	13.1	1.76	.1081	.1040	290.
%RSD	.47591	51.341	.92108	.40834	5.4248	1.9187	.30757
#1	47050.	1.4430	1434.4	429.99	1.9439	5.4922	94251.
#2	47296.	2.4824	1412.9	431.71	2.1169	5.3002	94494.
#3	46848.	.86465	1410.8	428.20	1.9180	5.4653	93917.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1634.7**	**36.619**	**1065.1**	**172380.**	**196.80**	**10206.**	**1644.4**
Stddev	18.1	.849	6.7	699.	1.07	70.	4.7
%RSD	1.1063	2.3192	.62815	.40575	.54209	.68749	.28729
#1	1654.6	37.141	1057.5	172480.	196.28	10173.	1648.5
#2	1619.2	35.639	1070.0	173020.	198.03	10286.	1645.6
#3	1630.3	37.078	1067.8	171640.	196.09	10157.	1639.3

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**19.561**	**143.01**	**2957.9**	**4.5700**	**-.57948**	**371.94**	**-6.4921**
Stddev	.463	1.60	60.4	3.4158	.42145	1.81	1.1246
%RSD	2.3694	1.1200	2.0423	74.744	72.729	.48566	17.323
#1	19.238	144.77	3003.0	8.4600	-1.0613	370.39	-6.6224
#2	20.092	141.63	2981.5	3.1892	-.27922	371.51	-7.5460
#3	19.353	142.62	2889.3	2.0608	-.39795	373.93	-5.3080

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**1051.5**	**107.16**	**1718.7**
Stddev	6.3	.38	17.8
%RSD	.60270	.35676	1.0371
#1	1047.9	106.91	1733.5
#2	1058.8	106.97	1698.9
#3	1047.7	107.60	1723.6

Sample Name: MC0AB0 Acquired: 7/10/2014 15:11:40 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6083.7**	**38964.**	**613290.**	**6917.4**	**25616.**	**294900.**
Stddev	52.3	31.	3293.	41.2	31.	2105.
%RSD	.86021	.08081	.53699	.59489	.12161	.71380
#1	6025.8	39000.	614390.	6872.1	25646.	297330.
#2	6127.7	38949.	615890.	6952.4	25618.	293770.
#3	6097.4	38943.	609590.	6927.8	25583.	293610.

Sample Name: MC0AB1 Acquired: 7/10/2014 15:14:25 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**42619.**	**-1.3697**	**1989.3**	**304.69**	**1.0240**	**.94003**	**20176.**	**1309.3**
Stddev	480.	.9709	4.4	3.51	.0565	.04909	183.	3.1
%RSD	1.1273	70.884	.21920	1.1521	5.5198	5.2221	.90549	.24005
#1	43138.	-2.3077	1986.7	308.25	.99357	.99252	20360.	1308.8
#2	42189.	-1.4324	1986.9	301.23	1.0892	.89527	19995.	1306.4
#3	42531.	-.36898	1994.4	304.59	.98923	.93229	20171.	1312.6

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**10.947**	**968.26**	**43811.**	**52.688**	**3249.9**	**457.59**	**2.8815**	**33.692**
Stddev	.131	5.77	428.	2.218	29.1	4.73	.1135	.653
%RSD	1.1982	.59605	.97780	4.2101	.89687	1.0326	3.9389	1.9396
#1	10.797	967.57	44264.	52.832	3278.0	462.68	2.8700	33.518
#2	11.009	962.86	43413.	50.401	3219.8	453.34	2.7742	33.142
#3	11.036	974.34	43754.	54.831	3251.9	456.76	3.0003	34.414

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2753.5**	**-4.3208**	**-.11488**	**189.36**	**-1.9188**	**668.83**	**77.695**	**199.89**
Stddev	38.3	3.4651	.27527	18.16	.1587	7.66	.515	.74
%RSD	1.3899	80.195	239.63	9.5894	8.2707	1.1459	.66263	.36903
#1	2765.2	-2.0758	-.00654	206.72	-2.0783	675.67	77.134	200.47
#2	2710.7	-2.5751	.08974	190.87	-1.9172	660.54	78.146	200.15
#3	2784.5	-8.3116	-.42784	170.50	-1.7609	670.27	77.804	199.06

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6338.6**	**38756.**	**634090.**	**7018.3**	**25358.**	**300100.**
Stddev	8.2	199.	1862.	18.4	185.	1289.
%RSD	.12938	.51388	.29368	.26184	.72974	.42938
#1	6329.3	38884.	632720.	6999.4	25498.	298770.
#2	6344.8	38857.	636210.	7036.1	25429.	300180.
#3	6341.6	38526.	633340.	7019.5	25149.	301340.

Sample Name: MC0AB1S Acquired: 7/10/2014 15:17:12 Type: RQC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**47947.**	F **94.927**	F **2018.5**	**4620.2**	**104.82**	**108.30**	**13443.**
Stddev	189.	2.254	34.5	2.0	.51	1.73	71.
%RSD	.39414	2.3749	1.7085	.04221	.48982	1.5998	.52559
#1	48115.	97.098	2046.5	4618.0	104.82	109.39	13500.
#2	47983.	95.086	1980.0	4621.5	105.33	106.31	13464.
#3	47742.	92.598	2029.1	4621.2	104.31	109.21	13364.
Check ?	None	Chk Fail	Chk Fail	Chk Pass	Chk Pass	Chk Pass	None
Value		200.00	80.000				
Range		-25.000%	-25.000%				
Recovery	None	96.297	29.158	4315.5	103.79	107.36	None
% Recovery		48.148%	36.447%	107.89%	103.79%	107.36%	

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1621.2**	**1047.0**	**1453.6**	**48094.**	**93.406**	**3247.2**	**1512.9**
Stddev	28.7	18.5	9.8	158.	2.688	35.6	4.7
%RSD	1.7673	1.7690	.67143	.32827	2.8776	1.0960	.30835
#1	1643.1	1061.2	1443.6	48271.	94.535	3287.8	1517.1
#2	1588.8	1026.0	1463.1	48042.	90.338	3221.3	1513.7
#3	1631.7	1053.6	1454.1	47969.	95.345	3232.7	1507.9
Check ?	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass	None	Chk Pass
Value							
Range							
Recovery	311.96	1036.0	485.35	None	40.718	None	1055.3
% Recovery	77.989%	103.60%	97.070%		101.80%		105.53%

Sample Name: MC0AB1S Acquired: 7/10/2014 15:17:12 Type: RQC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2.5869**	**1083.7**	**3018.9**	**92.523**	**99.644**	**196.42**	**102.84**
Stddev	.2173	17.5	34.4	1.266	.418	11.63	2.90
%RSD	8.4002	1.6131	1.1383	1.3685	.41991	5.9212	2.8170
#1	2.5081	1096.8	2979.3	92.555	99.503	206.93	105.78
#2	2.8325	1063.9	3040.6	91.241	99.315	183.93	99.984
#3	2.4199	1090.5	3036.9	93.772	100.11	198.39	102.76
Check ?	None	Chk Pass	None	Chk Pass	Chk Pass	None	Chk Pass
Value							
Range							
Recovery	None	1050.0	None	96.843	99.759	None	104.76
% Recovery		105.00%		96.843%	99.759%		104.76%

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**726.68**	**1103.0**	**1262.7**
Stddev	1.24	3.1	20.4
%RSD	.17079	.27993	1.6156
#1	726.21	1099.5	1275.4
#2	728.09	1104.8	1239.2
#3	725.75	1104.9	1273.6
Check ?	None	Chk Pass	Chk Pass
Value			
Range			
Recovery	None	1025.4	1062.8
% Recovery		102.54%	106.28%

Sample Name: MC0AB1S Acquired: 7/10/2014 15:17:12 Type: RQC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6367.4**	**38887.**	**630880.**	**7057.1**	**25436.**	**300480.**
Stddev	71.6	419.	1499.	71.1	251.	434.
%RSD	1.1249	1.0776	.23763	1.0080	.98838	.14437
#1	6303.6	38425.	631890.	6991.4	25180.	300000.
#2	6444.9	38994.	629160.	7132.6	25448.	300840.
#3	6353.6	39242.	631590.	7047.2	25682.	300600.

Sample Name: MC0AB1D Acquired: 7/10/2014 15:19:52 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**48044.**	**2.8197**	**2125.1**	**348.97**	**1.2876**	**1.0234**	**12731.**	**1197.8**
Stddev	396.	.8619	4.1	2.31	.0813	.0973	121.	1.5
%RSD	.82339	30.568	.19132	.66148	6.3165	9.5075	.94913	.12402
#1	47645.	1.8294	2125.2	346.82	1.2082	1.1226	12603.	1197.6
#2	48436.	3.4013	2129.1	351.41	1.3707	1.0197	12843.	1196.5
#3	48052.	3.2283	2121.0	348.68	1.2840	.92805	12748.	1199.4

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**11.072**	**844.62**	**57465.**	**61.790**	**4100.0**	**476.73**	**3.5865**	**33.055**
Stddev	.222	9.63	494.	2.132	42.5	5.80	.1998	1.413
%RSD	2.0032	1.1405	.85935	3.4510	1.0365	1.2158	5.5695	4.2745
#1	10.998	855.11	56997.	59.427	4053.8	470.35	3.3671	32.940
#2	10.897	836.17	57981.	62.372	4137.3	481.68	3.6345	34.522
#3	11.321	842.57	57416.	63.571	4109.0	478.15	3.7579	31.703

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**3604.4**	**.66293**	**-.60621**	**243.23**	**-2.4410**	**819.82**	**104.75**	**176.21**
Stddev	52.3	1.2513	.55555	10.43	.9014	8.03	.97	1.66
%RSD	1.4511	188.75	91.643	4.2868	36.929	.97895	.92843	.94333
#1	3566.3	2.0419	-.47578	252.15	-3.1493	810.67	105.56	175.55
#2	3664.1	.34702	-1.2154	231.77	-1.4263	825.67	103.67	174.99
#3	3583.0	-.40015	-.12748	245.76	-2.7475	823.13	105.01	178.11

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6281.6**	**38741.**	**633390.**	**6977.0**	**25384.**	**300520.**
Stddev	16.5	485.	5958.	6.3	354.	2471.
%RSD	.26250	1.2520	.94073	.08974	1.3951	.82229
#1	6263.6	39224.	626560.	6970.9	25751.	303350.
#2	6296.0	38254.	637570.	6976.8	25044.	298770.
#3	6285.3	38743.	636020.	6983.4	25358.	299460.

Sample Name: MC0AB1L Acquired: 7/10/2014 15:22:40 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**8419.4**	**-.27841**	**389.08**	**59.967**	**.20436**	**.16174**	**4029.5**	**261.06**
Stddev	99.4	2.6976	2.31	.754	.08209	.06574	65.5	.70
%RSD	1.1801	968.92	.59333	1.2566	40.170	40.648	1.6255	.26980
#1	8316.1	2.8266	386.51	59.176	.10978	.11781	3987.6	261.14
#2	8514.3	-2.0456	390.99	60.677	.25716	.13009	4105.0	261.73
#3	8427.8	-1.6163	389.75	60.048	.24614	.23732	3995.8	260.32

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2.2370**	**191.97**	**8754.4**	**11.089**	**646.00**	**91.513**	**.19191**	**9.6567**
Stddev	.1873	.95	138.0	1.523	9.96	1.161	.19636	1.4223
%RSD	8.3715	.49303	1.5760	13.738	1.5413	1.2681	102.32	14.729
#1	2.1775	193.03	8676.6	11.361	655.63	90.726	-.01373	10.394
#2	2.0867	191.20	8913.7	9.4472	646.62	92.846	.37744	8.0171
#3	2.4468	191.68	8672.8	12.457	635.74	90.968	.21201	10.559

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**574.20**	**-1.1333**	**-.28505**	**61.090**	**-1.8145**	**133.24**	**16.141**	**39.744**
Stddev	16.23	2.0913	.50166	8.750	.8675	2.60	.207	.428
%RSD	2.8263	184.54	175.99	14.323	47.807	1.9512	1.2839	1.0759
#1	584.49	-.90550	-.44575	54.512	-.99151	131.46	15.926	39.658
#2	582.62	-3.3292	.27727	57.738	-1.7316	136.22	16.158	40.209
#3	555.49	.83489	-.68667	71.021	-2.7205	132.03	16.340	39.367

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6380.1**	**38444.**	**634730.**	**6985.6**	**25077.**	**302480.**
Stddev	13.9	328.	1768.	13.0	224.	2082.
%RSD	.21830	.85265	.27858	.18626	.89454	.68831
#1	6367.1	38443.	632780.	6978.9	25079.	304740.
#2	6378.3	38117.	635180.	6977.3	24851.	300640.
#3	6394.8	38773.	636230.	7000.6	25300.	302060.

Sample Name: MC0AB2 Acquired: 7/10/2014 15:25:34 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**58414.**	**4.0797**	**1128.6**	**472.79**	**2.4420**	**1.7671**	**37424.**	**1160.2**
Stddev	389.	3.4548	13.2	1.08	.1069	.0887	160.	10.5
%RSD	.66649	84.682	1.1673	.22896	4.3763	5.0172	.42782	.90679
#1	58246.	2.8943	1143.6	472.40	2.5505	1.8130	37388.	1171.9
#2	58137.	7.9711	1118.6	471.96	2.4388	1.8233	37286.	1151.6
#3	58859.	1.3736	1123.8	474.01	2.3368	1.6649	37599.	1157.1

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**31.351**	**743.78**	**65904.**	**120.23**	**9260.7**	**824.94**	**3.5478**	**44.919**
Stddev	.021	8.10	210.	2.88	55.3	2.92	.5478	.658
%RSD	.06620	1.0888	.31894	2.3916	.59715	.35414	15.441	1.4644
#1	31.350	752.60	65913.	122.56	9266.4	827.38	4.1760	45.210
#2	31.372	742.06	65690.	121.11	9202.8	821.70	3.1694	44.166
#3	31.330	736.68	66110.	117.02	9313.0	825.73	3.2981	45.381

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**5316.0**	**-1.2615**	**-1.8080**	**391.25**	**-2.9504**	**1697.0**	**117.75**	**250.24**
Stddev	23.7	4.1837	.0123	13.89	.3504	13.3	1.25	3.28
%RSD	.44580	331.65	.67830	3.5491	11.878	.78499	1.0624	1.3125
#1	5326.3	1.0279	-1.8180	403.28	-2.5993	1693.3	118.79	253.88
#2	5288.9	1.2778	-1.7943	394.40	-2.9518	1685.9	118.09	247.50
#3	5332.7	-6.0902	-1.8115	376.05	-3.3002	1711.7	116.36	249.34

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6294.4**	**39099.**	**624920.**	**7005.5**	**25693.**	**301990.**
Stddev	39.4	239.	1727.	54.6	146.	6222.
%RSD	.62652	.61170	.27629	.77974	.56927	2.0605
#1	6250.4	39059.	626520.	6942.5	25696.	308940.
#2	6326.6	39356.	625160.	7037.5	25837.	296920.
#3	6306.1	38882.	623090.	7036.6	25545.	300130.

Sample Name: MC0AB3 Acquired: 7/10/2014 15:28:19 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**97941.**	**1.4651**	**1232.3**	**806.11**	**3.3104**	**4.0236**	**63402.**
Stddev	1022.	1.0007	15.0	6.93	.1741	.0495	541.
%RSD	1.0438	68.306	1.2164	.85993	5.2591	1.2296	.85316
#1	99061.	.42615	1241.9	813.38	3.4310	4.0088	64012.
#2	97057.	2.4227	1215.0	799.57	3.1108	3.9832	63211.
#3	97707.	1.5465	1239.9	805.39	3.3894	4.0788	62982.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**3931.6**	**81.620**	**977.97**	**219080.**	**162.18**	**19525.**	**1907.9**
Stddev	30.0	.810	2.75	1971.	1.80	174.	19.2
%RSD	.76187	.99268	.28069	.89945	1.1073	.89267	1.0076
#1	3953.9	82.339	974.90	221350.	162.38	19719.	1929.8
#2	3897.5	80.742	980.19	217780.	160.29	19474.	1893.6
#3	3943.3	81.779	978.81	218120.	163.87	19381.	1900.3

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**9.6416**	**419.73**	**5860.6**	**4.3838**	**.19574**	**1646.0**	**-5.6844**
Stddev	.7344	4.63	87.3	4.6404	.22128	19.2	.7306
%RSD	7.6167	1.1040	1.4896	105.86	113.05	1.1672	12.852
#1	10.169	423.31	5925.0	8.9718	.22520	1653.6	-5.5214
#2	9.9532	414.50	5761.2	4.4869	-.03880	1624.1	-5.0490
#3	8.8028	421.40	5895.5	-.30739	.40081	1660.2	-6.4826

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**2748.6**	**219.01**	**2771.9**
Stddev	23.8	1.67	21.6
%RSD	.86731	.76355	.77743
#1	2775.7	217.15	2790.9
#2	2730.9	220.38	2748.5
#3	2739.1	219.52	2776.4

Sample Name: MC0AB3 Acquired: 7/10/2014 15:28:19 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6149.1**	**39424.**	**621710.**	**7003.9**	**25882.**	**297880.**
Stddev	34.5	306.	4784.	36.3	208.	700.
%RSD	.56180	.77539	.76956	.51822	.80324	.23490
#1	6109.5	39161.	620130.	6966.3	25685.	298200.
#2	6172.8	39352.	617910.	7038.7	25863.	298360.
#3	6165.0	39759.	627080.	7006.6	26099.	297080.

Sample Name: MC0AB4 Acquired: 7/10/2014 15:31:01 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**64719.**	**4.9251**	**1985.6**	**1495.7**	**3.2012**	**16.565**	**34172.**
Stddev	287.	.5497	29.0	8.8	.0524	.319	199.
%RSD	.44361	11.162	1.4581	.58733	1.6371	1.9253	.58114
#1	64959.	4.3603	2016.4	1489.2	3.2136	16.866	34133.
#2	64401.	5.4585	1958.9	1492.3	3.1437	16.230	33996.
#3	64798.	4.9566	1981.5	1505.7	3.2463	16.598	34387.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1916.1**	**175.23**	**1375.8**	**118240.**	**442.41**	**8580.8**	**1992.4**
Stddev	24.3	2.63	3.7	565.	6.24	62.9	8.2
%RSD	1.2666	1.4997	.26946	.47798	1.4094	.73335	.41314
#1	1942.1	178.14	1371.8	118230.	448.48	8559.6	1990.8
#2	1894.0	173.03	1376.5	117690.	436.02	8531.2	1985.0
#3	1912.1	174.53	1379.1	118820.	442.71	8651.6	2001.3

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**19.244**	**159.60**	**5460.1**	**1.9800**	**-.56286**	**545.21**	**-5.0862**
Stddev	.224	1.08	54.9	5.4986	.29213	2.67	1.1042
%RSD	1.1657	.67875	1.0061	277.71	51.900	.49037	21.709
#1	19.061	160.68	5422.8	2.8923	-.27589	542.17	-5.2053
#2	19.495	158.52	5434.4	6.9655	-.85989	547.18	-3.9274
#3	19.177	159.59	5523.2	-3.9177	-.55280	546.29	-6.1260

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**1187.0**	**148.99**	**1344.8**
Stddev	9.8	.79	22.3
%RSD	.82808	.53344	1.6609
#1	1180.3	149.11	1367.9
#2	1182.4	148.15	1323.3
#3	1198.3	149.72	1343.2

Sample Name: MC0AB4 Acquired: 7/10/2014 15:31:01 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6245.9**	**38958.**	**625940.**	**7037.3**	**25652.**	**300820.**
Stddev	39.6	200.	1316.	52.7	148.	2768.
%RSD	.63426	.51233	.21025	.74940	.57823	.92006
#1	6200.7	38935.	626990.	6978.2	25668.	303890.
#2	6274.7	39169.	624460.	7079.7	25791.	300080.
#3	6262.2	38772.	626350.	7053.8	25496.	298500.

Sample Name: MC0AB5 Acquired: 7/10/2014 15:33:43 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**25033.**	**10.343**	**4554.0**	**724.78**	**1.4875**	**7.1362**	**201300.**
Stddev	168.	.604	27.1	7.71	.0874	.1300	1802.
%RSD	.67153	5.8361	.59428	1.0635	5.8764	1.8218	.89506
#1	24890.	11.022	4541.4	717.70	1.5818	7.2805	201480.
#2	25218.	9.8690	4585.0	732.99	1.4714	7.0998	203010.
#3	24990.	10.137	4535.4	723.64	1.4092	7.0282	199420.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2848.2**	**13.495**	**10560.**	**64869.**	**480.48**	**95223.**	**1270.4**
Stddev	12.4	.422	159.	436.	4.15	481.	11.0
%RSD	.43557	3.1292	1.5083	.67148	.86269	.50487	.86257
#1	2842.2	13.062	10682.	64577.	481.67	94896.	1259.8
#2	2862.5	13.905	10380.	65370.	483.91	95775.	1281.7
#3	2840.0	13.518	10618.	64660.	475.87	94997.	1269.8

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**3.5441**	**37.708**	**2157.6**	**4.9576**	**.11318**	**451.86**	**-3.3394**
Stddev	.3201	1.188	30.5	.6265	.17332	12.64	.6303
%RSD	9.0321	3.1511	1.4142	12.637	153.13	2.7976	18.875
#1	3.5315	39.077	2161.0	5.5481	-.04279	437.27	-3.6544
#2	3.8703	37.110	2125.6	5.0243	.08256	458.86	-2.6137
#3	3.2305	36.938	2186.4	4.3004	.29978	459.45	-3.7502

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**611.09**	**65.579**	**2126.7**
Stddev	4.10	1.061	9.6
%RSD	.67062	1.6174	.45064
#1	610.04	66.800	2117.7
#2	615.61	64.887	2136.8
#3	607.62	65.049	2125.8

Sample Name: MC0AB5 Acquired: 7/10/2014 15:33:43 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5967.7**	**38742.**	**603890.**	**6778.7**	**25397.**	**289900.**
Stddev	21.6	141.	5654.	17.4	94.	2380.
%RSD	.36159	.36420	.93631	.25670	.37206	.82083
#1	5969.1	38712.	597680.	6790.3	25363.	287280.
#2	5945.5	38619.	608750.	6758.7	25323.	290490.
#3	5988.6	38896.	605230.	6787.1	25503.	291930.

Sample Name: MC0AB6 Acquired: 7/10/2014 15:36:44 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**46826.**	**-2.3683**	**502.40**	**458.71**	**2.3355**	**3.0423**	**40960.**
Stddev	649.	3.5260	2.36	5.93	.0592	.0621	556.
%RSD	1.3864	148.88	.46929	1.2928	2.5366	2.0409	1.3579
#1	46503.	-6.3796	503.07	455.77	2.2679	3.0687	40699.
#2	46402.	-.96664	499.78	454.82	2.3601	2.9713	40582.
#3	47574.	.24135	504.36	465.54	2.3785	3.0867	41598.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**765.09**	**55.031**	**470.21**	**104220.**	**233.51**	**6080.9**	**1634.0**
Stddev	4.21	.591	.35	1244.	.93	101.1	19.2
%RSD	.55004	1.0737	.07350	1.1937	.39621	1.6632	1.1758
#1	769.59	55.657	470.43	103590.	234.07	6021.8	1623.1
#2	761.25	54.483	470.39	103400.	232.45	6023.2	1622.7
#3	764.44	54.952	469.81	105650.	234.02	6197.7	1656.2

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**8.0864**	**61.802**	**3720.5**	**4.7853**	**-1.2697**	**275.79**	**-4.1299**
Stddev	.2839	1.221	40.2	.7590	.3584	7.42	.4869
%RSD	3.5108	1.9754	1.0804	15.860	28.226	2.6891	11.791
#1	8.4013	61.830	3695.3	4.1164	-.89029	267.77	-3.6508
#2	8.0075	63.009	3699.3	5.6101	-1.3163	282.41	-4.6244
#3	7.8502	60.568	3766.8	4.6295	-1.6025	277.20	-4.1146

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**1090.7**	**130.63**	**524.92**
Stddev	13.0	.36	3.48
%RSD	1.1895	.27307	.66356
#1	1088.2	130.48	528.59
#2	1079.1	131.04	521.66
#3	1104.7	130.37	524.52

Sample Name: MC0AB6 Acquired: 7/10/2014 15:36:44 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6178.4**	**39186.**	**625440.**	**6968.3**	**25776.**	**299940.**
Stddev	35.2	319.	2618.	29.1	206.	1955.
%RSD	.56926	.81339	.41851	.41709	.79734	.65179
#1	6138.3	39211.	622470.	6937.5	25806.	301250.
#2	6204.0	39492.	626440.	6995.3	25965.	297690.
#3	6192.9	38856.	627400.	6971.9	25557.	300880.

Sample Name: MC0AB7 Acquired: 7/10/2014 15:39:30 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**35192.**	**-.46433**	**512.03**	**651.17**	**2.0300**	**4.1994**	**20499.**
Stddev	197.	2.4048	3.23	2.95	.0317	.1255	57.
%RSD	.55955	517.90	.63159	.45361	1.5622	2.9888	.27786
#1	35118.	1.6669	509.97	647.91	2.0573	4.2189	20453.
#2	35415.	.01150	510.37	653.68	1.9952	4.0652	20563.
#3	35043.	-3.0714	515.76	651.91	2.0375	4.3140	20482.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**697.95**	**41.714**	**584.24**	**170470.**	**136.66**	**5351.9**	**1648.0**
Stddev	5.22	.389	6.53	637.	.89	34.9	5.5
%RSD	.74773	.93217	1.1174	.37363	.65006	.65263	.33353
#1	700.87	41.538	576.78	170080.	137.31	5312.6	1644.3
#2	691.93	41.445	588.91	171200.	135.65	5363.9	1654.3
#3	701.07	42.160	587.03	170120.	137.02	5379.3	1645.3

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**11.627**	**90.451**	**2359.3**	**2.3173**	**-.31121**	**911.50**	**-7.5627**
Stddev	.314	1.134	14.0	4.7787	.40283	11.68	2.6034
%RSD	2.7041	1.2533	.59150	206.22	129.44	1.2811	34.425
#1	11.984	91.317	2362.9	1.7516	-.77622	900.61	-10.134
#2	11.393	89.168	2343.9	-2.1534	-.06881	910.05	-4.9281
#3	11.504	90.870	2371.1	7.3536	-.08861	923.83	-7.6263

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**1264.5**	**104.56**	**1476.7**
Stddev	4.2	.88	14.2
%RSD	.32833	.84465	.95992
#1	1263.2	103.86	1484.1
#2	1269.1	105.55	1460.4
#3	1261.1	104.27	1485.6

Sample Name: MC0AB7 Acquired: 7/10/2014 15:39:30 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6244.9**	**39105.**	**633440.**	**6996.4**	**25580.**	**301130.**
Stddev	38.2	108.	3989.	37.8	43.	1066.
%RSD	.61198	.27605	.62967	.54074	.16703	.35382
#1	6206.1	39221.	638020.	6954.2	25616.	300470.
#2	6282.5	39007.	631570.	7027.2	25591.	302360.
#3	6246.3	39086.	630720.	7007.8	25533.	300550.

Sample Name: MC0AB8 Acquired: 7/10/2014 15:42:18 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**25244.**	**.04765**	**237.02**	**425.04**	**.99923**	**2.3781**	**59371.**	**250.21**
Stddev	229.	2.0723	1.61	3.91	.05973	.0585	595.	1.55
%RSD	.90691	4348.8	.67762	.91909	5.9774	2.4584	1.0015	.62126
#1	25327.	.30080	235.33	423.49	.93401	2.4207	59633.	251.42
#2	24985.	1.9817	237.21	422.14	1.0513	2.4023	58690.	248.46
#3	25420.	-2.1396	238.53	429.48	1.0124	2.3115	59789.	250.75

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**17.729**	**179.30**	**64919.**	**114.41**	**9889.1**	**906.62**	**4.1393**	**36.166**
Stddev	.486	.60	641.	3.33	105.7	8.53	.1893	.827
%RSD	2.7440	.33531	.98762	2.9145	1.0688	.94093	4.5739	2.2869
#1	17.605	178.63	64991.	114.33	9971.3	904.27	4.0449	37.048
#2	17.317	179.48	64245.	111.12	9769.8	899.50	4.0158	36.040
#3	18.266	179.80	65521.	117.79	9926.0	916.07	4.3573	35.409

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**7821.7**	**-.08011**	**-.74564**	**339.90**	**-2.7114**	**1853.7**	**81.845**	**479.99**
Stddev	40.8	2.9569	.40708	13.12	1.4567	17.1	.547	1.76
%RSD	.52174	3691.1	54.595	3.8601	53.727	.92301	.66807	.36772
#1	7803.1	-3.0392	-.56069	324.75	-3.7073	1852.6	81.659	480.43
#2	7793.6	-.07578	-.46387	347.41	-3.3873	1837.2	81.415	478.04
#3	7868.5	2.8746	-1.2124	347.54	-1.0394	1871.3	82.460	481.49

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6259.2**	**39310.**	**629380.**	**6966.6**	**25665.**	**297170.**
Stddev	27.4	683.	925.	29.7	390.	3534.
%RSD	.43747	1.7368	.14700	.42676	1.5197	1.1893
#1	6227.6	38544.	629530.	6932.3	25228.	298150.
#2	6276.4	39853.	628380.	6982.7	25978.	293250.
#3	6273.6	39534.	630210.	6984.8	25788.	300110.

Sample Name: MC0AB9 Acquired: 7/10/2014 15:45:04 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**86248.**	**6.0653**	**2626.2**	**554.28**	**4.0358**	**4.0028**	**21217.**
Stddev	865.	2.0387	25.3	4.50	.0390	.0813	179.
%RSD	1.0033	33.612	.96431	.81126	.96582	2.0317	.84586
#1	86971.	7.3450	2640.3	558.27	4.0061	4.0727	21376.
#2	86483.	7.1365	2596.9	555.17	4.0799	4.0222	21254.
#3	85289.	3.7143	2641.3	549.41	4.0214	3.9135	21022.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**3066.9**	**69.634**	**1773.2**	**156820.**	**219.36**	**7196.5**	**1378.1**
Stddev	23.7	.399	11.6	1236.	2.70	92.9	10.6
%RSD	.77137	.57282	.65219	.78805	1.2306	1.2916	.76833
#1	3076.2	69.878	1786.2	158020.	218.72	7270.4	1387.7
#2	3040.0	69.174	1769.4	156880.	217.03	7226.9	1379.7
#3	3084.4	69.851	1764.0	155550.	222.31	7092.1	1366.7

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**8.1906**	**81.267**	**5313.9**	**3.4977**	**-3.1202**	**345.00**	**-4.5239**
Stddev	.0295	.745	64.5	5.0963	.5987	5.05	1.0075
%RSD	.36067	.91648	1.2139	145.71	19.189	1.4651	22.270
#1	8.2218	81.256	5388.4	8.2042	-2.4338	341.11	-5.2467
#2	8.1631	80.528	5274.5	-1.9149	-3.5347	343.18	-3.3731
#3	8.1870	82.018	5278.9	4.2036	-3.3921	350.71	-4.9520

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**1954.1**	**217.81**	**1109.3**
Stddev	15.6	1.76	7.8
%RSD	.79581	.80977	.70615
#1	1971.7	219.80	1113.1
#2	1948.5	217.19	1100.3
#3	1942.2	216.44	1114.5

Sample Name: MC0AB9 Acquired: 7/10/2014 15:45:04 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6226.5**	**39436.**	**630350.**	**7151.4**	**26227.**	**303620.**
Stddev	33.4	373.	4204.	29.5	248.	1919.
%RSD	.53656	.94538	.66694	.41232	.94693	.63200
#1	6195.1	39111.	626170.	7120.7	26025.	301810.
#2	6261.6	39355.	630310.	7179.5	26151.	303420.
#3	6222.8	39843.	634570.	7153.9	26504.	305630.

Sample Name: MC0AB1A Acquired: 7/10/2014 15:47:50 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep: 3050B
Comment: Sb-120

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**42946.**	**113.18**	**1990.3**	**306.19**	**.96765**	**.91805**	**20241.**	**1319.4**
Stddev	362.	1.02	7.4	2.40	.11122	.14780	186.	3.7
%RSD	.84399	.89915	.37366	.78413	11.494	16.100	.92077	.28310
#1	42944.	112.44	1992.8	306.14	.86263	.96100	20277.	1320.7
#2	43310.	112.77	1981.9	308.62	1.0842	.75353	20406.	1315.2
#3	42585.	114.34	1996.1	303.82	.95616	1.0396	20039.	1322.4

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**10.858**	**981.16**	**44118.**	**52.682**	**3275.3**	**462.36**	**2.8133**	**33.431**
Stddev	.062	12.42	396.	1.006	31.9	3.18	.1917	.515
%RSD	.56839	1.2662	.89723	1.9103	.97299	.68814	6.8139	1.5409
#1	10.924	994.88	44187.	53.580	3294.4	462.14	2.9656	33.582
#2	10.802	977.94	44475.	52.872	3293.1	465.64	2.5980	32.857
#3	10.847	970.67	43692.	51.594	3238.6	459.29	2.8763	33.854

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2756.1**	**1.5669**	**-1.2204**	**194.39**	**-1.0537**	**676.78**	**77.697**	**200.87**
Stddev	49.0	2.6801	.1266	10.08	.9388	4.84	1.122	.64
%RSD	1.7785	171.05	10.372	5.1879	89.092	.71485	1.4441	.31671
#1	2758.3	-1.5248	-1.2645	182.80	-2.1374	676.60	78.960	200.14
#2	2804.0	2.9937	-1.3191	199.18	-.49231	681.70	77.314	201.26
#3	2706.0	3.2318	-1.0777	201.19	-.53133	672.03	76.816	201.22

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6325.3**	**39344.**	**630360.**	**7007.5**	**25693.**	**300220.**
Stddev	13.2	311.	4765.	5.5	209.	1268.
%RSD	.20936	.79139	.75593	.07917	.81452	.42223
#1	6310.8	39063.	625340.	7002.9	25506.	301590.
#2	6336.8	39289.	630920.	7013.7	25655.	299090.
#3	6328.2	39679.	634820.	7006.1	25919.	299990.

Sample Name: CCV2 Acquired: 7/10/2014 15:50:37 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**241650.**	**24012.**	**10231.**	**24864.**	**9712.2**	**10058.**	**244980.**
Stddev	2181.	275.	127.	90.	130.7	122.	2063.
%RSD	.90263	1.1450	1.2399	.36136	1.3460	1.2167	.84199
#1	242580.	24284.	10333.	24957.	9740.7	10152.	247350.
#2	243200.	24018.	10271.	24777.	9826.3	10102.	244050.
#3	239150.	23735.	10089.	24859.	9569.5	9919.8	243550.
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**25196.**	**24503.**	**24362.**	**242570.**	**23758.**	**242430.**	**23563.**
Stddev	331.	291.	186.	2053.	265.	1638.	132.
%RSD	1.3141	1.1880	.76169	.84614	1.1165	.67563	.55833
#1	25466.	24738.	24549.	243590.	23949.	243280.	23412.
#2	25295.	24593.	24178.	243910.	23870.	243460.	23619.
#3	24827.	24177.	24358.	240200.	23455.	240540.	23656.
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**9984.1**	**24372.**	**245580.**	**9645.3**	**1001.4**	**248130.**	**9203.1**
Stddev	118.8	293.	1505.	82.8	4.1	2701.	85.0
%RSD	1.1900	1.2017	.61300	.85892	.41081	1.0886	.92364
#1	10080.	24592.	245350.	9707.7	996.66	249920.	9270.9
#2	10021.	24486.	247190.	9676.8	1004.2	249450.	9230.8
#3	9851.3	24040.	244210.	9551.3	1003.2	245020.	9107.7
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Sample Name: CCV2 Acquired: 7/10/2014 15:50:37 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**9691.3**	**24270.**	**25172.**
Stddev	80.7	105.	319.
%RSD	.83268	.43337	1.2681
#1	9714.9	24386.	25418.
#2	9757.5	24245.	25287.
#3	9601.4	24180.	24812.
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5469.5**	**37643.**	**577960.**	**6437.8**	**24447.**	**275020.**
Stddev	30.1	237.	2960.	27.2	111.	1550.
%RSD	.55078	.63088	.51207	.42229	.45571	.56370
#1	5443.8	37393.	575520.	6411.1	24329.	276170.
#2	5462.0	37671.	577110.	6436.9	24463.	273250.
#3	5502.7	37866.	581250.	6465.5	24550.	275620.

Sample Name: CCB2 Acquired: 7/10/2014 15:54:08 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**31.230**	**2.1829**	**2.6149**	**.41271**	**.42186**	**.43056**	**5.8784**	**.04465**
Stddev	21.822	1.4002	1.9390	.21804	.20663	.12207	2.9868	.19093
%RSD	69.873	64.146	74.151	52.831	48.980	28.352	50.809	427.58
#1	56.417	1.3585	3.8169	.66441	.62474	.53435	9.3272	.10544
#2	17.987	1.3905	.37805	.28196	.42916	.46126	4.1450	-.16927
#3	19.288	3.7996	3.6497	.29176	.21168	.29606	4.1629	.19779
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.12229**	**1.7380**	**9.6416**	**3.9100**	**26.425**	**1.2937**	**.22464**	**3.4262**
Stddev	.37110	.5148	5.3582	1.4361	9.122	.0760	.16699	.4745
%RSD	303.45	29.620	55.574	36.729	34.520	5.8710	74.338	13.848
#1	-.18498	2.1887	14.284	2.3853	18.906	1.2280	.33840	2.8860
#2	.53458	1.8482	10.863	4.1077	23.796	1.3769	.03293	3.6173
#3	.01728	1.1770	3.7783	5.2371	36.572	1.2764	.30260	3.7753
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**108.09**	**-1.1400**	**-.02875**	**72.127**	**1.9916**	**.70617**	**.73353**	**1.0315**
Stddev	28.80	4.0299	.35457	9.168	.2847	.50153	.34468	.5259
%RSD	26.642	353.51	1233.2	12.711	14.293	71.020	46.990	50.984
#1	121.85	2.4888	-.39271	78.576	1.8096	.75439	.50668	1.6384
#2	74.994	-.43159	-.00917	76.174	2.3196	1.1818	.56374	.71098
#3	127.43	-5.4771	.31562	61.632	1.8455	.18228	1.1302	.74503
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Sample Name: CCB2 Acquired: 7/10/2014 15:54:08 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AA0 Case: 44460 Prep:
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6388.7**	**38212.**	**631090.**	**7006.9**	**24993.**	**304740.**
Stddev	16.0	149.	3686.	20.3	50.	183.
%RSD	.24977	.38967	.58410	.29021	.20176	.06013
#1	6401.9	38047.	632870.	7025.5	24938.	304650.
#2	6393.4	38255.	626850.	7009.8	25037.	304620.
#3	6371.0	38335.	633550.	6985.2	25003.	304950.

ISM 3050B PHYSICAL DESCRIPTION

Sample ID	Matrix	Method	Prep Date	Amount Sample Used (g)	Final Sample Volume	PH	Color/Clarity/Texture Before Color	Before Texture	After Color	After Clarity	Init.
PBS1	ASTM Type II H_2O	3050B	07/07/14	NA	100 mL	NA	Colorless	Clear	Colorless	Clear	KL
LCS1	ASTM Type II H_2O			NA			Colorless	Clear	Colorless	Clear	
MC0AA0	Soil			1.2056			Brown	Medium	Yellow	Clear	
MC0AA1				1.3495			Brown	Medium	Yellow	Clear	
MC0AA2				1.2285			Brown	Medium	Yellow	Clear	
MC0AA3				1.2706			Brown	Medium	Yellow	Clear	
MC0AA4				1.4699			Brown	Medium	Yellow	Clear	
MC0AA5				1.2677			Brown	Medium	Yellow	Clear	
MC0AA6				1.4363			Brown	Medium	Yellow	Clear	
MC0AA7				1.2416			Brown	Medium	Yellow	Clear	
MC0AA8				1.1332			Brown	Medium	Yellow	Clear	
MC0AA9				1.4027			Brown	Medium	Yellow	Clear	
MC0AB0				1.3108			Brown	Medium	Yellow	Clear	
MC0AB1				1.0475			Brown	Medium	Yellow	Clear	
MC0AB1S				1.0481			Brown	Medium	Yellow	Clear	
MC0AB1D				1.0470			Brown	Medium	Yellow	Clear	
MC0AB2				1.0493			Brown	Medium	Yellow	Clear	
MC0AB3				1.0398			Brown	Medium	Yellow	Clear	
MC0AB4				1.2592			Brown	Medium	Yellow	Clear	
MC0AB5				1.1220			Brown	Medium	Yellow	Clear	
MC0AB6				1.1480			Brown	Medium	Yellow	Clear	
MC0AB7				1.1341			Brown	Medium	Yellow	Clear	
MC0AB8				1.1308			Brown	Medium	Yellow	Clear	
MC0AB9	↓	↓	↓	1.3390	↓	↓	Brown	Medium	Yellow	Clear	↓

PREPARED BY:
Kelsey Lockwood

START DATE/TIME:
07/07/14 11:25
END DATE/TIME:
07/08/14 9:35
WORKORDER(S):
1417548

SDG:
MC0AA0
CASE:
44460
METHOD/MATRIX:
3050B/Soil
BATCH:
4953
HBN #:
129800
MOD:
NA

QC ID	QC TYPE	MATRIX SOURCE	SPIKE SOURCE	PIPETTE ID	VOLUME SPIKED	INITIALS	Method Reagents	
PBS1	PBS	ASTM Type II H_2O	NA	NA	NA	KL	1:1 HNO_3 Baker LOT #:	0000074185
LCS1	LCS	ASTM Type II H_2O	21088	WR-22	2000 µl		CONC. HNO_3 Baker LOT #:	0000074185
MC0AB1S	MS	MC0AB1	19951 19952	WR-22	200 µl		30% H_2O_2 CCI LOT #:	2014021259
MC0AB1D	MD	MC0AB1	NA	NA	NA	↓	CONC. HCl LOT #:	EMD 53010

BALANCE ID:
102683

Samples weighed and transferred into 100 mL flat-bottom tubes. QCs prepared as indicated above. 10 mL 1:1 HNO_3 added to all. Samples covered and placed on hotblock at ~95°C for 10 minutes, removed from heat, and allowed to cool. 5 mL concentrated HNO_3 added to all. Samples returned to hotblock for 30 minutes, removed from heat, and allowed to cool. Samples were returned to heat and allowed to reduce to 5 mL. Temperature was checked with thermometer 122074430, which read 95.0 °C. Samples removed from heat. 2 mL ASTM Type II H_2O and 3 mL 30% H_2O_2 added, returned to hotblock, and heated until bubbling reaction subsided. Samples removed from heat. An additional 1 mL of H_2O_2 was added to all samples and heated until effervesence subsided. Samples removed from heat and allowed to cool. Samples returned to heat and allowed to reduce to 5 mL. Samples removed from heat and allowed to cool. 10 mL conc. HCl added. Samples returned to hotblock for 15 minutes, removed from heat, and allowed to cool. Samples diluted to 100 mL final volume with ASTM Type II H2O. Samples inverted several times to mix. Samples transferred to 50 mL tubes for analysis.

% Moistures & Solids

Analyst: IJO
Queue: EGRV
Batch: 4771
Instrument: GRAV03

Oven Start Time	06/26/2014 10:00	**Start Oven Temp:**	105°	**Start Desiccator:**	06/27/2014 06:50
Oven Finish Time	06/27/2014 06:50	**End Oven Temp:**	105°	**End Desiccator:**	06/27/2014 07:20

Workorder	Dish#	Lab Sample ID	Dish (g)	Dish + Soil (g)	Soil Weight (g)	Dish + DS (g)	Dry Soil (g)	% Solids	% Moistures
1417548	1	1417548001	1.3197	9.6960	8.3763	7.7738	6.4541	77.0519%	22.9481%
1417548	2	1417548002	1.3301	9.8734	8.5433	7.3550	6.0249	70.5219%	29.4781%
1417548	3	1417548003	1.3316	9.9055	8.5739	7.0219	5.6903	66.3677%	33.6323%
1417548	4	1417548004	1.3314	9.7005	8.3691	8.3689	7.0375	84.0891%	15.9109%
1417548	5	1417548005	1.3258	9.9624	8.6366	9.4713	8.1455	94.3137%	5.6863%
1417548	6	1417548006	1.3181	9.8495	8.5314	9.2519	7.9338	92.9953%	7.0047%
1417548	7	1417548007	1.3193	9.9236	8.6043	8.9587	7.6394	88.7858%	11.2142%
1417548	8	1417548008	1.3341	9.6702	8.3361	7.6321	6.2980	75.5509%	24.4491%
1417548	9	1417548009	1.3394	9.8173	8.4779	8.5708	7.2314	85.2971%	14.7029%
1417548	10	1417548011	1.3373	9.8968	8.5595	8.5559	7.2186	84.3344%	15.6656%
1417548	11	1417548012	1.3237	9.9354	8.6117	9.5620	8.2383	95.6640%	4.3360%
1417548	12	396341	1.3289	9.8862	8.5573	9.6117	8.2828	96.7922%	3.2078%
1417548	13	1417548015	1.3347	9.9011	8.5664	9.3091	7.9744	93.0893%	6.9107%
1417548	14	1417548016	1.3289	9.9282	8.5993	9.4334	8.1045	94.2460%	5.7540%
1417548	15	1417548017	1.3320	9.8018	8.4698	8.8792	7.5472	89.1072%	10.8928%
1417548	16	1417548018	1.3329	9.8625	8.5296	9.0492	7.7163	90.4650%	9.5350%
1417548	17	1417548019	1.3292	9.6755	8.3463	8.4758	7.1466	85.6260%	14.3740%
1417548	18	1417548020	1.3402	9.7536	8.4134	8.4516	7.1114	84.5247%	15.4753%
1417548	19	1417548021	1.3331	9.7489	8.4158	8.4174	7.0843	84.1786%	15.8214%
1417548	20	1417548022	1.3296	9.9849	8.6553	7.2500	5.9204	68.4020%	31.5980%
1417548	21	1417548010	1.3214	9.8547	8.5333	8.9812	7.6598	89.7636%	10.2364%

From: (484) 213-8723
Erik Armistead
WESTON
1400 Weston Way

West Chester, PA 19380

Origin ID: BIGA

FedEx Express

E

J14101402070326

Ship Date: 23JUN14
ActWgt: 40.0 LB
CAD: 105266671/INET3490

Dims: 30 X 14 X 18 IN aa 06/24/14

~~Copy original in SDG. MCØ AAØ~~

Delivery Address Bar Code

SHIP TO: (801) 266-7700 BILL SENDER

Sample Recieving
ALS Laboratory Group
960 West LeVoy Dr

SALT LAKE CITY, UT 84123

Ref # 20403.016.001.0233.00
Invoice #
PO #
Dept #

aa 06/24/14
10:06

TUE - 24 JUN 10:30A
PRIORITY OVERNIGHT

TRK# 7703 8001 4214
0201

84123
UT-US
SLC

XH NPHA

522G5/9BC4/F220

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Precautionary Measures Against Hidden Hazards in Laboratory Samples

Notice to Laboratory Personnel

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of the public health, welfare or environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of contracted Superfund Technical Assessment and Response Team (START) teams for each EPA Region. The Weston Solutions Inc. (WESTON) START Region III Eastern Area Contract provides support to EPA Region III.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable DOT or IATA Regulations and were collected by the WESTON START team and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental Samples* are collected from streams, farm ponds, small lakes, wells and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples.* Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times the average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples.*

The samples which accompany this notice have been tentatively classified by the field response team as:

X Environmental _____ Hazardous _____ Combination (Env. & Haz) _____ Radioactive

The field team which collected the samples used the following Level(s) of personal protection as designated by EPA and OSHA conventions to provided protection against possible radiological or chemical exposure:

_____ Level A _____ Level B _____ Level C X Level D

This information is intended for use as a guide for the safe handling of these laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Levels of personal protection used by the WESTON START team are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

This form was prepared by: Erik Armistead

Analytical Services TDD No. or Case No.: 4460

Weston Solutions, Inc. Office: West Chester, PA Phone: 610-701-3500 Fax: 610-701-3187

Laboratory Name: ALS Laboratory Group

Sample # MC0AA0 Case # 44460
Tag: 1000 Sampler: START
Date: 6/20/2014 Time: 08:45
Location: BKG01
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AA1 Case # 44460
Tag: 1001 Sampler: START
Date: 6/20/2014 Time: 08:49
Location: BKG02
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AA2 Case # 44460
Tag: 1002 Sampler: START
Date: 6/20/2014 Time: 08:55
Location: BKG03
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AA3 Case # 44460
Tag: 1003 Sampler: START
Date: 6/20/2014 Time: 15:08
Location: 041
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AA4 Case # 44460
Tag: 1004 Sampler: START
Date: 6/20/2014 Time: 15:30
Location: 045
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AA5 Case # 44460
Tag: 1005 Sampler: START
Date: 6/20/2014 Time: 15:33
Location: 062
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AA6 Case # 44460
Tag: 1006 Sampler: START
Date: 6/20/2014 Time: 15:36
Location: 067
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AA7 Case # 44460
Tag: 1007 Sampler: START
Date: 6/20/2014 Time: 15:39
Location: 073
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AA8 Case # 44460
Tag: 1008 Sampler: START
Date: 6/20/2014 Time: 15:43
Location: 075
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AA9 Case # 44460
Tag: 1009 Sampler: START
Date: 6/20/2014 Time: 15:40
Location: 080
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AB0 Case # 44460
Tag: 1010 Sampler: START
Date: 6/20/2014 Time: 15:45
Location: 092
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AB1 Case # 44460
Tag: 1011 Sampler: START
Date: 6/20/2014 Time: 15:47
Location: 093
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AB2 Case # 44460
Tag: 1012 Sampler: START
Date: 6/20/2014 Time: 15:49
Location: 094
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AB3 Case # 44460
Tag: 1013 Sampler: START
Date: 6/20/2014 Time: 15:51
Location: 096
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AB4 Case # 44460
Tag: 1014 Sampler: START
Date: 6/20/2014 Time: 15:53
Location: 097
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AB5 Case # 44460
Tag: 1015 Sampler: START
Date: 6/20/2014 Time: 15:55
Location: 098
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

EA

Sample # MC0AB6 Case # 44460
Tag: 1016 Sampler: START
Date: 6/20/2014 Time: 16:00
Location: 100
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

Sample # MC0AB7 Case # 44460
Tag: 1017 Sampler: START
Date: 6/20/2014 Time: 16:02
Location: 101
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

Sample # MC0AB8 Case # 44460
Tag: 1018 Sampler: START
Date: 6/20/2014 Time: 16:05
Location: 104
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

Sample # MC0AB9 Case # 44460
Tag: 1019 Sampler: START
Date: 6/20/2014 Time: 16:13
Location: 154
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C

Sample Delivery Group (SDG)
Cover Sheet

SDG Number: MC0AA0

☒ ICPAES ☐ ICPMS ☐ HG ☐ CN

Laboratory Name: ALS Laboratory Group (SLC) Laboratory Code: DATAC

Contract No.: EPW09036 Case No.: 44460

Analysis Price: N/A SDG Turnaround: 21

Modified Analysis NO Program: ISM01.3

Modification Reference No.: N/A

EPA Sample Numbers in SDG (Listed in Numerical Order)

1) MC0AA0	7) MC0AA6	13) MC0AB2	19) MC0AB8
2) MC0AA1	8) MC0AA7	14) MC0AB3	20) MC0AB9
3) MC0AA2	9) MC0AA8	15) MC0AB4	21)
4) MC0AA3	10) MC0AA9	16) MC0AB5	22)
5) MC0AA4	11) MC0AB0	17) MC0AB6	23)
6) MC0AA5	12) MC0AB1	18) MC0AB7	24)

AA 07/02/14

MC0AA0	MC0AB9
First Sample in SDG	Last Sample in SDG
06/24/14	06/24/14
First Sample Receipt Date	Last Sample Receipt Date

Note: *There are a maximum of 20 field samples (excluding PE samples) in an SDG. Attach the TR/COC records to this form in alphanumeric order (the order listed above on this form).*

Signature: Augustin Quintero Date: 7/2/2014

EPA Sample Receipt History

Client: U. S. EPA Region 3 **Contract:** EPW09036 **Case:** **44460** **SDG:** **MC0AA0** **Mod:** None

Due to Client: **Tue, Jul 15, 2014** **TAT:** 21 **Date Reported:** Not Reported **Status:** **CLOSED**

Workorder Information **Program:** ISM01.3 **EDD Level:** 2b

Work Order	Received	PR	Fractions
1417548	06/24/14 10:06 AM	No	ICP-AES

Sample Information

Lab ID	Client ID	Type	Matrix	ICPAES	ICPMS	HG	CN
1417548001	MC0AA0	SAMPLE	Soil[S]	X	☐	☐	☐
1417548002	MC0AA1	SAMPLE	Soil[S]	X	☐	☐	☐
1417548003	MC0AA2	SAMPLE	Soil[S]	X	☐	☐	☐
1417548004	MC0AA3	SAMPLE	Soil[S]	X	☐	☐	☐
1417548005	MC0AA4	SAMPLE	Soil[S]	X	☐	☐	☐
1417548006	MC0AA5	SAMPLE	Soil[S]	X	☐	☐	☐
1417548007	MC0AA6	SAMPLE	Soil[S]	X	☐	☐	☐
1417548008	MC0AA7	SAMPLE	Soil[S]	X	☐	☐	☐
1417548009	MC0AA8	SAMPLE	Soil[S]	X	☐	☐	☐
1417548010	MC0AA9	SAMPLE	Soil[S]	X	☐	☐	☐
1417548011	MC0AB0	SAMPLE	Soil[S]	X	☐	☐	☐
1417548012	MC0AB1	SAMPLE	Soil[S]	X	☐	☐	☐
1417548014	MC0AB1D	MD	Soil	X	☐	☐	☐
1417548013	MC0AB1S	MS	Soil	X	☐	☐	☐
1417548015	MC0AB2	SAMPLE	Soil[S]	X	☐	☐	☐
1417548016	MC0AB3	SAMPLE	Soil[S]	X	☐	☐	☐
1417548017	MC0AB4	SAMPLE	Soil[S]	X	☐	☐	☐
1417548018	MC0AB5	SAMPLE	Soil[S]	X	☐	☐	☐
1417548019	MC0AB6	SAMPLE	Soil[S]	X	☐	☐	☐
1417548020	MC0AB7	SAMPLE	Soil[S]	X	☐	☐	☐
1417548021	MC0AB8	SAMPLE	Soil[S]	X	☐	☐	☐
1417548022	MC0AB9	SAMPLE	Soil[S]	X	☐	☐	☐

Field Samples: 20 **MS: 1** **MSD:** 0 **MD: 1** **PE:** 0

Report Parameters = SDG:MC0AA0 Case:44460 Region:<NULL>
Mod:<NULL> Workorder:<NULL> BeginDate:<NULL> EndDate:<NULL>
OpenSummary:No SortBy:Case

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW09036	Split:	Workorder ID: 1417548	Level: EPACLP_PDF
Client: U. S. EPA Region 3		Account: 8201	Type: 8ozGWM
Comments:			Preservatives: COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: ISM01.3 ICP-AES, Soil
1	06/20/2014 08:45	MC0AA0	1417548001		Soil/Solid/Sediment	A	1	A
2	06/20/2014 08:49	MC0AA1	1417548002		Soil/Solid/Sediment	A	1	A
3	06/20/2014 08:55	MC0AA2	1417548003		Soil/Solid/Sediment	A	1	A
4	06/20/2014 15:08	MC0AA3	1417548004		Soil/Solid/Sediment	A	1	A
5	06/20/2014 15:30	MC0AA4	1417548005		Soil/Solid/Sediment	A	1	A
6	06/20/2014 15:33	MC0AA5	1417548006		Soil/Solid/Sediment	A	1	A
7	06/20/2014 15:36	MC0AA6	1417548007		Soil/Solid/Sediment	A	1	A
8	06/20/2014 15:39	MC0AA7	1417548008		Soil/Solid/Sediment	A	1	A
9	06/20/2014 15:43	MC0AA8	1417548009		Soil/Solid/Sediment	A	1	A
10	06/20/2014 15:40	MC0AA9	1417548010		Soil/Solid/Sediment	A	1	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Ahlstrom, Anjanette	06/24/2014 10:06	ALS Sample Receiving	Sample Login
Anjanette Ahlstrom	06/24/14 1600	R33.1 15C	storage
R033-1 15C JJO	06/26/14 9:00	Rlee/Orville	solid
Rlee/Orville	06/26/14 15:00	R_33_1JJO15C	Storage
15C KL	7/07/14 10:00	met lab KL	metals

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: ICP metals — Lab Notebook No.: Network

Prepared / Analyzed by: KL — Date / Time: 7/7/14 1125

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
met lab KL	7/8/14 935	ICP lab KL	analysis

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW09036	Split:	Workorder ID: 1417548	Level: EPACLP_PDF
Client: U. S. EPA Region 3		Account: 8201	Type: 8ozGWM
Comments:			Preservatives: COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: ISM01.3 ICP-AES, Soil
11	06/20/2014 15:45	MC0AB0	1417548011		Soil/Solid/Sediment	A	1	A
12	06/20/2014 15:47	MC0AB1	1417548012		Soil/Solid/Sediment	A	1	A
13	06/20/2014 15:47	MC0AB1S	1417548013	MS	Soil/Solid/Sediment	A	1	A
14	06/20/2014 15:47	MC0AB1D	1417548014	MD	Soil/Solid/Sediment	A	1	A
15	06/20/2014 15:49	MC0AB2	1417548015		Soil/Solid/Sediment	A	1	A
16	06/20/2014 15:51	MC0AB3	1417548016		Soil/Solid/Sediment	A	1	A
17	06/20/2014 15:53	MC0AB4	1417548017		Soil/Solid/Sediment	A	1	A
18	06/20/2014 15:55	MC0AB5	1417548018		Soil/Solid/Sediment	A	1	A
19	06/20/2014 16:00	MC0AB6	1417548019		Soil/Solid/Sediment	A	1	A
20	06/20/2014 16:02	MC0AB7	1417548020		Soil/Solid/Sediment	A	1	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Ahlstrom, Anjanette	06/24/2014 10:06	ALS Sample Receiving	Sample Login
Anjahlstrom	06/24/14 1600	R33.1 15C	storage
R_33_1 15C IJO	06/26/14 9:00	Rose Ovalle	solid
Rose Ovalle	06/26/14 15:00	R_33_1 15C IJO	storage
15C KL	7/07/14 10:00	met lab KL	metals

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: ICP metals — Lab Notebook No.: Network

Prepared / Analyzed by: KL — Date / Time: 7/7/14 1125

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
met lab KL	7/8/14 935	ICP lab KL	analysis

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW09036	Split:	Workorder ID: 1417548	Level: EPACLP_PDF
Client: U. S. EPA Region 3		Account: 8201	Type: 8ozGWM
Comments:			Preservatives: COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: ISM01.3 ICP-AES, Soil
21	06/20/2014 16:05	MC0AB8	1417548021		Soil/Solid/Sediment	A	1	A
22	06/20/2014 16:13	MC0AB9	1417548022		Soil/Solid/Sediment	A	1	A
23								
24								
25								
26								
27								
28								
29								
30								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Ahlstrom, Anjanette	06/24/2014 10:06	ALS Sample Receiving	Sample Login
Anjanette Ahlstrom	06/24/14 1600	R33J 15C	Storage
R33-115C JJO	06/26/14 9:00	Rose J Ovalle	Solid
Rose J Ovalle	06/26/14 15:00	R-33-JJO 15C	Storage
15C KL	7/07/14 10:00	met lab KL	metals

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: ICP metals — Lab Notebook No.: Network

Prepared / Analyzed by: KL — Date / Time: 7/7/14 1125

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
met lab KL	7/8/14 935	ICP lab KL	analysis

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW09036	Split:	Workorder ID: 1417548	Level: EPACLP_PDF
Client: U. S. EPA Region 3		Account: 8201	Type: 8ozGWM
Comments:			Preservatives: COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: ISM01.3 ICP-AES, Soil
1	06/20/2014 08:45	MC0AA0	1417548001		Soil/Solid/Sediment	A	1	A
2	06/20/2014 08:49	MC0AA1	1417548002		Soil/Solid/Sediment	A	1	A
3	06/20/2014 08:55	MC0AA2	1417548003		Soil/Solid/Sediment	A	1	A
4	06/20/2014 15:08	MC0AA3	1417548004		Soil/Solid/Sediment	A	1	A
5	06/20/2014 15:30	MC0AA4	1417548005		Soil/Solid/Sediment	A	1	A
6	06/20/2014 15:33	MC0AA5	1417548006		Soil/Solid/Sediment	A	1	A
7	06/20/2014 15:36	MC0AA6	1417548007		Soil/Solid/Sediment	A	1	A
8	06/20/2014 15:39	MC0AA7	1417548008		Soil/Solid/Sediment	A	1	A
9	06/20/2014 15:43	MC0AA8	1417548009		Soil/Solid/Sediment	A	1	A
10	06/20/2014 15:40	MC0AA9	1417548010		Soil/Solid/Sediment	A	1	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Ahlstrom, Anjanette	06/24/2014 10:06	ALS Sample Receiving	Sample Login
AAhlstrom	06/24/14 1600	R33.1 15c	storage
R033_1 15C JJO	06/26/14 9:00	Rlee/Orville	solid
Rlee/Orville	06/26/14 15:00	R_33_1JJO15C	Storage

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW09036	Split:	Workorder ID: 1417548	Level: EPACLP_PDF
Client: U. S. EPA Region 3		Account: 8201	Type: 8ozGWM
Comments:			Preservatives: COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: ISM013.ICP-AES, Soil
11	06/20/2014 15:45	MC0AB0	1417548011		Soil/Solid/Sediment	A	1	A
12	06/20/2014 15:47	MC0AB1	1417548012		Soil/Solid/Sediment	A	1	A
13	06/20/2014 15:47	MC0AB1S	1417548013	MS	Soil/Solid/Sediment	A	1	A
14	06/20/2014 15:47	MC0AB1D	1417548014	MD	Soil/Solid/Sediment	A	1	A
15	06/20/2014 15:49	MC0AB2	1417548015		Soil/Solid/Sediment	A	1	A
16	06/20/2014 15:51	MC0AB3	1417548016		Soil/Solid/Sediment	A	1	A
17	06/20/2014 15:53	MC0AB4	1417548017		Soil/Solid/Sediment	A	1	A
18	06/20/2014 15:55	MC0AB5	1417548018		Soil/Solid/Sediment	A	1	A
19	06/20/2014 16:00	MC0AB6	1417548019		Soil/Solid/Sediment	A	1	A
20	06/20/2014 16:02	MC0AB7	1417548020		Soil/Solid/Sediment	A	1	A

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Ahlstrom, Anjanette	06/24/2014 10:06	ALS Sample Receiving	Sample Login
Anjanette Ahlstrom	06/24/14 1600	R33.1 15C	Storage
R_33_1 15C IJO	06/26/14 9:00	Elise Orvalle	solid
Elise Orvalle	06/26/14 15:00	R_33_1 15C IJO	Storage

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW09036	Split:	Workorder ID: 1417548	Level: EPACLP_PDF
Client: U. S. EPA Region 3		Account: 8201	Type: 8ozGWM
Comments:			Preservatives: COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: ISM01.3 ICP-AES, Soil
21	06/20/2014 16:05	MC0AB8	1417548021		Soil/Solid/Sediment	A	1	A
22	06/20/2014 16:13	MC0AB9	1417548022		Soil/Solid/Sediment	A	1	A
23								
24								
25								
26								
27								
28								
29								
30								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Ahlstrom, Anjanette	06/24/2014 10:06	ALS Sample Receiving	Sample Login
Anjanette Ahlstrom	06/24/14 1600	R33 1 15C	Storage
R-33-1 15C IJO	06/26/14 9:00	Else J Ovalle	Solid
Else J Ovalle	06/26/14 15:00	R-33-1 IJO 15C	Storage

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

00155

Batch Worklist

Batch: EIPX/ 4953 Created: 7/7/2014 10:11 Instrument: NONE HBN: 129800

Rule: ISM ICP-AES 3050B Prep Analyst: K. Lockwood Status: NA

Workorder: 1417548 SDG: MC0AA0 Case: 44460

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	397994	PBS1	1 grams	100 mL		PBS	4		ISMAESS.4P	6174	1/3/2015	6/30/2014	7/7/2014
2	397995	LCS1	1 grams	100 mL		LCS	4		ISMAESS.4P	6174	1/3/2015	6/30/2014	7/7/2014
3	1417548001	MC0AA0	1.2056 grams	100 mL		SAMPLE	4	1417548001-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
4	1417548002	MC0AA1	1.3495 grams	100 mL		SAMPLE	4	1417548002-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
5	1417548003	MC0AA2	1.2285 grams	100 mL		SAMPLE	4	1417548003-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
6	1417548004	MC0AA3	1.2706 grams	100 mL		SAMPLE	4	1417548004-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
7	1417548005	MC0AA4	1.4699 grams	100 mL		SAMPLE	4	1417548005-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
8	1417548006	MC0AA5	1.2677 grams	100 mL		SAMPLE	4	1417548006-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
9	1417548007	MC0AA6	1.4363 grams	100 mL		SAMPLE	4	1417548007-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
10	1417548008	MC0AA7	1.2416 grams	100 mL		SAMPLE	4	1417548008-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
11	1417548009	MC0AA8	1.1332 grams	100 mL		SAMPLE	4	1417548009-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
12	1417548010	MC0AA9	1.4027 grams	100 mL		SAMPLE	4	1417548010-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
13	1417548011	MC0AB0	1.3108 grams	100 mL		SAMPLE	4	1417548011-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
14	1417548012	MC0AB1	1.0475 grams	100 mL		SAMPLE	4	1417548012-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
15	1417548013	MC0AB1S	1.0481 grams	100 mL		MS	4	1417548013-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
16	1417548014	MC0AB1D	1.047 grams	100 mL		MD	4	1417548014-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
17	1417548015	MC0AB2	1.0493 grams	100 mL		SAMPLE	4	1417548015-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
18	1417548016	MC0AB3	1.0398 grams	100 mL		SAMPLE	4	1417548016-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
19	1417548017	MC0AB4	1.2592 grams	100 mL		SAMPLE	4	1417548017-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
20	1417548018	MC0AB5	1.122 grams	100 mL		SAMPLE	4	1417548018-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
21	1417548019	MC0AB6	1.148 grams	100 mL		SAMPLE	4	1417548019-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
22	1417548020	MC0AB7	1.1341 grams	100 mL		SAMPLE	4	1417548020-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
23	1417548021	MC0AB8	1.1308 grams	100 mL		SAMPLE	4	1417548021-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
24	1417548022	MC0AB9	1.339 grams	100 mL		SAMPLE	4	1417548022-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014

J1559

STANDARD REPORT

Stock Standard - ICP-CLP-CRQL

ICP-CLP-CRQL		**Description - ISM CRQL Solution**
Standard: 21088	**Created By:** K. Lockwood	**Amount:** 250 mL
MFG: Inorganic Ventures	**Create Date:** 10/23/2013	**Expires:** 11/1/2014
MFG Lot: F2-MEB445010	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: CLP-AES-CRQL-2		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	20 ug/mL
2	7440-36-0	Antimony	6 ug/mL
3	7440-38-2	Arsenic	1 ug/mL
4	7440-39-3	Barium	20 ug/mL
5	7440-41-7	Beryllium	0.5 ug/mL
6	7440-43-9	Cadmium	0.5 ug/mL
7	7440-70-2	Calcium	500 ug/mL
8	7440-47-3	Chromium	1 ug/mL
9	7440-48-4	Cobalt	5 ug/mL
10	7440-50-8	Copper	2.5 ug/mL
11	7439-89-6	Iron	10 ug/mL
12	7439-92-1	Lead	1 ug/mL
13	7439-95-4	Magnesium	500 ug/mL
14	7439-96-5	Manganese	1.5 ug/mL
15	7440-02-0	Nickel	4 ug/mL
16	7440-09-7	Potassium	500 ug/mL
17	7782-49-2	Selenium	3.5 ug/mL
18	7440-22-4	Silver	1 ug/mL
19	7440-23-5	Sodium	500 ug/mL
20	7440-28-0	Thallium	2.5 ug/mL
21	7440-62-2	Vanadium	5 ug/mL
22	7440-66-6	Zinc	6 ug/mL

STANDARD REPORT

Stock Standard - ICP CLP SPK1

ICP CLP SPK1		**Description - ISM ICP Matrix Spike Soln #1**
Standard: 19951	**Created By:** K. Price	**Amount:** 125 mL
MFG: Inorganic Ventures	**Create Date:** 7/17/2013	**Expires:** 8/1/2014
MFG Lot: D2-MEB324145	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: CLPP-SPK-1		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	2000 ug/mL
2	7440-39-3	Barium	2000 ug/mL
3	7440-41-7	Beryllium	50 ug/mL
4	7440-47-3	Chromium	200 ug/mL
5	7440-48-4	Cobalt	500 ug/mL
6	7440-50-8	Copper	250 ug/mL
7	7439-89-6	Iron	1000 ug/mL
8	7439-96-5	Manganese	500 ug/mL
9	7440-02-0	Nickel	500 ug/mL
10	7440-22-4	Silver	50 ug/mL
11	7440-62-2	Vanadium	500 ug/mL
12	7440-66-6	Zinc	500 ug/mL

STANDARD REPORT

Stock Standard - ICP CLP SPK2

ICP CLP SPK2		**Description - ISM ICP Matrix Spike Soln #2**
Standard: 19952	**Created By:** K. Price	**Amount:** 125 mL
MFG: Inorganic Ventures	**Create Date:** 7/17/2013	**Expires:** 8/1/2014
MFG Lot: B2-MEB263095	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: CLPP-SPK-5		

Pos.	Analyte	Name	Concentration
1	7440-36-0	Antimony	100 ug/mL
2	7440-38-2	Arsenic	40 ug/mL
3	7440-43-9	Cadmium	50 ug/mL
4	7439-92-1	Lead	20 ug/mL
5	7782-49-2	Selenium	50 ug/mL
6	7440-28-0	Thallium	50 ug/mL

Batch Worklist

Batch: EGRV/ 4771 Created: 6/26/2014 09:34 Instrument: GRAV03 HBN: 129173

Rule: Solids/Moisture Determination Analyst: I. Ovalle Status: WP

Workorder: 1417548 SDG: MC0AA0 Case: 44460

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	1417548001	MC0AA0				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
2	1417548002	MC0AA1				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
3	1417548003	MC0AA2				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
4	1417548004	MC0AA3				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
5	1417548005	MC0AA4				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
6	1417548006	MC0AA5				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
7	1417548007	MC0AA6				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
8	1417548008	MC0AA7				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
9	1417548009	MC0AA8				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
10	1417548010	MC0AA9				SAMPLE	4		XX-EP-800	5936		7/7/2014	7/1/2014
11	1417548011	MC0AB0				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
12	1417548012	MC0AB1				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
13	396341	MC0AB1(1417548012MD)				MD	4		XX-EP-800	6092		7/7/2014	6/26/2014
14	1417548015	MC0AB2				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
15	1417548016	MC0AB3				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
16	1417548017	MC0AB4				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
17	1417548018	MC0AB5				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
18	1417548019	MC0AB6				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
19	1417548020	MC0AB7				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
20	1417548021	MC0AB8				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014
21	1417548022	MC0AB9				SAMPLE	4		XX-EP-800	5936		7/7/2014	6/26/2014

Batch Worklist

Batch: EICP/ 4578 Created: 7/14/2014 09:52 Instrument: ICP07 HBN: 130296

Rule: ISM ICP-AES Analysis Analyst: J. Sanchez Status: RE

Workorder: 1417548 SDG: MC0AA0 Case: 44460

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	399206	S0				STB	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
	i14045												
2	399207	SA				STC	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
3	399208	SB				STD	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
4	399209	SC				STD	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
5	399210	SD				STD	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
6	399211	SE				STD	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
7	399212	SF				STD	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
8	399213	S500000				STD	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
9	399214	ICV1				ICV	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
10	399215	ICB1				ICB	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
11	399216	ICSA1				ICSA	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
12	399217	ICSAB1				ICSAB	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
13	399218	CCV1				CCV	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
14	399219	CCB1				CCB	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
15	397994	PBS1	1 grams	100 mL		PBS	4		ISMAESS..4	6174	1/3/2015	7/14/2014	7/10/2014
16	397995	LCS1	1 grams	100 mL		LCS	4		ISMAESS..4	6174	1/3/2015	7/14/2014	7/10/2014
17	1417548001	MC0AA0	1.2056 grams	100 mL		SAMPLE	4	1417548001-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
18	1417548002	MC0AA1	1.3495 grams	100 mL		SAMPLE	4	1417548002-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
19	1417548003	MC0AA2	1.2285 grams	100 mL		SAMPLE	4	1417548003-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
20	1417548004	MC0AA3	1.2706 grams	100 mL		SAMPLE	4	1417548004-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
21	1417548005	MC0AA4	1.4699 grams	100 mL		SAMPLE	4	1417548005-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
22	1417548006	MC0AA5	1.2677 grams	100 mL		SAMPLE	4	1417548006-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
23	1417548007	MC0AA6	1.4363 grams	100 mL		SAMPLE	4	1417548007-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
24	1417548008	MC0AA7	1.2416 grams	100 mL		SAMPLE	4	1417548008-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
25	1417548009	MC0AA8	1.1332 grams	100 mL		SAMPLE	4	1417548009-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
26	1417548010	MC0AA9	1.4027 grams	100 mL		SAMPLE	4	1417548010-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
27	1417548011	MC0AB0	1.3108 grams	100 mL		SAMPLE	4	1417548011-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
28	1417548012	MC0AB1	1.0475 grams	100 mL		SAMPLE	4	1417548012-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014

Batch Worklist

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
29	1417548013	MC0AB1S	1.0481 grams	100 mL		MS	4	1417548013-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
30	1417548014	MC0AB1D	1.047 grams	100 mL		MD	4	1417548014-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
31	399220	MC0AB1L				SD	4		ISMAESW..3	5967	12/21/2014	7/14/2014	7/10/2014
32	1417548015	MC0AB2	1.0493 grams	100 mL		SAMPLE	4	1417548015-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
33	1417548016	MC0AB3	1.0398 grams	100 mL		SAMPLE	4	1417548016-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
34	1417548017	MC0AB4	1.2592 grams	100 mL		SAMPLE	4	1417548017-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
35	1417548018	MC0AB5	1.122 grams	100 mL		SAMPLE	4	1417548018-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
36	1417548019	MC0AB6	1.148 grams	100 mL		SAMPLE	4	1417548019-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
37	1417548020	MC0AB7	1.1341 grams	100 mL		SAMPLE	4	1417548020-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
38	1417548021	MC0AB8	1.1308 grams	100 mL		SAMPLE	4	1417548021-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
39	1417548022	MC0AB9	1.339 grams	100 mL		SAMPLE	4	1417548022-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
40	399221	CCV2				CCV	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
41	399222	CCB2				CCB	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014

File #: i14045

WorkOrder#	Sample #'s	Analytes/Matrix	Prep Batch HBN	Prep Date/Time	Prep Method
1417548	MC0AA0-A9, B0-B9	See Below/Soil	129800	07/07/14 1125	3050B

Analytes = Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, K, Se, Ag, Na, Tl, V, Zn

3050B Conversion Factor: (µg/L from instrument)(Dilution Factor)(0.1 L/1.0 g) = 0.1 µg/g

CALIBRATION AND QC STANDARDS UTILIZED:

	ID #	Book/Page
S0/ICB/CCB	ICP-14-057	4535/52
SA	23707	Horizon
SB	23708	Horizon
SC	23709	Horizon
SD	23762	Horizon
SE/CCV	24220	Horizon
SF	23763	Horizon
S500000	23139	Horizon
ICV	24142	Horizon
ICSA	23198	Horizon
ICSAB	24221	Horizon
Bubbler Rinse	ICP-14-042	4535/51
Internal Standard	ICP-14-036	4535/51
Rinse	ICP-14-052	4535/51

SDG # MC0AA0
CASE # 44460
Account # 8201
Analysis Method: ISM01.3
Analysis Date: 7/10/2014
Instrument ID: ICP07
HBN # 130296
Analyst: Joanna Sanchez

ANALYSIS PARAMETERS:
Pump Rate = 25 rpm
RF Power = 1200 W
Auxiliary Gas = 0.2 L/min
Nebulizer Flow = 0.50 L/min
Coolant Gas Flow = 14 L/min
ASXpress Plus = 3 mL Loop

Dilutions: None were required.

Pipettes: ICP-10, ICP-1

Comments: No problems during analysis.

A Serial Dilution was done by combining 2 mL of MC0AB1 with 8 mL of ICP-14-057 (4535/52) in a 15 mL tube.

A Post Digestion Spike was done by combining 10 mL of MC0AB1 with 60.0 µL of 20 ppm Sb in a 15 mL tube.

Post Digestion Spike Targets: Sb - 120 20 ppm Sb standard # 24141

Project No. NA

TITLE ALS Environmental ICP07 Analysis Run Logbook Book No. 4527

From Page No. 54

Date	Time on	Time off	Total Time	Method	Matrix	Workorder(s)	SDG(s)	Low Axial Sc / High Axial Sc	# of samples	Run #	Initials
05/22/14	14:44	16:08	84 min.	ISM01.3 2014Mod	water	IEC Run		6151 / 616560	6	i14029	gcs
05/28/14	10:50	13:35	165 min.	ISM01.3 2014Mod	water	200.7 MDLS		5944 / 627730	32	i14030	gcs
05/28/14	14:03	16:13	130 min.	ISM01.3 2014Mod	soil	3050B MDLS		5337 / 577590	23	i14031	gcs
05/29/14	12:48	15:33	165 min.	ISM01.3 2014Mod	soil	3050B MDLS		5791 / 461910	32	i14032	gcs
05/29/14	16:01	18:45	164 min.	ISM01.3 2014Mod	wipe	3050B Wipe MDLS		6051 / 458290	32	i14033	gcs
05/29/14	18:56	21:41	165 min.	ISM01.3 2014 Mod	water	200.7 MDLS		5871 / 453670	32	i14034	gcs
05/30/14	09:26	11:09	103 min.	ISM01.3 2014Mod	soil	3050B MDLS		5970 / 543130	16	i14035	gcs
06/27/14	13:11	16:06	175 min.	ISM01.3 2014	soil	1417764	MH4AE0	5591 / 518050	20	i14036	gcs
06/27/14	16:21	18:15	114 min.	ISM01.3 2014	soil	1417742	MH4AA0	5700 / 528840	20	i14037	gcs
06/30/14	09:49	12:01	132 min.	ISM01.3 2014	soil	1417766	MH4AG0	5779 / 540050	20	i14038	gcs
06/30/14	12:51	14:45	114 min.	ISM01.3 2014	soil	1417773	MH4AJ0	5767 / 563040	20	i14039	gcs
06/30/14	17:22	19:30	128 min.	ISM01.3 2014	soil	1417775	MH4AL0	5879 / 544390	20	i14040	gcs
07/01/14	11:12	14:33	201 min.	ISM01.3 2014	soil	1417785 1417744	MH4AS0 MH4AC0	5957 / 555960	22	i14041	gcs
07/01/14	14:46	16:56	130 min.	ISM01.3 2014	soil	1417778	MH4AN0	6578 / 628160	20	i14042	gcs
07/01/14	17:16	20:37	201 min.	ISM01.3 2014	soil	1417782	MH4AQ0	5939 / 536770	20	i14043	gcs
07/10/14	11:46	13:09	83 min.	ISM01.3 2014	soil	1417553	MC0AC0	6174 / 591340	2	i14044	gcs
07/10/14	13:55	15:54	119 min.	ISM01.3 2014	soil	1417548	MC0AA0	6254 / 617380	20	i14045	gcs

To Page No. ____

Witnessed & Understood by me,	Date	Invented by:	Date
		Recorded by:	

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Project No. NA

TITLE ALS Environmental ICP Solutions/Reagents Logbook Book No. 4535

From Page No. 51

Date	ICP Solution #	Solution Type	Primary Solution Horizon ID #	Acid Lots	Expiration Date	Recipe Page	Initials	Comments
06/25/2014 LE 06/25/2014	ICP-14-056	RINSE 5%/5% RINSE	N/A	HNO_3 - 0000077192 HCl - 53010 ↓	12/25/2014	1	LE	2L MADE FOR SD, ICB, CCB, DILUTENT... ↓
06/25/2014	ICP-14-057	5%/5%	N/A		12/25/2014	1	LE	

To Page No. ____

Witnessed & Understood by me,	Date	Invented by:	Date
		Recorded by:	

Project No. NA

TITLE ALS Environmental ICP Solutions/Reagents Logbook Book No. 4535

From Page No. 50

Date	ICP Solution #	Solution Type	Primary Solution Horizon ID #	Acid Lots	Expiration Date	Recipe Page	Initials	Comments
03/13/14	ICP-14-021	ScYIS	Sc-19203, Y-19164	HNO_3-0000053953 HCl-53186	05/30/14	1	gcs	2L made
03/13/14	ICP-14-022	ScYIS	Sc-19203, Y-19164	HNO_3-0000053953 HCl-53186	05/30/14	1	gcs	2L made
03/13/14	ICP-14-023	ScYIS	Sc-19203, Y-19164	HNO_3-0000053953 HCl-53186	05/30/14	1	gcs	2L made
03/13/14	ICP-14-024	5%/5%	NA	HNO_3-0000053953 HCl-53186	09/13/14	1	gcs	2L made for SD, ICB, CCB and Dilutent
03/18/14	ICP-14-025	ScYIS	Sc-19203, Y-19164	HNO_3-0000050770 HCl-53186	05/30/14	1	gcs	2L made
03/18/14	ICP-14-026	5%/5%	NA	HNO_3-0000050770 HCl-53186	09/18/14	1	gcs	2L made for SD, ICB, CCB and Dilutent
03/18/14	ICP-14-027	5%/5%	NA	HNO_3-0000050770 HCl-53186	09/18/14	1	gcs	1L made for SD, ICB CCB and Dilutent
03/18/14	ICP-14-028	Rinse 5%/5%	NA	HNO_3-0000053963 HCl-53010 0000050770	09/18/14	1	gcs	10L made
03/18/14	ICP-14-029	Rinse 5%/5%	NA	HNO_3-0000050770 HCl-53010	09/18/14	1	gcs	10L made
04/08/14	ICP-14-030	Rinse 5%/5%	NA	HNO_3-0000050770 HCl-53010	10/08/14	1	gcs	2L made
04/15/2014	ICP-14-031	RINSE 5%/5%	N/A	HNO_3-0000050770 HCl-53010	10/15/2014	1	NE	2L MADE FOR SD, ICB, CCB + DILUTENT
04/22/2014	ICP-14-032	RINSE 5%/5%	N/A	HNO_3-0000050770 HCl-53010	10/22/2014	1	NE	2L MADE
04/22/2014	ICP-14-033	RINSE 5%/5%	N/A	HNO_3-0000050770 HCl-53010	10/22/2014	1	NE	2L MADE
04/29/2014	ICP-14-034	ScYIS	Sc-19203, Y-19164	HNO_3-0000053953 HCl-53010	05/30/2014	1	NE	2L MADE
04/29/2014	ICP-14-035	ScYIS	Sc-19203, Y-19164	HNO_3-0000053953 HCl-53010	05/30/2014	1	NE	2L MADE
04/29/2014	ICP-14-036	ScYIS	Sc-22846, Y-22482	HNO_3-0000053953 HCl-53010	10/29/2014	1	NE	2L MADE
04/29/2014	ICP-14-037	ScYIS	Sc-22846, Y-22482	HNO_3-0000053953 HCl-53010	10/29/2014	1	NE	2L MADE
04/29/2014	ICP-14-038	RINSE 5%/5%	N/A	HNO_3-0000053953 HCl-53010	10/29/2014	1	NE	2L MADE FOR SD, ICB, CCB + DILUTENT
04/29/2014	ICP-14-039	RINSE 5%/5%	N/A	HNO_3-0000053953 HCl-53010	10/29/2014	1	NE	↓
05/23/2014	ICP-14-040	RINSE 5%/5%	N/A	HNO_3-0000053953 HCl-53010	11/23/2014	1	NE	2L MADE FOR SD, ICB, CCB + DILUTENT.
05/27/2014	ICP-14-041	RINSE 5%/5%	N/A	HNO_3-0000053953 HCl-53010	11/27/2014	1	NE	2L MADE
05/27/2014	ICP-14-042	↓	N/A	HNO_3-0000066236 HCl-53010	11/27/2014	1	NE	2L MADE
06/02/2014	ICP-14-043	RINSE 5%/5%	N/A	HNO_3-0000066236 HCl-53010	12/02/2014	1	NE	10L MADE
06/05/14	ICP-14-044	Rinse 5%/5%	NA	HNO_3-0000066236 HCl-53010	12/05/14	1	gcs	2L made
06/05/14	ICP-14-045	Rinse 5%/5%	NA	HNO_3-0000066236 HCl-53010	12/05/14	1	gcs	2L made
06/05/14	ICP-14-046	Rinse 5%/5%	NA	HNO_3-0000066236 HCl-53010	12/05/14	1	gcs	2L made
06/05/14	ICP-14-047	ScYIS	Sc-22846, Y-22482	HNO_3-0000066236 HCl-53010	12/05/14	1	gcs	2L made
06/05/14	ICP-14-048	ScYIS	Sc-22846, Y-22482	HNO_3-0000066236 HCl-53010	12/05/14	1	gcs	2L made
06/05/14	ICP-14-049	ScYIS	Sc-22846, Y-22482	HNO_3-0000066236 HCl-53010	12/05/14	1	gcs	2L made
06/05/14	ICP-14-050	ScYIS	Sc-22846, Y-22482	HNO_3-0000066236 HCl-53010	12/05/14	1	gcs	2L made
06/06/2014	ICP-14-051	RINSE 5%/5%	N/A	HNO_3-0000066236 HCl-53221	12/06/2014	1	NE	10L MADE
06/06/2014	ICP-14-052	RINSE 5%/5%	N/A	HNO_3-0000066236 HCl-53221	12/06/2014	1	NE	10L MADE
06/06/2014	ICP-14-053	RINSE 5%/5%	N/A	HNO_3-0000066236 HCl-53221	12/06/2014	1	NE	10L MADE
06/10/2014	ICP-14-054	RINSE 5%/5%	N/A	HNO_3-0000066236 HCl-53010	12/10/2014	1	NE	2L MADE FOR SD, ICB, CCB, + DILUTENT.
06/15/2014	ICP-14-056	TAS	Zn-22483	HNO_3-0000066236 Meoh-K58813	12/15/2014	1	NE	1L MADE

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Witnessed & Understood by me, Jovanna C. Sanchez

Date 06/17/14

Invented by: N/A

Recorded by:

Date 06/15/2014

TITLE ALS Environmental ICP ~~DATACHEM LABORATORIES~~ SOLUTION/REAGENTS LOGBOOK

Project No. N/A

Book No. 4535

JGS 7/25/12

From Page No. X

RECIPES

7.5% HNO_3 = TRANSFERRED SOME ASTM TYPE II H_2O TO A 2L FLASK. ADD 150mL OF HNO_3 TO THE FLASK. BRING TO VOLUME WITH MORE ASTM TYPE II H_2O. STOPPER FLASK, SHAKE TO MIX. USE FOR SO, ICB, CCB AND DILUTANT.

Sc IS = ADDED SOME WATER TO A 2L FLASK. ADD ~~75~~ 100 mL OF HNO_3 AND ~~50~~ 100 mL OF HCl. ADD 1.2mL OF A 10,000 µg/mL Sc STAND. BRING TO VOLUME WITH MORE ASTM TYPE II H_2O. STOPPER FLASK AND SHAKE WELL.

7.5%/1% RINSE = ADD SOME ASTM TYPE II H_2O TO A 2L FLASK. ADD 150mL OF HNO_3 + 20mL OF HCl. BRING TO VOLUME WITH MORE ASTM TYPE II H_2O. STOPPER FLASK AND SHAKE WELL.

2ppm Zn. = ADD SOME ASTM TYPE II H_2O TO A 200mL VOLUMETERIC FLASK. ADD 2mL OF HNO_3. SPIKE IN 40µl OF 10,000 µg/mL Zn. BRING TO VOLUME WITH MORE ASTM TYPE II H_2O. STOPPER AND SHAKE WELL. USE FOR TORCH ALIGNMENT.

5%/5% RINSE = ADD SOME ASTM TYPE II H_2O TO A 2L FLASK. ADD 100mL OF HNO_3 AND 100mL OF HCl TO THE FLASK. BRING TO VOLUME WITH MORE ASTM TYPE II H_2O. STOPPER FLASK AND SHAKE WELL.

Thermo Torch Alignment Solution = Add some ASTM Type II H_2O to a 250 mL flask. Add 2.5 mL of HNO_3, 7.5 µL of MeOH and 50 µL of 10,000 µg/mL Zn. Bring to volume with ASTM Type II H_2O, Stopper and shake to mix. 0.03 mL/L MeOH, 2 mg/L Zn in 1% HNO_3.

ScYIS = ADD SOME WATER TO A 2L FLASK, THEN ADD 100mL OF HNO_3 AND 100mL OF HCl TO THE FLASK. SPIKE IN 1.2mL OF Sc STANDARD (10,000 µg/mL) AND 0.5mL OF Y STANDARD (10,000 µg/mL). BRING TO VOLUME WITH MORE ASTM TYPE II H_2O. STOPPER AND SHAKE FLASK.

2% HNO_3 = Add some ASTM Type II H_2O to a 2L flask. Add 40mL of HNO_3 to the flask. Bring to volume with more ASTM Type II H_2O. Stopper flask and shake well. Use for SO, ICB, CCB and Serial Dilutions or use for Rinse.

2% ScYIS = Add some ASTM Type II H_2O to a 2L flask. Add 40mL of HNO_3 to the flask. Spike in 1.2mL of 10,000 µg/mL Sc standard and 0.5mL of 10,000 µg/mL Y standard. Bring to volume with more ASTM Type II H_2O. Stopper flask and shake well.

To Page No. ____

Witnessed & Understood by me,	Date	Invented by:	Date
		Recorded by:	

STANDARD REPORT

Working Standard - ISM01.3 SA

ISM01.3 SA		Description - ISM01.3 SA
Standard: 23707	**Created By:** J. Sanchez	**Amount:** 1000 mL
MFG: JCS	**Create Date:** 06/06/2014	**Expires:** 11/01/2014
MFG Lot:	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-10, ICP-2, ICP-1		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	200 ug/L
2	7440-36-0	Antimony	60 ug/L
3	7440-38-2	Arsenic	10 ug/L
4	7440-39-3	Barium	200 ug/L
5	7440-41-7	Beryllium	5 ug/L
6	7440-43-9	Cadmium	5 ug/L
7	7440-70-2	Calcium	5000 ug/L
8	7440-47-3	Chromium	10 ug/L
9	7440-48-4	Cobalt	50 ug/L
10	7440-50-8	Copper	25 ug/L
11	7439-89-6	Iron	100 ug/L
12	7439-92-1	Lead	10 ug/L
13	7439-95-4	Magnesium	5000 ug/L
14	7439-96-5	Manganese	15 ug/L
15	7440-02-0	Nickel	40 ug/L
16	7440-09-7	Potassium	5000 ug/L
17	7782-49-2	Selenium	35 ug/L
18	7440-22-4	Silver	10 ug/L
19	7440-23-5	Sodium	5000 ug/L
20	7440-28-0	Thallium	25 ug/L
21	7440-62-2	Vanadium	50 ug/L
22	7440-66-6	Zinc	60 ug/L
23	7440-32-6	Titanium	25 ug/L
24	7439-98-7	Molybdenum	10 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	889.65 mL	11/07/2025
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
21088	ICP-CLP-CRQL	ISM CRQL Solution	ICP-CLP	10 mL	11/01/2014
23113	HNO3	Concentrated Nitric Acid	HNO3 (66236)	50 mL	04/04/2019
23705	100x of Mo	100x of Mo stock	ICP-CLP	0.1 mL	12/06/2014
23706	100x of Ti	100x of Ti stock	ICP-CLP	0.25 mL	12/06/2014

STANDARD REPORT

Working Standard - ISM01.3 SB

ISM01.3 SB — **Description - ISM01.3 Standard B**

Standard: 23708 **Created By:** J. Sanchez **Amount:** 1000 mL
MFG: JCS **Create Date:** 06/06/2014 **Expires:** 08/01/2014
MFG Lot: **Lab Lot:** ICP-CLP **Usable:** Yes
Part ID: ICP-10, ICP-2, ICP-1

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	1000 ug/L
2	7439-89-6	Iron	1000 ug/L
3	7440-70-2	Calcium	25000 ug/L
4	7440-09-7	Potassium	25000 ug/L
5	7439-95-4	Magnesium	25000 ug/L
6	7440-23-5	Sodium	25000 ug/L
7	7440-39-3	Barium	750 ug/L
8	7440-22-4	Silver	125 ug/L
9	7440-62-2	Vanadium	200 ug/L
10	7440-41-7	Beryllium	80 ug/L
11	7440-43-9	Cadmium	80 ug/L
12	7440-48-4	Cobalt	200 ug/L
13	7440-47-3	Chromium	200 ug/L
14	7440-50-8	Copper	200 ug/L
15	7439-96-5	Manganese	200 ug/L
16	7440-02-0	Nickel	200 ug/L
17	7439-92-1	Lead	200 ug/L
18	7440-66-6	Zinc	200 ug/L
19	7440-28-0	Thallium	80 ug/L
20	7440-36-0	Antimony	200 ug/L
21	7440-38-2	Arsenic	80 ug/L
22	7439-98-7	Molybdenum	80 ug/L
23	7782-49-2	Selenium	80 ug/L
24	7440-32-6	Titanium	80 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	897.16 mL	11/07/2025
19967	STD-2B	ISM01.3 Standard Mix	ICP-CLP	0.04 mL	08/01/2014
19968	STD-2C	ISM01.3 Standard Mix	ICP-CLP	0.04 mL	08/01/2014
20052	STD-2A	ISM01.3 Standard Mix	ICP-CLP	0.04 mL	08/01/2014
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
21440	STD-1	ISM01.3 Standard	ICP-CLP	0.04 mL	12/01/2014
21441	IV-STOCK-2	ISM01.3 Standard	ICP-CLP	2.5 mL	12/01/2014
22470	Ag Stock	1,000 ug/mL Ag Stock	Ag 1,000 ug/mL	0.125 mL	02/28/2015
23051	Ba Stock	10,000 ug/mL Ba Stock	SPEX Ba 10,000 ug/mL	0.055 mL	03/30/2015
23113	HNO3	Concentrated Nitric Acid	HNO3 (66236)	50 mL	04/04/2019

STANDARD REPORT

Working Standard - ISM01.3 SC

ISM01.3 SC		Description - ISM01.3 SC
Standard: 23709	**Created By:** J. Sanchez	**Amount:** 1000 mL
MFG: JCS	**Create Date:** 06/06/2014	**Expires:** 08/01/2014
MFG Lot:	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-2, ICP-1		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	5000 ug/L
2	7439-89-6	Iron	5000 ug/L
3	7440-22-4	Silver	250 ug/L
4	7440-39-3	Barium	2000 ug/L
5	7440-62-2	Vanadium	2000 ug/L
6	7440-41-7	Beryllium	800 ug/L
7	7440-43-9	Cadmium	800 ug/L
8	7440-48-4	Cobalt	2000 ug/L
9	7440-47-3	Chromium	2000 ug/L
10	7440-50-8	Copper	2000 ug/L
11	7439-96-5	Manganese	2000 ug/L
12	7440-02-0	Nickel	2000 ug/L
13	7439-92-1	Lead	2000 ug/L
14	7440-66-6	Zinc	2000 ug/L
15	7440-28-0	Thallium	800 ug/L
16	7440-36-0	Antimony	2000 ug/L
17	7440-38-2	Arsenic	800 ug/L
18	7439-98-7	Molybdenum	800 ug/L
19	7782-49-2	Selenium	800 ug/L
20	7440-32-6	Titanium	800 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	898.35 mL	11/07/2025
19967	STD-2B	ISM01.3 Standard Mix	ICP-CLP	0.4 mL	08/01/2014
19968	STD-2C	ISM01.3 Standard Mix	ICP-CLP	0.4 mL	08/01/2014
20052	STD-2A	ISM01.3 Standard Mix	ICP-CLP	0.4 mL	08/01/2014
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
21440	STD-1	ISM01.3 Standard	ICP-CLP	0.2 mL	12/01/2014
22470	Ag Stock	1,000 ug/mL Ag Stock	Ag 1,000 ug/mL	0.25 mL	02/28/2015
23113	HNO3	Concentrated Nitric Acid	HNO3 (66236)	50 mL	04/04/2019

STANDARD REPORT

Working Standard - ISM01.3 SD

ISM01.3 SD		**Description - ISM01.3 SD**
Standard: 23762	**Created By:** J. Sanchez	**Amount:** 1000 mL
MFG: JCS	**Create Date:** 06/09/2014	**Expires:** 08/01/2014
MFG Lot:	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-10, ICP-2		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	50000 ug/L
2	7439-89-6	Iron	50000 ug/L
3	7440-70-2	Calcium	125000 ug/L
4	7440-09-7	Potassium	125000 ug/L
5	7439-95-4	Magnesium	125000 ug/L
6	7440-23-5	Sodium	125000 ug/L
7	7440-22-4	Silver	500 ug/L
8	7440-39-3	Barium	5000 ug/L
9	7440-62-2	Vanadium	5000 ug/L
10	7440-41-7	Beryllium	2000 ug/L
11	7440-43-9	Cadmium	2000 ug/L
12	7440-48-4	Cobalt	5000 ug/L
13	7440-47-3	Chromium	5000 ug/L
14	7440-50-8	Copper	5000 ug/L
15	7439-96-5	Manganese	5000 ug/L
16	7440-02-0	Nickel	5000 ug/L
17	7439-92-1	Lead	5000 ug/L
18	7440-66-6	Zinc	5000 ug/L
19	7440-28-0	Thallium	2000 ug/L
20	7440-36-0	Antimony	5000 ug/L
21	7440-38-2	Arsenic	2000 ug/L
22	7439-98-7	Molybdenum	2000 ug/L
23	7782-49-2	Selenium	2000 ug/L
24	7440-32-6	Titanium	2000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	882 mL	11/07/2025
19967	STD-2B	ISM01.3 Standard Mix	ICP-CLP	1 mL	08/01/2014
19968	STD-2C	ISM01.3 Standard Mix	ICP-CLP	1 mL	08/01/2014
20052	STD-2A	ISM01.3 Standard Mix	ICP-CLP	1 mL	08/01/2014
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
21440	STD-1	ISM01.3 Standard	ICP-CLP	2 mL	12/01/2014
21441	IV-STOCK-2	ISM01.3 Standard	ICP-CLP	12.5 mL	12/01/2014
22470	Ag Stock	1,000 ug/mL Ag Stock	Ag 1,000 ug/mL	0.5 mL	02/28/2015
23113	HNO3	Concentrated Nitric Acid	HNO3 (66236)	50 mL	04/04/2019

STANDARD REPORT

Working Standard - ISM01.3 SE

ISM01.3 SE		Description - ISM01.3 SE
Standard: 24220	**Created By:** J. Sanchez	**Amount:** 500 mL
MFG: JCS	**Create Date:** 07/01/2014	**Expires:** 08/01/2014
MFG Lot:	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-10, ICP-2		

Pos.	Analyte	Name	Concentration
1	7440-22-4	Silver	1000 ug/L
2	7440-39-3	Barium	25000 ug/L
3	7440-62-2	Vanadium	25000 ug/L
4	7440-41-7	Beryllium	10000 ug/L
5	7440-43-9	Cadmium	10000 ug/L
6	7440-48-4	Cobalt	25000 ug/L
7	7440-47-3	Chromium	25000 ug/L
8	7440-50-8	Copper	25000 ug/L
9	7439-96-5	Manganese	25000 ug/L
10	7440-02-0	Nickel	25000 ug/L
11	7439-92-1	Lead	25000 ug/L
12	7440-66-6	Zinc	25000 ug/L
13	7440-28-0	Thallium	10000 ug/L
14	7440-36-0	Antimony	25000 ug/L
15	7440-38-2	Arsenic	10000 ug/L
16	7439-98-7	Molybdenum	10000 ug/L
17	7782-49-2	Selenium	10000 ug/L
18	7440-32-6	Titanium	10000 ug/L
19	7429-90-5	Aluminum	250000 ug/L
20	7439-89-6	Iron	250000 ug/L
21	7440-70-2	Calcium	250000 ug/L
22	7440-09-7	Potassium	250000 ug/L
23	7439-95-4	Magnesium	250000 ug/L
24	7440-23-5	Sodium	250000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	412 mL	11/07/2025
19967	STD-2B	ISM01.3 Standard Mix	ICP-CLP	2.5 mL	08/01/2014
19968	STD-2C	ISM01.3 Standard Mix	ICP-CLP	2.5 mL	08/01/2014
20052	STD-2A	ISM01.3 Standard Mix	ICP-CLP	2.5 mL	08/01/2014
20440	HCl	concentrated hydrochloric acid	HCl (53010)	25 mL	08/27/2018
21440	STD-1	ISM01.3 Standard	ICP-CLP	5 mL	12/01/2014
21441	IV-STOCK-2	ISM01.3 Standard	ICP-CLP	12.5 mL	12/01/2014
22470	Ag Stock	1,000 ug/mL Ag Stock	Ag 1,000 ug/mL	0.5 mL	02/28/2015
24122	HNO3	Concentrated Nitric Acid	HNO3 (74185)	25 mL	05/21/2019

STANDARD REPORT

Working Standard - ISM01.3 SF

ISM01.3 SF		Description - ISM01.3 SF
Standard: 23763	**Created By:** J. Sanchez	**Amount:** 1000 mL
MFG: JCS	**Create Date:** 06/09/2014	**Expires:** 08/01/2014
MFG Lot:	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-10		

Pos.	Analyte	Name	Concentration
1	7440-22-4	Silver	2000 ug/L
2	7440-39-3	Barium	50000 ug/L
3	7440-62-2	Vanadium	50000 ug/L
4	7440-41-7	Beryllium	20000 ug/L
5	7440-43-9	Cadmium	20000 ug/L
6	7440-48-4	Cobalt	50000 ug/L
7	7440-47-3	Chromium	50000 ug/L
8	7440-50-8	Copper	50000 ug/L
9	7439-96-5	Manganese	50000 ug/L
10	7440-02-0	Nickel	50000 ug/L
11	7439-92-1	Lead	50000 ug/L
12	7440-66-6	Zinc	50000 ug/L
13	7440-28-0	Thallium	20000 ug/L
14	7440-36-0	Antimony	50000 ug/L
15	7440-38-2	Arsenic	20000 ug/L
16	7439-98-7	Molybdenum	20000 ug/L
17	7782-49-2	Selenium	20000 ug/L
18	7440-32-6	Titanium	20000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	868 mL	11/07/2025
19967	STD-2B	ISM01.3 Standard Mix	ICP-CLP	10 mL	08/01/2014
19968	STD-2C	ISM01.3 Standard Mix	ICP-CLP	10 mL	08/01/2014
20052	STD-2A	ISM01.3 Standard Mix	ICP-CLP	10 mL	08/01/2014
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
22470	Ag Stock	1,000 ug/mL Ag Stock	Ag 1,000 ug/mL	2 mL	02/28/2015
23113	HNO3	Concentrated Nitric Acid	HNO3 (66236)	50 mL	04/04/2019

STANDARD REPORT

Working Standard - S500000

S500000		**Description - ISM01.3 Standard 500000**
Standard: 23139	**Created By:** J. Sanchez	**Amount:** 1000 mL
MFG: JCS	**Create Date:** 04/08/2014	**Expires:** 10/08/2014
MFG Lot:	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-10		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	500000 ug/L
2	7439-89-6	Iron	500000 ug/L
3	7440-70-2	Calcium	500000 ug/L
4	7440-09-7	Potassium	500000 ug/L
5	7439-95-4	Magnesium	500000 ug/L
6	7440-23-5	Sodium	500000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	830 mL	11/07/2025
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
21440	STD-1	ISM01.3 Standard	ICP-CLP	20 mL	12/01/2014
21441	IV-STOCK-2	ISM01.3 Standard	ICP-CLP	50 mL	12/01/2014
21848	HNO3	Concentrated Nitric Acid	HNO3 (0000050770)	50 mL	01/04/2015

STANDARD REPORT

Working Standard - ISM ICP ICV

ISM ICP ICV		**Description - ISM01.3 ICP ICV**
Standard: 24142	**Created By:** J. Sanchez	**Amount:** 500 mL
MFG: JCS	**Create Date:** 06/27/2014	**Expires:** 12/27/2014
MFG Lot: ICV-1(0307)	**Lab Lot:** ICV ICP-CLP	**Usable:** Yes
Part ID: ICP-10		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	2521 ug/L
2	7440-36-0	Antimony	994 ug/L
3	7440-38-2	Arsenic	999 ug/L
4	7440-39-3	Barium	497 ug/L
5	7440-41-7	Beryllium	495 ug/L
6	7440-43-9	Cadmium	496 ug/L
7	7440-70-2	Calcium	10026 ug/L
8	7440-47-3	Chromium	490 ug/L
9	7440-48-4	Cobalt	499 ug/L
10	7440-50-8	Copper	492 ug/L
11	7439-89-6	Iron	5082 ug/L
12	7439-92-1	Lead	1002 ug/L
13	7439-95-4	Magnesium	6074 ug/L
14	7439-96-5	Manganese	499 ug/L
15	7440-02-0	Nickel	503 ug/L
16	7440-09-7	Potassium	10021 ug/L
17	7782-49-2	Selenium	1029 ug/L
18	7440-22-4	Silver	501 ug/L
19	7440-23-5	Sodium	10097 ug/L
20	7440-28-0	Thallium	1028 ug/L
21	7440-62-2	Vanadium	501 ug/L
22	7440-66-6	Zinc	1025 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	400 mL	11/07/2025
14732	CLPICP-ICV1	CLP-ICP/ICPMS-ICV-1	ICP-CLP	50 mL	03/23/2022
20440	HCl	concentrated hydrochloric acid	HCl (53010)	25 mL	08/27/2018
24122	HNO3	Concentrated Nitric Acid	HNO3 (74185)	25 mL	05/21/2019

STANDARD REPORT

Working Standard - ISM01.3 ICSA

ISM01.3 ICSA		**Description - ISM01.3 ICP ICSA**
Standard: 23198	**Created By:** J. Sanchez	**Amount:** 1000 mL
MFG: JCS	**Create Date:** 04/17/2014	**Expires:** 10/17/2014
MFG Lot: ICSA(1206)	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-10		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	244100 ug/L
2	7440-39-3	Barium	2 ug/L
3	7440-70-2	Calcium	234900 ug/L
4	7440-47-3	Chromium	43 ug/L
5	7440-48-4	Cobalt	4 ug/L
6	7440-50-8	Copper	23 ug/L
7	7439-89-6	Iron	95600 ug/L
8	7439-92-1	Lead	10 ug/L
9	7439-95-4	Magnesium	247500 ug/L
10	7439-96-5	Manganese	19 ug/L
11	7440-02-0	Nickel	21 ug/L
12	7440-66-6	Zinc	28 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	800 mL	11/07/2025
14730	CLPICP-ICS-A	CLP-ICP-ICS-Part A	ICP-CLP	100 mL	03/23/2022
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
21848	HNO3	Concentrated Nitric Acid	HNO3 (0000050770)	50 mL	01/04/2015

STANDARD REPORT

Working Standard - ISM ICSAB

ISM ICSAB		Description - ISM01.3 ICSAB
Standard: 24221	**Created By:** J. Sanchez	**Amount:** 1000 mL
MFG: JCS	**Create Date:** 07/01/2014	**Expires:** 01/01/2015
MFG Lot: ICSAB-(1206/0203)	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: Grad Cylinder		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	241100 ug/L
2	7440-36-0	Antimony	589 ug/L
3	7440-38-2	Arsenic	101 ug/L
4	7440-39-3	Barium	495 ug/L
5	7440-41-7	Beryllium	475 ug/L
6	7440-43-9	Cadmium	940 ug/L
7	7440-70-2	Calcium	231100 ug/L
8	7440-47-3	Chromium	511 ug/L
9	7440-48-4	Cobalt	461 ug/L
10	7440-50-8	Copper	548 ug/L
11	7439-89-6	Iron	94800 ug/L
12	7439-92-1	Lead	61 ug/L
13	7439-95-4	Magnesium	251100 ug/L
14	7439-96-5	Manganese	502 ug/L
15	7440-02-0	Nickel	984 ug/L
16	7782-49-2	Selenium	53 ug/L
17	7440-22-4	Silver	206 ug/L
18	7440-28-0	Thallium	103 ug/L
19	7440-62-2	Vanadium	494 ug/L
20	7440-66-6	Zinc	1028 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	700 mL	11/07/2025
7366	CLPICP-ICS-B	CLP-ICP-ICS-Part B(0203)	ICP-CLP	100 mL	02/24/2020
14730	CLPICP-ICS-A	CLP-ICP-ICS-Part A	ICP-CLP	100 mL	03/23/2022
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
23985	HNO3	Concentrated Nitric Acid	HNO3 (0000077192)	50 mL	06/20/2024

STANDARD REPORT

Stock Standard - Y Stock

Y Stock			**Description - 10,000 ug/mL Y Stock**
Standard: 22482	**Created By:** P. Foote	**Amount:** 125 mL	
MFG: SPEX CertiPrep	**Create Date:** 2/11/2014	**Expires:** 2/28/2015	
MFG Lot: AI15-90YY	**Lab Lot:** SPEX Y 10,000 ug/mL	**Usable:** Yes	
Part ID: PLY2-3Y			

Pos.	Analyte	Name	Concentration
1	7440-65-5	Yttrium	10000 ug/mL

STANDARD REPORT

Stock Standard - Sc Stock

Sc Stock		**Description - 10,000 ug/mL Sc Stock**
Standard: 22846	**Created By:** P. Foote	**Amount:** 125 mL
MFG: Inorganic Ventures	**Create Date:** 3/13/2014	**Expires:** 4/1/2015
MFG Lot: F2-SC02097	**Lab Lot:** IV Sc 10,000 ug/mL	**Usable:** Yes
Part ID: CGSC10-1		

Pos.	Analyte	Name	Concentration
1	7440-20-2	Scandium	10000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - CLPICP-ICS-B

CLPICP-ICS-B		**Description - CLP-ICP-ICS-Part B(0203)**
Standard: 7366	**Created By:** J. Sanchez	**Amount:** 100 mL
MFG: QATS Laboratory	**Create Date:** 2/24/2010	**Expires:** 2/24/2020
MFG Lot: 0203	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID:		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	-30000 ug/L
2	7440-36-0	Antimony	5890 ug/L
3	7440-38-2	Arsenic	1010 ug/L
4	7440-39-3	Barium	4930 ug/L
5	7440-41-7	Beryllium	4750 ug/L
6	7440-43-9	Cadmium	9400 ug/L
7	7440-70-2	Calcium	-38000 ug/L
8	7440-47-3	Chromium	4680 ug/L
9	7440-48-4	Cobalt	4570 ug/L
10	7440-50-8	Copper	5250 ug/L
11	7439-89-6	Iron	-8000 ug/L
12	7439-92-1	Lead	510 ug/L
13	7439-95-4	Magnesium	36000 ug/L
14	7439-96-5	Manganese	4830 ug/L
15	7440-02-0	Nickel	9630 ug/L
16	7782-49-2	Selenium	530 ug/L
17	7440-22-4	Silver	2060 ug/L
18	7440-28-0	Thallium	1030 ug/L
19	7440-62-2	Vanadium	4940 ug/L
20	7440-66-6	Zinc	10000 ug/L

STANDARD REPORT

Constituent

Stock Standard - CLPICP-ICS-A

CLPICP-ICS-A		**Description - CLP-ICP-ICS-Part A**
Standard: 14730	**Created By:** J. Sanchez	**Amount:** 100 mL
MFG: QATS Laboratory	**Create Date:** 3/23/2012	**Expires:** 3/23/2022
MFG Lot: ICSA-(1206)	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID:		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	2441000 ug/L
2	7440-39-3	Barium	20 ug/L
3	7440-70-2	Calcium	2349000 ug/L
4	7440-47-3	Chromium	430 ug/L
5	7440-48-4	Cobalt	40 ug/L
6	7440-50-8	Copper	230 ug/L
7	7439-89-6	Iron	956000 ug/L
8	7439-92-1	Lead	100 ug/L
9	7439-95-4	Magnesium	2475000 ug/L
10	7439-96-5	Manganese	190 ug/L
11	7440-02-0	Nickel	210 ug/L
12	7440-66-6	Zinc	280 ug/L

STANDARD REPORT

Constituent

Stock Standard - CLPICP-ICV1

CLPICP-ICV1		Description - CLP-ICP/ICPMS-ICV-1
Standard: 14732	**Created By:** J. Sanchez	**Amount:** 100 mL
MFG: QATS Laboratory	**Create Date:** 3/23/2012	**Expires:** 3/23/2022
MFG Lot: ICV-1(0307)	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID:		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	25210 ug/L
2	7440-36-0	Antimony	9940 ug/L
3	7440-38-2	Arsenic	9990 ug/L
4	7440-39-3	Barium	4970 ug/L
5	7440-41-7	Beryllium	4950 ug/L
6	7440-43-9	Cadmium	4960 ug/L
7	7440-70-2	Calcium	100260 ug/L
8	7440-47-3	Chromium	4900 ug/L
9	7440-48-4	Cobalt	4990 ug/L
10	7440-50-8	Copper	4920 ug/L
11	7439-89-6	Iron	50820 ug/L
12	7439-92-1	Lead	10020 ug/L
13	7439-95-4	Magnesium	60740 ug/L
14	7439-96-5	Manganese	4990 ug/L
15	7440-02-0	Nickel	5030 ug/L
16	7440-09-7	Potassium	100210 ug/L
17	7782-49-2	Selenium	10290 ug/L
18	7440-22-4	Silver	5010 ug/L
19	7440-23-5	Sodium	100970 ug/L
20	7440-28-0	Thallium	10280 ug/L
21	7440-62-2	Vanadium	5010 ug/L
22	7440-66-6	Zinc	10250 ug/L

STANDARD REPORT

Constituent

Stock Standard - STD-2B

STD-2B	Description - ISM01.3 Standard Mix

Standard:	19967	**Created By:**	J. Sanchez	**Amount:**	250 mL
MFG:	Inorganic Ventures	**Create Date:**	7/18/2013	**Expires:**	8/1/2014
MFG Lot:	G2-MEB484100	**Lab Lot:**	ICP-CLP	**Usable:**	Yes
Part ID:	ALSUT-STD-2B				

Pos.	Analyte	Name	Concentration
1	7440-39-3	Barium	5000 ug/mL
2	7440-62-2	Vanadium	5000 ug/mL
3	7440-41-7	Beryllium	2000 ug/mL
4	7440-43-9	Cadmium	2000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - STD-2C

STD-2C	Description - ISM01.3 Standard Mix

Standard: 19968 **Created By:** J. Sanchez **Amount:** 250 mL
MFG: Inorganic Ventures **Create Date:** 7/18/2013 **Expires:** 8/1/2014
MFG Lot: G2-MEB484101 **Lab Lot:** ICP-CLP **Usable:** Yes
Part ID: ALSUT-STD-2C

Pos.	Analyte	Name	Concentration
1	7440-48-4	Cobalt	5000 ug/mL
2	7440-47-3	Chromium	5000 ug/mL
3	7440-50-8	Copper	5000 ug/mL
4	7439-96-5	Manganese	5000 ug/mL
5	7440-02-0	Nickel	5000 ug/mL
6	7439-92-1	Lead	5000 ug/mL
7	7440-66-6	Zinc	5000 ug/mL
8	7440-28-0	Thallium	2000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - STD-2A

STD-2A		Description - ISM01.3 Standard Mix
Standard: 20052	**Created By:** J. Sanchez	**Amount:** 250 mL
MFG: Inorganic Ventures	**Create Date:** 7/24/2013	**Expires:** 8/1/2014
MFG Lot: G2-MEB487014	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ALSUT-STD-2A		

Pos.	Analyte	Name	Concentration
1	7440-36-0	Antimony	5000 ug/mL
2	7440-38-2	Arsenic	2000 ug/mL
3	7439-98-7	Molybdenum	2000 ug/mL
4	7782-49-2	Selenium	2000 ug/mL
5	7440-32-6	Titanium	2000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - ICP-CLP-CRQL

ICP-CLP-CRQL		**Description - ISM CRQL Solution**
Standard: 21088	**Created By:** K. Lockwood	**Amount:** 250 mL
MFG: Inorganic Ventures	**Create Date:** 10/23/2013	**Expires:** 11/1/2014
MFG Lot: F2-MEB445010	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: CLP-AES-CRQL-2		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	20 ug/mL
2	7440-36-0	Antimony	6 ug/mL
3	7440-38-2	Arsenic	1 ug/mL
4	7440-39-3	Barium	20 ug/mL
5	7440-41-7	Beryllium	0.5 ug/mL
6	7440-43-9	Cadmium	0.5 ug/mL
7	7440-70-2	Calcium	500 ug/mL
8	7440-47-3	Chromium	1 ug/mL
9	7440-48-4	Cobalt	5 ug/mL
10	7440-50-8	Copper	2.5 ug/mL
11	7439-89-6	Iron	10 ug/mL
12	7439-92-1	Lead	1 ug/mL
13	7439-95-4	Magnesium	500 ug/mL
14	7439-96-5	Manganese	1.5 ug/mL
15	7440-02-0	Nickel	4 ug/mL
16	7440-09-7	Potassium	500 ug/mL
17	7782-49-2	Selenium	3.5 ug/mL
18	7440-22-4	Silver	1 ug/mL
19	7440-23-5	Sodium	500 ug/mL
20	7440-28-0	Thallium	2.5 ug/mL
21	7440-62-2	Vanadium	5 ug/mL
22	7440-66-6	Zinc	6 ug/mL

STANDARD REPORT

Constituent

Stock Standard - STD-1

STD-1			Description - ISM01.3 Standard
Standard: 21440	**Created By:** J. Sanchez		**Amount:** 250 mL
MFG: Inorganic Ventures	**Create Date:** 11/26/2013		**Expires:** 12/1/2014
MFG Lot: G2-MEB501059	**Lab Lot:** ICP-CLP		**Usable:** Yes
Part ID: ALSUT-STD-1			

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	25000 ug/mL
2	7439-89-6	Iron	25000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - IV-STOCK-2

IV-STOCK-2		**Description - ISM01.3 Standard**
Standard: 21441	**Created By:** J. Sanchez	**Amount:** 500 mL
MFG: Inorganic Ventures	**Create Date:** 11/26/2013	**Expires:** 12/1/2014
MFG Lot: G2-MEB463149	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: P1081H		

Pos.	Analyte	Name	Concentration
1	7440-70-2	Calcium	10000 ug/mL
2	7440-09-7	Potassium	10000 ug/mL
3	7439-95-4	Magnesium	10000 ug/mL
4	7440-23-5	Sodium	10000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - Ag Stock

Ag Stock			Description - 1,000 ug/mL Ag Stock
Standard: 22470	**Created By:** P. Foote		**Amount:** 125 mL
MFG: Spex CertiPrep	**Create Date:** 2/11/2014		**Expires:** 2/28/2015
MFG Lot: 19-13AGY	**Lab Lot:** Ag 1,000 ug/mL		**Usable:** Yes
Part ID: PLAG2-2Y			

Pos.	Analyte	Name	Concentration
1	7440-22-4	Silver	1000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - Ti Stock

Ti Stock		**Description - 10,000 ug/mL Ti Stock**
Standard: 22478	**Created By:** P. Foote	**Amount:** 125 mL
MFG: SPEX CertiPrep	**Create Date:** 2/11/2014	**Expires:** 2/28/2015
MFG Lot: AL14-169TIY	**Lab Lot:** SPEX Ti 10,000 ug/mL	**Usable:** Yes
Part ID: PLTI9-3Y		

Pos.	Analyte	Name	Concentration
1	7440-32-6	Titanium	10000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - Ba Stock

Ba Stock			Description - 10,000 ug/mL Ba Stock
Standard: 23051	**Created By:** P. Foote		**Amount:** 125 mL
MFG: SPEX CertiPrep	**Create Date:** 3/17/2014		**Expires:** 3/30/2015
MFG Lot: AE14-190BAY	**Lab Lot:** SPEX Ba 10,000 ug/mL		**Usable:** Yes
Part ID: PLBA2-3Y			

Pos.	Analyte	Name	Concentration
1	7440-39-3	Barium	10000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - Mo Stock

Mo Stock		**Description - 10,000 ug/mL Mo Stock**
Standard: 23062	**Created By:** P. Foote	**Amount:** 125 mL
MFG: SPEX CertiPrep	**Create Date:** 3/17/2014	**Expires:** 3/30/2015
MFG Lot: AG15-94MOY	**Lab Lot:** SPEX Mo 10,000 ug/mL	**Usable:** Yes
Part ID: PLMO9-3Y		

Pos.	Analyte	Name	Concentration
1	7439-98-7	Molybdenum	10000 ug/mL

STANDARD REPORT

Constituent

Working Standard - 100x of Mo

100x of Mo		**Description - 100x of Mo stock**
Standard: 23705	**Created By:** J. Sanchez	**Amount:** 10 mL
MFG: JCS	**Create Date:** 06/06/2014	**Expires:** 12/06/2014
MFG Lot:	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-10, ICP-1		

Pos.	Analyte	Name	Concentration
1	7439-98-7	Molybdenum	100 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	8.9 mL	11/07/2025
20440	HCl	concentrated hydrochloric acid	HCl (53010)	0.5 mL	08/27/2018
21092	HNO3	Concentrated Nitric Acid (69.0	HNO3 (0000053953)	0.5 mL	10/23/2018
23062	Mo Stock	10,000 ug/mL Mo Stock	SPEX Mo 10,000 ug/mL	0.1 mL	03/30/2015

STANDARD REPORT

Constituent

Working Standard - 100x of Ti

100x of Ti		Description - 100x of Ti stock
Standard: 23706	Created By: J. Sanchez	Amount: 10 mL
MFG: JCS	Create Date: 06/06/2014	Expires: 12/06/2014
MFG Lot:	Lab Lot: ICP-CLP	Usable: Yes
Part ID: ICP-10, ICP-1		

Pos.	Analyte	Name	Concentration
1	7440-32-6	Titanium	100 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	8.9 mL	11/07/2025
20440	HCl	concentrated hydrochloric acid	HCl (53010)	0.5 mL	08/27/2018
21092	HNO3	Concentrated Nitric Acid (69.0	HNO3 (0000053953)	0.5 mL	10/23/2018
22478	Ti Stock	10,000 ug/mL Ti Stock	SPEX Ti 10,000 ug/mL	0.1 mL	02/28/2015

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O			Description - ASTM Type II Water
Standard: 109		**Created By:** ALS Support (Lims)	**Amount:** 100 L
MFG: DCL In House		**Create Date:** 10/6/2005	**Expires:** 11/7/2025
MFG Lot:		**Lab Lot:** LAB 109	**Usable:** Yes
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - HCl

HCl			Description - concentrated hydrochloric acid
Standard: 20440		Created By: K. Tucker	Amount: 2 L
MFG: EMD		Create Date: 8/27/2013	Expires: 8/27/2018
MFG Lot: 53010		Lab Lot: HCl (53010)	Usable: Yes
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - HNO3

HNO3			Description - Concentrated Nitric Acid (69.0
Standard: 21092	**Created By:** P. Foote	**Amount:** 2.5 L	
MFG: JT Baker	**Create Date:** 10/23/2013	**Expires:** 10/23/2018	
MFG Lot: 0000053953	**Lab Lot:** HNO3 (0000053953)	**Usable:** Yes	
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - HNO3

HNO3			Description - Concentrated Nitric Acid
Standard: 21848		Created By: K. Lockwood	Amount: 2 L
MFG: JT Baker		Create Date: 1/4/2014	Expires: 1/4/2015
MFG Lot: 0000050770		Lab Lot: HNO3 (0000050770)	Usable: Yes
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - HNO3

HNO3			Description - Concentrated Nitric Acid
Standard: 23113	Created By: C. Hansen	Amount: 2.5 L	
MFG: JT Baker	Create Date: 4/4/2014	Expires: 4/4/2019	
MFG Lot: 0000066236	Lab Lot: HNO3 (66236)	Usable: Yes	
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - HNO3

HNO3			Description - Concentrated Nitric Acid
Standard: 23985	Created By: J. Sanchez	Amount: 2 L	
MFG: JT Baker	Create Date: 6/20/2014	Expires: 6/20/2024	
MFG Lot: 0000077192	Lab Lot: HNO3 (0000077192)	Usable: Yes	
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - HNO3

HNO3			Description - Concentrated Nitric Acid
Standard: 24122	Created By: C. Hansen	Amount: 2.5 L	
MFG: JT Baker	Create Date: 5/21/2014	Expires: 5/21/2019	
MFG Lot: 0000074185	Lab Lot: HNO3 (74185)	Usable: Yes	
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Working Standard - 20ppm Sb

20ppm Sb		**Description - 20ppm Sb for PDS**
Standard: 24141	**Created By:** J. Sanchez	**Amount:** 50 mL
MFG: JCS	**Create Date:** 06/27/2014	**Expires:** 12/27/2014
MFG Lot:	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-1		

Pos.	Analyte	Name	Concentration
1	7440-36-0	Antimony	20 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	47.4 mL	11/07/2025
23068	Sb Stock	10,000 ug/mL Sb Stock	SPEX Sb 10,000 ug/mL	0.1 mL	03/30/2015
24122	HNO3	Concentrated Nitric Acid	HNO3 (74185)	2.5 mL	05/21/2019

STANDARD REPORT

Constituent

Stock Standard - Sb Stock

Sb Stock			**Description - 10,000 ug/mL Sb Stock**
Standard: 23068	**Created By:** P. Foote		**Amount:** 125 mL
MFG: SPEX CertiPrep	**Create Date:** 3/17/2014		**Expires:** 3/30/2015
MFG Lot: AI15-34SBY	**Lab Lot:** SPEX Sb 10,000 ug/mL		**Usable:** Yes
Part ID: PLSB7-3Y			

Pos.	Analyte	Name	Concentration
1	7440-36-0	Antimony	10000 ug/mL

STANDARD REPORT

Constituent

Solvent Standard - HNO3

HNO3			Description - Concentrated Nitric Acid
Standard: 24122		**Created By:** C. Hansen	**Amount:** 2.5 L
MFG: JT Baker		**Create Date:** 5/21/2014	**Expires:** 5/21/2019
MFG Lot: 0000074185		**Lab Lot:** HNO3 (74185)	**Usable:** Yes
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O			Description - ASTM Type II Water
Standard: 109	**Created By:** ALS Support (Lims)	**Amount:** 100 L	
MFG: DCL In House	**Create Date:** 10/6/2005	**Expires:** 11/7/2025	
MFG Lot:	**Lab Lot:** LAB 109	**Usable:** Yes	
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: August 7, 2014

SUBJECT: Region III Data QA Review

FROM: Brandon McDonald
Region III ESAT PO (3EA22)

TO: Ruth Scharr
On-Scene Coordinator (3HS31)

Attached is the inorganic data validation report for the New Kent Wood Preservatives, Inc. site for Case 44460; SDG#:MC0AC0 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Laura Mathew (WESTON)
Eric Armistead (WESTON)

TO: #0002 TDF: #0814017

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ICF International
ESAT Region 3
US Environmental Protection Agency Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Phone 410-305-3011

Date: August 06, 2014

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Kurt Roby
Data Reviewer

Kenneth W. Curry
Oversight Chemist

Subject: Inorganic Data Validation (S4VEM)
Site: New Kent Wood Preservatives, Inc.
Case: 44460 SDG: MC0AC0

Overview

Case 44460, Sample Delivery Group (SDG) MC0AC0, consisted of two (2) soil samples analyzed for metals by ICP-AES. Analyses were performed by ALS Laboratory Group (DATAC) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM01.3 through the Routine Analytical Services (RAS) program.

Summary

Data were validated according to inorganic National Functional Guidelines, utilizing Environmental Data Exchange and Evaluation System (EXES) and is assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). The following validation narrative is an evaluation of laboratory reported data for the purpose of usability.

Minor Problems

Matrix spike recoveries were low (<75% but >30%) for antimony (Sb) and manganese (Mn). Post-digestion spike recoveries were within control limits. Low recoveries may be attributed to matrix interferences or analyte lost during the digestion process. Positive results for these analytes are estimated and have been qualified "J".

Relative Percent Differences (RPDs) in the laboratory duplicate analysis were outside control limits [twenty (20) RPD, $\pm$ Contract Required Quantitation Limit (CRQL)] for aluminum (Al), arsenic (As), lead (Pb), vanadium (V) and zinc (Zn). Positive results for these analytes are estimated and have been qualified "J".

Notes

Analytes detected below CRQLs not attributed to blank contamination are qualified "J".

Beryllium (Be), cadmium (Cd) and sodium (Na) have been positively identified in laboratory blanks associated with the samples in this SDG. Samples which reported positive results for these analytes less than the Contract Required Quantitation Limits (CRQLs) have been reported at the CRQL and qualified "U".

Laboratory instrumentation reported a negative value for nickel (Ni) greater than absolute value of the Method Detection Limit (MDL) in a blank analysis. Positive results reported for this analyte in field samples were greater than two times (>2X) the absolute value of the blank concentration and were not qualified based on this outlier.

Reported results for potassium (K) and Na in ICP interference check standard ICSAB were less than CRQL; however, these analytes were not included in this standard. Positive results reported for Na in field samples were attributed to blank contamination. Positive results reported for K in field samples were significantly greater than the concentration found in ICSAB. No data were qualified based on these findings.

The laboratory identified chromium (Cr) and copper (Cu) exceeding control limits in the laboratory duplicate analysis. However, after rounding to the appropriate significant figures, RPDs for these analytes were within control limits. No data were qualified for these analytes based on this finding.

Chain of Custody records list analysis for As, Cr and Cu only; however, the laboratory reported the full target analyte list. All data were reported by the reviewer.

Glossary of Data Qualifier Codes (INORGANIC)

U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
B	The result is presumed a blank contaminant. This qualifier is used only for drinking water samples.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Sample Summary Report

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AC0	Lab Code:	DATAC
Sample Number:	LCS	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:	07/10/2014	Sample Time:	12:31:26
% Moisture :				% Solids :	100.0		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Spike				43.191		1.0	Yes	S4VEM
Antimony	Spike				11.733		1.0	Yes	S4VEM
Arsenic	Spike				2.1278		1.0	Yes	S4VEM
Barium	Spike				42.347		1.0	Yes	S4VEM
Beryllium	Spike				1.0351		1.0	Yes	S4VEM
Cadmium	Spike				1.1023		1.0	Yes	S4VEM
Chromium	Spike				2.2046		1.0	Yes	S4VEM
Cobalt	Spike				10.305		1.0	Yes	S4VEM
Copper	Spike				5.5546		1.0	Yes	S4VEM
Iron	Spike				24.514		1.0	Yes	S4VEM
Lead	Spike				2.0793		1.0	Yes	S4VEM
Manganese	Spike				3.2237		1.0	Yes	S4VEM
Nickel	Spike				8.1516		1.0	Yes	S4VEM
Selenium	Spike				7.0048		1.0	Yes	S4VEM
Silver	Spike				2.0232		1.0	Yes	S4VEM
Thallium	Spike				5.4272		1.0	Yes	S4VEM
Vanadium	Spike				10.483		1.0	Yes	S4VEM
Potassium	Spike				1030.3		1.0	Yes	S4VEM
Zinc	Spike				13.481		1.0	Yes	S4VEM
Magnesium	Spike				1062.4		1.0	Yes	S4VEM
Calcium	Spike				1104.9		1.0	Yes	S4VEM
Sodium	Spike				1053.8		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AC0	Lab Code:	DATAC
Sample Number:	MC0AC0	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	155	pH:		Sample Date:	06/20/2014	Sample Time:	16:11:00
% Moisture :				% Solids :	68.472		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	19100	J	mg/kg	19079.38294152	*	1.0	Yes	S4VEM
Antimony	Target	0.95	J	mg/kg	0.9464362946155	JN	1.0	Yes	S4VEM
Arsenic	Target	376	J	mg/kg	375.6946109871	*	1.0	Yes	S4VEM
Barium	Target	117		mg/kg	116.8488899548		1.0	Yes	S4VEM
Beryllium	Target	0.67		mg/kg	0.6666830647128		1.0	Yes	S4VEM
Cadmium	Target	0.64	U	mg/kg	0.6388448191398	J	1.0	Yes	S4VEM
Calcium	Target	5180		mg/kg	5182.80746849		1.0	Yes	S4VEM
Chromium	Target	385		mg/kg	384.8544570914	*	1.0	Yes	S4VEM
Cobalt	Target	16.1		mg/kg	16.13926450663		1.0	Yes	S4VEM
Copper	Target	222		mg/kg	221.9885500643	*	1.0	Yes	S4VEM
Iron	Target	25400		mg/kg	25416.97156784		1.0	Yes	S4VEM
Lead	Target	41.5	J	mg/kg	41.54983058769	*	1.0	Yes	S4VEM
Magnesium	Target	1470		mg/kg	1473.390070573		1.0	Yes	S4VEM
Manganese	Target	456	J	mg/kg	455.9169274981	N	1.0	Yes	S4VEM
Nickel	Target	14.0		mg/kg	14.03698374339		1.0	Yes	S4VEM
Potassium	Target	1010		mg/kg	1008.27486405		1.0	Yes	S4VEM
Selenium	Target	1.0	J	mg/kg	1.00701938864	J	1.0	Yes	S4VEM
Silver	Target	1.3	U	mg/kg	1.28109735725	U	1.0	Yes	S4VEM
Sodium	Target	641	U	mg/kg	80.53874755823	J	1.0	Yes	S4VEM
Thallium	Target	3.2	U	mg/kg	3.202743393125	U	1.0	Yes	S4VEM
Vanadium	Target	35.3	J	mg/kg	35.34675718388	*	1.0	Yes	S4VEM
Zinc	Target	206	J	mg/kg	205.6545587593	*	1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AC0	Lab Code:	DATAC
Sample Number:	MC0AC0A	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	1417553001	pH:		Sample Date:	06/20/2014	Sample Time:	16:11:00
% Moisture :				% Solids :	68.472		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Antimony	Target	14.9		mg/kg	14.92606530932		1.0	Yes	S4VEM
Manganese	Target	1310		mg/kg	1311.07503541		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AC0	Lab Code:	DATAC
Sample Number:	MC0AC0D	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	1417553003	pH:		Sample Date:	06/20/2014	Sample Time:	16:11:00
% Moisture :				% Solids :	68.472		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	13800		mg/kg	13822.21612643		1.0	Yes	S4VEM
Antimony	Target	7.6	U	mg/kg	7.619744281382	U	1.0	Yes	S4VEM
Arsenic	Target	303		mg/kg	302.7578394469		1.0	Yes	S4VEM
Barium	Target	97.2		mg/kg	97.15554945976		1.0	Yes	S4VEM
Beryllium	Target	0.63	U	mg/kg	0.5343218681581	J	1.0	Yes	S4VEM
Cadmium	Target	0.63	U	mg/kg	0.5594543247129	J	1.0	Yes	S4VEM
Calcium	Target	4280		mg/kg	4283.185256303		1.0	Yes	S4VEM
Chromium	Target	315		mg/kg	314.8097349853		1.0	Yes	S4VEM
Cobalt	Target	13.4		mg/kg	13.42471946641		1.0	Yes	S4VEM
Copper	Target	181		mg/kg	180.7784330758		1.0	Yes	S4VEM
Iron	Target	21000		mg/kg	21029.22425923		1.0	Yes	S4VEM
Lead	Target	32.3		mg/kg	32.33819473018		1.0	Yes	S4VEM
Magnesium	Target	1150		mg/kg	1146.771514348		1.0	Yes	S4VEM
Manganese	Target	376		mg/kg	375.9962815648		1.0	Yes	S4VEM
Nickel	Target	11.4		mg/kg	11.37653220358		1.0	Yes	S4VEM
Potassium	Target	727		mg/kg	726.6188146726		1.0	Yes	S4VEM
Selenium	Target	1.0	J	mg/kg	0.9997612480125	J	1.0	Yes	S4VEM
Silver	Target	1.3	U	mg/kg	1.26995738023	U	1.0	Yes	S4VEM
Sodium	Target	635	U	mg/kg	57.16459155631	J	1.0	Yes	S4VEM
Thallium	Target	3.2	U	mg/kg	3.174893450576	U	1.0	Yes	S4VEM
Vanadium	Target	28.1		mg/kg	28.12447614258		1.0	Yes	S4VEM
Zinc	Target	165		mg/kg	164.9801632657		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AC0	Lab Code:	DATAC
Sample Number:	MC0AC0S	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	1417553002	pH:		Sample Date:	06/20/2014	Sample Time:	16:11:00
% Moisture :				% Solids :	68.472		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Antimony	Spike	9.1		mg/kg	9.125151759907		1.0	Yes	S4VEM
Arsenic	Spike	421		mg/kg	420.7622792179		1.0	Yes	S4VEM
Barium	Spike	631		mg/kg	630.5084401367		1.0	Yes	S4VEM
Beryllium	Spike	13.9		mg/kg	13.8692045495		1.0	Yes	S4VEM
Cadmium	Spike	14.6		mg/kg	14.6400686793		1.0	Yes	S4VEM
Chromium	Spike	451		mg/kg	451.0380631626		1.0	Yes	S4VEM
Cobalt	Spike	146		mg/kg	146.3625880715		1.0	Yes	S4VEM
Copper	Spike	272		mg/kg	271.6819823527		1.0	Yes	S4VEM
Lead	Spike	43.4		mg/kg	43.41984283007		1.0	Yes	S4VEM
Manganese	Spike	716		mg/kg	715.7606790716		1.0	Yes	S4VEM
Nickel	Spike	146		mg/kg	145.7276093814		1.0	Yes	S4VEM
Selenium	Spike	12.6		mg/kg	12.62998013787		1.0	Yes	S4VEM
Silver	Spike	11.7		mg/kg	11.69618047618		1.0	Yes	S4VEM
Thallium	Spike	10.6		mg/kg	10.62624138334		1.0	Yes	S4VEM
Vanadium	Spike	160		mg/kg	160.2305226637		1.0	Yes	S4VEM
Zinc	Spike	337		mg/kg	337.0339891393		1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AC0	Lab Code:	DATAC
Sample Number:	MC0AC1	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	157	pH:		Sample Date:	06/20/2014	Sample Time:	16:08:00
% Moisture :				% Solids :	75.059		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	9510	J	mg/kg	9508.40372464	*	1.0	Yes	S4VEM
Antimony	Target	0.70	J	mg/kg	0.6957748048046	JN	1.0	Yes	S4VEM
Arsenic	Target	278	J	mg/kg	277.8038323499	*	1.0	Yes	S4VEM
Barium	Target	85.8		mg/kg	85.82778415655		1.0	Yes	S4VEM
Beryllium	Target	0.45	U	mg/kg	0.4362831887685	J	1.0	Yes	S4VEM
Cadmium	Target	0.48		mg/kg	0.4781115813055		1.0	Yes	S4VEM
Calcium	Target	4220		mg/kg	4224.417283907		1.0	Yes	S4VEM
Chromium	Target	367		mg/kg	366.7003433809	*	1.0	Yes	S4VEM
Cobalt	Target	11.8		mg/kg	11.84929153272		1.0	Yes	S4VEM
Copper	Target	206		mg/kg	206.0571410893	*	1.0	Yes	S4VEM
Iron	Target	19100		mg/kg	19076.71557882		1.0	Yes	S4VEM
Lead	Target	27.6	J	mg/kg	27.56042204294	*	1.0	Yes	S4VEM
Magnesium	Target	768		mg/kg	768.3619981811		1.0	Yes	S4VEM
Manganese	Target	305	J	mg/kg	304.7803736676	N	1.0	Yes	S4VEM
Nickel	Target	8.6		mg/kg	8.590289285628		1.0	Yes	S4VEM
Potassium	Target	531		mg/kg	531.2420448487		1.0	Yes	S4VEM
Selenium	Target	3.1	U	mg/kg	3.129529155185	U	1.0	Yes	S4VEM
Silver	Target	0.89	U	mg/kg	0.8941511871958	U	1.0	Yes	S4VEM
Sodium	Target	447	U	mg/kg	34.95058160511	J	1.0	Yes	S4VEM
Thallium	Target	2.2	U	mg/kg	2.23537796799	U	1.0	Yes	S4VEM
Vanadium	Target	23.5	J	mg/kg	23.50097565307	*	1.0	Yes	S4VEM
Zinc	Target	111	J	mg/kg	111.1429925684	*	1.0	Yes	S4VEM

Case No:	44460	Contract:	EPW09036	SDG No:	MC0AC0	Lab Code:	DATAC
Sample Number:	PBS	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:	07/10/2014	Sample Time:	12:28:27
% Moisture :				% Solids :	100.0		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	mg/kg	20	U	1.0	Yes	S4VEM
Antimony	Target	6.0	U	mg/kg	6	U	1.0	Yes	S4VEM
Arsenic	Target	1.0	U	mg/kg	1	U	1.0	Yes	S4VEM
Barium	Target	20.0	U	mg/kg	20	U	1.0	Yes	S4VEM
Beryllium	Target	0.50	U	mg/kg	0.021778	J	1.0	Yes	S4VEM
Cadmium	Target	0.50	U	mg/kg	0.029045	J	1.0	Yes	S4VEM
Calcium	Target	5.9	J	mg/kg	5.8547	J	1.0	Yes	S4VEM
Chromium	Target	1.0	U	mg/kg	1	U	1.0	Yes	S4VEM
Cobalt	Target	5.0	U	mg/kg	5	U	1.0	Yes	S4VEM
Copper	Target	2.5	U	mg/kg	0.31835	J	1.0	Yes	S4VEM
Iron	Target	10.0	U	mg/kg	10	U	1.0	Yes	S4VEM
Lead	Target	1.0	U	mg/kg	1	U	1.0	Yes	S4VEM
Magnesium	Target	500	U	mg/kg	500	U	1.0	Yes	S4VEM
Manganese	Target	1.5	U	mg/kg	1.5	U	1.0	Yes	S4VEM
Nickel	Target	-0.17	J	mg/kg	-0.16798	J	1.0	Yes	S4VEM
Potassium	Target	500	U	mg/kg	500	U	1.0	Yes	S4VEM
Selenium	Target	3.5	U	mg/kg	3.5	U	1.0	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1	U	1.0	Yes	S4VEM
Sodium	Target	500	U	mg/kg	5.6709	J	1.0	Yes	S4VEM
Thallium	Target	2.5	U	mg/kg	2.5	U	1.0	Yes	S4VEM
Vanadium	Target	5.0	U	mg/kg	5	U	1.0	Yes	S4VEM
Zinc	Target	6.0	U	mg/kg	6	U	1.0	Yes	S4VEM

FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

LABORATORY NAME	ALS Environmental		
CITY/STATE	Salt Lake City, UT 84123		
CASE NO.	44460	SDG NO.:	MC0AC0
SDG NOs. TO FOLLOW	N/A		
MOD. REF. No.	N/A		
CONTRACT NO.	EPW09036		
SOW NO.	ISM01.3		

All documents delivered in the Complete SDG File must be original documents where possible. (Reference - Exhibit B Section 2.6)

		PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK REGION
1.	Inventory Sheet (DC-2)	1	1A	✓	
2.	SDG Narrative	2	4	✓	
3.	Sample Log-In Sheet (DC-1)	5	5	✓	
4.	Traffic Report/Chain of Custody Record(s)	6	6	✓	
5.	Cover Page	7	7	✓	
Inorganic Analysis					
6.	Data Sheet (Form I-IN)	8	9	✓	
7.	Initial & Continuing Calibration Verification (Form IIA-IN)	10	10	✓	
8.	Blanks (Form III-IN)	11	11	✓	
9.	ICP-AES Interference Check Sample(Form IVA-IN)	12	12	✓	
10.	ICP-MS Interference Check Sample(Form IVB-IN)	NA		✓	
11.	Matrix Spike Sample Recovery(Form VA-IN)	13	13	✓	
12.	Post-Digestion Spike Sample Recovery(Form VB-IN)	14	14	✓	
13.	Duplicates (Form VI-IN)	15	15	✓	
14.	Laboratory Control Sample (Form VII-IN)	16	16	✓	
15.	ICP-AES and ICP-MS Serial Dilutions (Form VIII-IN)	17	17	✓	
16.	Method Detection Limit (Annually) (Form IX-IN)	18	18	✓	
17.	ICP-AES Interelement Correction Factors (Quarterly) Form XA-IN)	19	19	✓	
18.	ICP-AES Interelement Correction Factors (Annually) Form XB-IN)	20	21	✓	
19.	Internal Standard Association (Form X1-IN)	NA		✓	
20.	Preparation Log (Form XII-IN)	22	22	✓	
21.	Analysis Run Log (Form XIII-IN)	23	23	✓	

FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

	PAGE NOs FROM	PAGE NOs TO	CHECK LAB	CHECK REGION
22. ICP-MS Tune (Form XIV-IN)	NA		✓	
23. ICP-MS Internal Standards Relative Intensity Summary (Form XV-IN)	NA		✓	
24. Initial Calibration (Form XVI - IN)	24	26	✓	
25. ICP AES Raw Data	27	92	✓	
26. ICP-MS Raw Data	NA		✓	
27. Mercury Raw Dta	NA		✓	
28. Cyanide Raw Data	NA		✓	
29. Preparation Logs Raw Data	93	93	✓	
30. Percent Solids Determination Log	94	94	✓	
31. USEPA Shipping/Receiving Documents				
Airbill (No. of Shipments _____)	95	96	✓	
Sample Tags	97	97	✓	
Sample Log-In Sheet (Lab)	NA		✓	
32. Misc. Shipping/Receiving Records (list all individual records)				
Communication Logs	NA		✓	
ALS SDG TR Cover Sheet	98	99	✓	
			✓	
33. Internal Lab Sample Transfer Records and Tracking Sheets (describe or list)				
ALS CoC	100	101	✓	
34. Internal Original Sample Prep & Analysis Records (describe or list)				
Prep Records	102	106	✓	
Analysis Records	107	101	✓	
PE Instructions	NA			
Description	NA		✓	
35. Other Records (describe or list)				
Communication Logs			✓	
	NA			
E-mail Communications	NA		✓	
			✓	

36. Comments: Sample tag 1020 for Sample # MCQAC0 lost at lab. mw 7/14/14

Completed by:
(CLP Lab) _____ Melissa Duggan / Doc. Ctrl. 7/14/14
(Signature) (Print Name & Title) (Date)

Audited By:
(USEPA) _____ _____ _____
(Signature) (Print Name & Title) (Date)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

SDG Administrative Narrative

Contract: EP10-09-B10

Case: 444160

SDG: MC0AC0

Set ID No.: 1417553

Cooler # and temperatures of each (upon receipt)

Cooler Number C14- NA Arrival temperature was 6 °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Cooler Number C14-_____ Arrival temperature was _____ °C

Communications:

The sample receipt for this case and SDG is compliant with EPA CLP SOW requirements.

Comments:

None.

Signature: _____ Date: 7/14/14

Document Control Officer

SDG Narrative

Case:	44460	Contract #:	EPW-09-036
SDG:	MC0AC0	ALS Set ID #:	1417553

General Information: The two samples in this SDG were analyzed by methodologies contained in ISM01.3. All concentration, analytical, and method qualifiers are defined in the SOW.

Target Analytes: Target analytes for this SDG are aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, potassium, selenium, silver, sodium, thallium, vanadium and zinc.

Holding Times: All samples were prepared and analyzed within method required holding times.

Initial and Continuing Calibration: All initial and continuing calibration verification and blank analyses were performed within the designated frequency and recoveries of the verifications and concentrations of the blanks met method acceptance criteria.

Interference Check Sample Analysis: Results for the interference check samples met method acceptance criteria.

Preparation Blanks: The absolute values of all analyte concentrations in the preparation blank were lower than the Contract Required Quantitation Limits.

Laboratory Control Sample Analysis: Results for the analysis of the LCS met method acceptance criteria.

Matrix Spike Analysis: All matrix spike recoveries were within the limits of 75-125% with the exceptions of antimony and manganese.

Matrix Duplicate Analysis: All matrix duplicate results met method criteria with the exceptions of aluminum, arsenic, chromium, copper, lead, vanadium, and zinc.

Serial Dilution: Serial Dilution results met method acceptance criteria.

Miscellaneous Comments: All calibration data is linear, please see raw data.

Example Equations:

Method 3050B: $$C \times \frac{Vf}{W \times S} \times DF \div 1000 = Concentration\,(mg/Kg)$$

C = Instrument value in µg/L (The average of all replicate integrations).
Vf = Final digestion volume (mL)
W = Initial digestion Weight (g)

DF = Dilution Factor
S = % Solids/100

SAMPLE LOG-IN SHEET

Lab Name: ALS Laboratory Group - Salt Lake City (Copy original in SDG. MCØAAØ)		Page 1 of 1
Received By (Print Name): Anyanette Allestown		Log-In Date: 06/24/14
Received By (Signature): Anyanette Allestown		
Case Number: 44460	Sample Delivery Group No.: MCØACØ	Mod. Ref. No.: NA

Remarks:

1. Custody Seal (s) (Present/Absent*)
   (Intact/Broken*)
2. Custody Seal Nos.: NA / 1
3. Traffic Reports/Chain of Custody Records or Packing Lists (Present/Absent*)
4. Airbill (Present/Absent*)
5. Airbill No.: 7703 8001 4214 / NA
6. Sample Tags (Present/Absent*)
   Sample Tag Numbers (Listed/Not Listed on Chain-of-Custody)
7. Sample Condition (Intact/Broken*/Leaking*)
8. Cooler Temperature Indicator Bottle (Present/Absent*)
9. Cooler Temperature: 6
10. Does information Traffic Reports/Chain of Custody Records and sample tags agree? (Yes/No*)
11. Date Received at Lab: 06/24/14
12. Time Received: 1006

	EPA Sample #	Aqueous Sample pH	Corresponding: Sample Tag #	Corresponding: Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	MCØAAØ	NA	1000		ICP-AES AS, Cr, Cu SOIL
2	A1		01		
3	A2		02		
4	A3		03		
5	A4		04		
6	A5		05		
7	A6		06		
8	A7		07		
9	A8		08		
10	A9		09		
11	BØ		10		
12	B1		11		MS/MD
13	B2		12		
14	B3		13		
15	B4		14		
16	B5		15		
17	B6		16		
18	B7		17		
19	B8		18		
20	B9		19		aa 06/24/14 ~~MS/MD~~
21	CØ		20	1417553 001-003	MS/MD
22	C1		21	1 004	

Sample Transfer

Fraction	Fraction
ICP-AES	aa 06/24/14
Area # R331	Area #
By aa	By
On 06/24/14	On

* Contact SMO and attach record of resolution

Reviewed By: Johanne Allen	Logbook No.: Not Applicable
Date: 6/24/14	Logbook Page No.: Not Applicable

1417553

USEPA CLP COC (LAB COPY)

DateShipped: 6/23/2014
CarrierName: FedEx
AirbillNo: 770380014214

CHAIN OF CUSTODY RECORD SDG. MC0AC0

Case #: 44460
Cooler #: 1 of 1

No: 3-062214-213952-0001

Lab: ALS Laboratory Group - Salt Lake City
Lab Contact: Roxy Olson
Lab Phone: 801-266-7700

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
NK-SS-155-062014	MC0AC0	Soil/ START	Grab	AsCuCr(21)	1020 (4 C) (1)	155	06/20/2014 16:11	aa 06/24/14
NK-SS-157-062014	MC0AC1	Soil/ START	Grab	AsCuCr(21)	1021 (4 C) (1)	157	06/20/2014 16:08	FINAL SDG SAMPLE

Sample(s) to be used for Lab QC: NK-SS-155-062014 Tag 1020	**Shipment for Case Complete? Y**
	Samples Transferred From Chain of Custody #
Analysis Key: AsCuCr=Arsenic, Copper, Chromium only	

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	Erik Ainstrel	6/23/14 1200	Anjanette Anlstrom / DATAC	06/24/14 10:06	Intact

USEPA - CLP
COVER PAGE

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

SOW No.: ISM01.3

EPA Sample No.	Lab Sample ID
MC0AC0	1417553001
MC0AC0D	1417553003
MC0AC0S	1417553002
MC0AC1	1417553004

		ICP-AES	ICP-MS
Were ICP-AES and ICP-MS Interelement corrections applied?	(Yes/No)	Yes	
Were ICP-AES and ICP-MS background corrections applied?	(Yes/No)	Yes	
If yes - were raw data generated before application of background corrections?	(Yes/No)	No	

The laboratory did not receive any instructions with this SDG to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy Data Package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Name: Neil Edwards

Date: 07/14/2014 Title: Chemist

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AC0

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

Matrix: Soil Lab Sample ID: 1417553001

% Solids: 68.5 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19100		*	P
7440-36-0	Antimony	0.95	J	N	P
7440-38-2	Arsenic	376		*	P
7440-39-3	Barium	117			P
7440-41-7	Beryllium	0.67			P
7440-43-9	Cadmium	0.64	J		P
7440-70-2	Calcium	5180			P
7440-47-3	Chromium	385		*	P
7440-48-4	Cobalt	16.1			P
7440-50-8	Copper	222		*	P
7439-89-6	Iron	25400			P
7439-92-1	Lead	41.5		*	P
7439-95-4	Magnesium	1470			P
7439-96-5	Manganese	456		N	P
7439-97-6	Mercury				
7440-02-0	Nickel	14.0			P
7440-09-7	Potassium	1010			P
7782-49-2	Selenium	1.0	J		P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	80.5	J		P
7440-28-0	Thallium	3.2	U		P
7440-62-2	Vanadium	35.3		*	P
7440-66-6	Zinc	206		*	P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
MC0AC1

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

Matrix: Soil Lab Sample ID: 1417553004

% Solids: 75.1 Date Received: 06/24/2014

Concentration Units (ug/L, ug or mg/kg dry weight): mg/kg

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9510		*	P
7440-36-0	Antimony	0.70	J	N	P
7440-38-2	Arsenic	278		*	P
7440-39-3	Barium	85.8			P
7440-41-7	Beryllium	0.44	J		P
7440-43-9	Cadmium	0.48			P
7440-70-2	Calcium	4220			P
7440-47-3	Chromium	367		*	P
7440-48-4	Cobalt	11.8			P
7440-50-8	Copper	206		*	P
7439-89-6	Iron	19100			P
7439-92-1	Lead	27.6		*	P
7439-95-4	Magnesium	768			P
7439-96-5	Manganese	305		N	P
7439-97-6	Mercury				
7440-02-0	Nickel	8.6			P
7440-09-7	Potassium	531			P
7782-49-2	Selenium	3.1	U		P
7440-22-4	Silver	0.89	U		P
7440-23-5	Sodium	35.0	J		P
7440-28-0	Thallium	2.2	U		P
7440-62-2	Vanadium	23.5		*	P
7440-66-6	Zinc	111		*	P
57-12-5	Cyanide				

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: CLEAR Artifacts: No

Comments:

USEPA - CLP
2A-IN
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

Initial Calibration Verification Source: EPA ICV-1 (0307)

Continuing Calibration Verification Source: 24420

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	2521	2580	102	250000	249000	99	243000	97	P
Antimony	994	989	99	25000	24400	98	24300	97	P
Arsenic	999	1010	101	10000	10500	105	10500	105	P
Barium	497	513	103	25000	24400	98	24100	96	P
Beryllium	495	502	101	10000	9900	99	9600	96	P
Cadmium	496	535	108	10000	10200	102	10200	102	P
Calcium	10026	10700	107	250000	253000	101	246000	98	P
Chromium	490	524	107	25000	25600	102	25500	102	P
Cobalt	499	516	103	25000	24700	99	24600	98	P
Copper	492	518	105	25000	25000	100	24500	98	P
Iron	5082	5410	106	250000	251000	100	244000	98	P
Lead	1002	1030	103	25000	24100	96	24100	96	P
Magnesium	6074	6200	102	250000	251000	100	246000	98	P
Manganese	499	511	102	25000	23800	95	23300	93	P
Mercury									
Nickel	503	525	104	25000	24500	98	24500	98	P
Potassium	10021	9960	99	250000	250000	100	246000	98	P
Selenium	1029	1010	98	10000	9870	99	9920	99	P
Silver	501	494	99	1000	1010	101	1000	100	P
Sodium	10097	10100	100	250000	252000	101	246000	98	P
Thallium	1028	1080	105	10000	9340	93	9370	94	P
Vanadium	501	512	102	25000	24500	98	24200	97	P
Zinc	1025	1090	106	25000	25600	102	25600	102	P
Cyanide									

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

USEPA - CLP
3-IN
BLANKS

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

Preparation Blank Matrix (soil/water/wipe/filter): Soil

Preparation Blank Concentration Units (ug/L, ug or mg/kg): mg/kg

Analyte	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum	200	U	200	U	200	U			20.0	U	P
Antimony	60.0	U	60.0	U	60.0	U			6.0	U	P
Arsenic	10.0	U	10.0	U	10.0	U			1.0	U	P
Barium	200	U	200	U	200	U			20.0	U	P
Beryllium	5.0	U	0.53	J	0.49	J			0.022	J	P
Cadmium	0.31	J	0.41	J	0.32	J			0.029	J	P
Calcium	5000	U	5000	U	5000	U			5.9	J	P
Chromium	10.0	U	10.0	U	10.0	U			1.0	U	P
Cobalt	50.0	U	0.53	J	0.77	J			5.0	U	P
Copper	3.0	J	3.3	J	3.0	J			0.32	J	P
Iron	100	U	100	U	100	U			10.0	U	P
Lead	10.0	U	10.0	U	10.0	U			1.0	U	P
Magnesium	5000	U	5000	U	5000	U			500	U	P
Manganese	15.0	U	1.5	J	15.0	U			1.5	U	P
Mercury											
Nickel	-2.4	J	40.0	U	40.0	U			-0.17	J	P
Potassium	5000	U	96.7	J	129	J			500	U	P
Selenium	35.0	U	35.0	U	35.0	U			3.5	U	P
Silver	10.0	U	10.0	U	10.0	U			1.0	U	P
Sodium	54.5	J	83.5	J	76.5	J			5.7	J	P
Thallium	25.0	U	3.5	J	25.0	U			2.5	U	P
Vanadium	50.0	U	1.6	J	1.7	J			5.0	U	P
Zinc	60.0	U	60.0	U	60.0	U			6.0	U	P
Cyanide											

USEPA - CLP
4A-IN
ICP-AES INTERFERENCE CHECK SAMPLE

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

ICP-AES Instrument ID: ICP07 ICSA Source: ICSA (1206)

ICSB Source: ICSB (1206/0203)

Concentration Units: ug/L

Analyte	True		Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R
Aluminum	244100	241100	243000	100	247000	102
Antimony	0	589	0.98		606	103
Arsenic	0	101	-4.2		98.9	98
Barium	2	495	1.8	92	512	103
Beryllium	0	475	0.50		513	108
Cadmium	0	940	-0.76		1100	117
Calcium	234900	231100	252000	107	255000	111
Chromium	43	511	47.6	111	594	116
Cobalt	4	461	4.3	107	521	113
Copper	23	548	27.2	118	558	102
Iron	95600	94800	101000	106	103000	108
Lead	10	61	7.2	72	59.9	98
Magnesium	247500	251100	252000	102	256000	102
Manganese	19	502	25.0	132	527	105
Nickel	21	984	19.3	92	1080	109
Potassium	0	0	73.0		52.4	
Selenium	0	53	-2.0		51.1	96
Silver	0	206	0.17		209	102
Sodium	0	0	845		863	
Thallium	0	103	3.7		108	105
Vanadium	0	494	3.6		516	104
Zinc	28	1028	32.5	116	1160	112

USEPA - CLP
5A-IN
MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
MC0AC0S

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

Matrix: Soil

% Solids for Sample: 68.5

Concentration Units (ug/L or mg/kg dry weight): mg/kg

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	9.1		0.95	J	25.4	32	N	P
Arsenic		421		376		10.2	444		P
Barium	75-125	631		117		508	101		P
Beryllium	75-125	13.9		0.67		12.7	104		P
Cadmium	75-125	14.6		0.64	J	12.7	110		P
Calcium									NR
Chromium		451		385		50.8	130		P
Cobalt	75-125	146		16.1		127	103		P
Copper	75-125	272		222		63.5	78		P
Iron									NR
Lead		43.4		41.5		5.1	37		P
Magnesium									NR
Manganese	75-125	716		456		127	205	N	P
Mercury									
Nickel	75-125	146		14.0		127	104		P
Potassium									NR
Selenium	75-125	12.6		1.0	J	12.7	92		P
Silver	75-125	11.7		1.3	U	12.7	92		P
Sodium									NR
Thallium	75-125	10.6		3.2	U	12.7	84		P
Vanadium	75-125	160		35.3		127	98		P
Zinc	75-125	337		206		127	103		P
Cyanide									

Comments:

USEPA - CLP
5B-IN
POST-DIGESTION SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.
MC0AC0A

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

Matrix: Soil

Concentration Units (ug/L or mg/kg dry weight): mg/kg

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony		14.9		0.95	J	15.4	91		P
Arsenic									NR
Barium									NR
Beryllium									NR
Cadmium									NR
Calcium									NR
Chromium									NR
Cobalt									NR
Copper									NR
Iron									NR
Lead									NR
Magnesium									NR
Manganese		1310		456		912	94		P
Mercury									NR
Nickel									NR
Potassium									NR
Selenium									NR
Silver									NR
Sodium									NR
Thallium									NR
Vanadium									NR
Zinc									NR
Cyanide									NR

Comments:

0001U

USEPA - CLP
6-IN
DUPLICATES

EPA SAMPLE NO.
MC0AC0D

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

Matrix: Soil

% Solids for Sample: 68.5

Concentration Units (ug/L or mg/kg dry weight): mg/kg

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		19100		13800		32	*	P
Antimony		0.95	J	7.6	U	200		P
Arsenic		376		303		22	*	P
Barium	25.4	117		97.2		18		P
Beryllium	0.63	0.67		0.53	J	22		P
Cadmium	0.63	0.64	J	0.56	J	13		P
Calcium		5180		4280		19		P
Chromium		385		315		20	*	P
Cobalt	6.3	16.1		13.4		18		P
Copper		222		181		20	*	P
Iron		25400		21000		19		P
Lead		41.5		32.3		25	*	P
Magnesium	635	1470		1150		25		P
Manganese		456		376		19		P
Mercury								
Nickel	5.1	14.0		11.4		21		P
Potassium	635	1010		727		32		P
Selenium		1.0	J	1.0	J	1		P
Silver		1.3	U	1.3	U			P
Sodium		80.5	J	57.2	J	34		P
Thallium		3.2	U	3.2	U			P
Vanadium	6.3	35.3		28.1		23	*	P
Zinc		206		165		22	*	P
Cyanide								

USEPA - CLP
7-IN
LABORATORY CONTROL SAMPLE

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: _____ SDG No.: MC0AC0

Analyte	Aqueous/Water (ug/L), Soil/Sediment (mg/kg), Wipe/Filter (ug)		
	True	Found	%R
Aluminum	40.0	43.2	108
Antimony	12.0	11.7	98
Arsenic	2.0	2.1	106
Barium	40.0	42.3	106
Beryllium	1.0	1.0	104
Cadmium	1.0	1.1	110
Calcium	1000	1100	110
Chromium	2.0	2.2	110
Cobalt	10.0	10.3	103
Copper	5.0	5.6	111
Iron	20.0	24.5	123
Lead	2.0	2.1	104
Magnesium	1000	1060	106
Manganese	3.0	3.2	107
Mercury			
Nickel	8.0	8.2	102
Potassium	1000	1030	103
Selenium	7.0	7.0	100
Silver	2.0	2.0	101
Sodium	1000	1050	105
Thallium	5.0	5.4	109
Vanadium	10.0	10.5	105
Zinc	12.0	13.5	112
Cyanide			

USEPA - CLP
8-IN
ICP-AES and ICP-MS SERIAL DILUTIONS

EPA SAMPLE NO.
MC0AC0L

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

Matrix: Soil

Concentration Units (ug/L or mg/kg dry weight): mg/kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	19100		18600		2		P
Antimony	0.95	J	38.4	U	100		P
Arsenic	376		362		4		P
Barium	117		113	J	3		P
Beryllium	0.67		0.64	J	5		P
Cadmium	0.64	J	0.74	J	17		P
Calcium	5180		5110		1		P
Chromium	385		380		1		P
Cobalt	16.1		16.2	J	0		P
Copper	222		216		2		P
Iron	25400		25100		1		P
Lead	41.5		41.5		0		P
Magnesium	1470		1450	J	2		P
Manganese	456		450		1		P
Nickel	14.0		13.4	J	4		P
Potassium	1010		1000	J	1		P
Selenium	1.0	J	22.4	U	100		P
Silver	1.3	U	6.4	U			P
Sodium	80.5	J	86.7	J	8		P
Thallium	3.2	U	16.0	U			P
Vanadium	35.3		35.1		1		P
Zinc	206		202		2		P

USEPA - CLP
9-IN
METHOD DETECTION LIMIT (MDL) (ANNUALLY)

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

Instrument Type: P Instrument ID: ICP07 Date: 05/28/2014

Preparation Method: 3050B

Concentration Units (ug/L, mg/kg or ug): mg/kg

Analyte	Wavelength/Mass	MDL
Aluminum	308.22	6.2
Antimony	206.83	0.33
Arsenic	189.04	0.32
Barium	455.40	0.076
Beryllium	313.11	0.018
Cadmium	214.44	0.017
Calcium	317.93	1.6
Chromium	205.55	0.059
Cobalt	228.62	0.050
Copper	324.75	0.22
Iron	259.84	3.0
Lead	220.35	0.30
Magnesium	279.08	2.8
Manganese	257.61	0.075
Mercury		
Nickel	231.60	0.13
Potassium	766.49	4.0
Selenium	196.09	0.52
Silver	328.07	0.12
Sodium	589.59	3.0
Thallium	190.86	0.34
Vanadium	292.40	0.077
Zinc	206.20	0.18
Cyanide		

Comments:

aa018

USEPA - CLP
10A-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

ICP-AES Instrument ID: ICP07 Date: 05/15/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	Ba
Aluminum	308.22	0	0	0	0	0
Antimony	206.83	0	0	0.000031	0	0
Arsenic	189.04	-0.000029	0	0	0	0
Barium	455.40	0	0	0	0	0
Beryllium	313.11	0	0	0	0	0
Cadmium	214.44	-0.000020	0	0.000034	0	0
Calcium	317.93	0	0	0	0	0
Chromium	205.55	0	0	0	0	0
Cobalt	228.62	0	0	0.000022	0	0.000199
Copper	324.75	0	0	0.000016	0	0
Iron	259.84	0	0	0	0	0
Lead	220.35	0.000326	0	0.000029	0	0
Magnesium	279.08	0	0	0	0	0
Manganese	257.61	0	0	0	0	0
Nickel	231.60	0	0	0.000157	0	0
Potassium	766.49	0	0	0	0	0
Selenium	196.09	0	0	0.000011	0	0
Silver	328.07	0	0	0	0	0
Sodium	589.59	0	0	0	0	0
Thallium	190.86	0	0	-0.000015	0	0
Vanadium	292.40	0	0	0.000012	0	0
Zinc	206.20	0	0	0.000010	0	0

Comments:

USEPA - CLP
10B-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

ICP-AES Instrument ID: ICP07 Date: 05/15/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Be	Co	Cr	Cu	Mn
Aluminum	308.22	0	0	0	0	0
Antimony	206.83	0	0	0.013965	0	0
Arsenic	189.04	0	0	0.000418	0	-0.000068
Barium	455.40	0	0	0	0	0
Beryllium	313.11	0	0	0	0	0
Cadmium	214.44	0	0	0	0	0
Calcium	317.93	0	0	0	0	0
Chromium	205.55	0.000369	0	0	0	0
Cobalt	228.62	0	0	0	0	0
Copper	324.75	0	0	0	0	0
Iron	259.84	0	0	0	0	0.003157
Lead	220.35	0	-0.000054	0	0.000346	0
Magnesium	279.08	0	0	0	0	-0.006705
Manganese	257.61	0	0	0	0	0
Nickel	231.60	-0.000620	0.000457	0	0	0
Potassium	766.49	0	0	0	0	0
Selenium	196.09	0	0	0	0	0.000570
Silver	328.07	0	0	0	0	0.000198
Sodium	589.59	0	0	0	0	0
Thallium	190.86	0	0.002342	0.000151	0	0.001219
Vanadium	292.40	0	0	0	0	0
Zinc	206.20	0	0	-0.000162	0	0

Comments:

USEPA - CLP
10B-IN
ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: _____ SDG No.: MC0AC0

ICP-AES Instrument ID: ICP07 Date: 05/15/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Mo	Ni	Ti	Tl	V
Aluminum	308.22	0.031398	0	0	0	0.043018
Antimony	206.83	-0.001807	0	0	0	0
Arsenic	189.04	0.000617	0	0	0	0.000078
Barium	455.40	0	0	0	0	0
Beryllium	313.11	0	0	0	0	0.003050
Cadmium	214.44	0	0	0	0	0.000026
Calcium	317.93	0	0	0	0	0
Chromium	205.55	0.000537	0	0	0	0.000043
Cobalt	228.62	0	0.000221	0.002076	0	0
Copper	324.75	0.000628	0	0	0	-0.000077
Iron	259.84	0	0	0	0	0
Lead	220.35	0	0.000332	0	0	-0.000072
Magnesium	279.08	0	0	0	0	0
Manganese	257.61	0	0	0	0	0
Nickel	231.60	0.002671	0	0	0.000413	0
Potassium	766.49	0	0	0	0	0
Selenium	196.09	0	0	0	0	-0.000070
Silver	328.07	0.000178	0	-0.000006	0	0.000043
Sodium	589.59	0	0	0	0	0
Thallium	190.86	0	0	0.000382	0	0.001729
Vanadium	292.40	-0.001190	0	0.000781	0	0
Zinc	206.20	0.000344	0	0	0	0

Comments:

USEPA - CLP
12-IN
PREPARATION LOG

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

Preparation Method: 3050B

EPA Sample No.	Preparation Date	Initial Weight/Volume (g) or (ml)	Final Volume (mL)
PBS1	07/07/2014	1.00	100
LCS1	07/07/2014	1.00	100
MC0AC0	07/07/2014	1.14	100
MC0AC0D	07/07/2014	1.15	100
MC0AC0S	07/07/2014	1.15	100
MC0AC1	07/07/2014	1.49	100

USEPA - CLP
13-IN
ANALYSIS RUN LOG

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

Instrument ID: ICP07 Analysis Method: P

Start Date: 07/10/2014 End Date: 07/10/2014

EPA Sample No.	D/F	Time	Analytes																										
			Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn	Cn			
S0	1.0	1146	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
SA	1.0	1149	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
SB	1.0	1152	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
SC	1.0	1154	X	X	X	X	X	X		X	X	X	X	X		X		X		X	X		X	X	X				
SD	1.0	1157	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
SE	1.0	1200	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
SF	1.0	1203		X	X	X	X	X		X	X	X		X		X		X		X	X		X	X	X				
S500000	1.0	1207	X						X				X		X				X			X							
ICV1	1.0	1210	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICB1	1.0	1213	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSA1	1.0	1216	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSAB1	1.0	1219	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV1	1.0	1221	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB1	1.0	1225	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
PBS1	1.0	1228	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
LCS1	1.0	1231	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AC0	1.0	1234	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AC0S	1.0	1237		X	X	X	X	X		X	X	X		X		X		X		X	X		X	X	X				
MC0AC0D	1.0	1239	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AC0L	5.0	1242	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AC0A	1.0	1300		X												X													
MC0AC1	1.0	1303	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV2	1.0	1306	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB2	1.0	1309	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				

USEPA - CLP
16-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

Instrument ID: ICP07 Start Date: 07/10/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	0.0	0.020		200	167	16	1000	1030	-3
Antimony	0.0	0.0		60.0	57.9	4	200	195	3
Arsenic	0.0	0.0		10.0	9.4	7	80.0	80.8	-1
Barium	0.0	-0.030		200	213	-6	750	780	-4
Beryllium	0.0	0.0		5.0	5.2	-3	80.0	82.7	-3
Cadmium	0.0	0.0		5.0	5.5	-10	80.0	87.5	-9
Calcium	0.0	-1.2		5000	5570	-11	25000	27100	-9
Chromium	0.0	0.0		10.0	10.9	-9	200	212	-6
Cobalt	0.0	-0.010		50.0	52.3	-5	200	206	-3
Copper	0.0	0.0		25.0	26.4	-6	200	206	-3
Iron	0.0	-0.030		100	111	-11	1000	1100	-10
Lead	0.0	0.0		10.0	10.9	-9	200	203	-1
Magnesium	0.0	-0.73		5000	5390	-8	25000	26200	-5
Manganese	0.0	0.0		15.0	16.2	-8	200	206	-3
Mercury									
Nickel	0.0	-0.010		40.0	43.0	-7	200	208	-4
Potassium	0.0	-0.24		5000	5130	-3	25000	25300	-1
Selenium	0.0	0.0		35.0	37.0	-6	80.0	78.5	2
Silver	0.0	0.0		10.0	10.2	-2	125	126	-1
Sodium	0.0	-0.49		5000	5250	-5	25000	25800	-3
Thallium	0.0	-0.010		25.0	29.8	-19	80.0	84.9	-6
Vanadium	0.0	-0.010		50.0	54.3	-9	200	210	-5
Zinc	0.0	-0.020		60.0	65.9	-10	200	216	-8
Cyanide									

Control Limits ±30

USEPA - CLP
16-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

Instrument ID: ICP07 Start Date: 07/10/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	5000	5170	-3	50000	50000	0	250000	255000	-2
Antimony	2000	2000	0	5000	5050	-1	25000	24800	1
Arsenic	800	784	2	2000	2100	-5	10000	10700	-7
Barium	2000	2090	-5	5000	5050	-1	25000	25100	0
Beryllium	800	824	-3	2000	2040	-2	10000	10100	-1
Cadmium	800	873	-9	2000	2160	-8	10000	10400	-4
Calcium				125000	130000	-4	250000	259000	-4
Chromium	2000	2120	-6	5000	5350	-7	25000	26100	-4
Cobalt	2000	2090	-5	5000	5140	-3	25000	25200	-1
Copper	2000	2110	-5	5000	5140	-3	25000	25200	-1
Iron	5000	5430	-9	50000	51800	-4	250000	257000	-3
Lead	2000	2090	-4	5000	5000	0	25000	24600	2
Magnesium				125000	127000	-1	250000	257000	-3
Manganese	2000	2090	-5	5000	4960	1	25000	24600	1
Mercury									
Nickel	2000	2120	-6	5000	5150	-3	25000	25100	0
Potassium				125000	125000	0	250000	256000	-2
Selenium	800	796	0	2000	2040	-2	10000	9990	0
Silver	250	254	-1	500	503	-1	1000	1030	-3
Sodium				125000	126000	-1	250000	254000	-2
Thallium	800	868	-9	2000	2030	-1	10000	9560	4
Vanadium	2000	2070	-4	5000	5160	-3	25000	25100	0
Zinc	2000	2160	-8	5000	5410	-8	25000	26100	-4
Cyanide									

Control Limits ±30

USEPA - CLP
16-IN
INITIAL CALIBRATION

Lab Name: ALS Environmental Contract: EPW09036

Lab Code: DATAC Case No.: 44460 Mod. Ref. No.: SDG No.: MC0AC0

Instrument ID: ICP07 Start Date: 07/10/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum				500000	495000	1			
Antimony	50000	50100	0						
Arsenic	20000	19300	4						
Barium	50000	49700	1						
Beryllium	20000	19900	1						
Cadmium	20000	19400	3						
Calcium				500000	483000	3			
Chromium	50000	48400	3						
Cobalt	50000	49500	1						
Copper	50000	49500	1						
Iron				500000	491000	2			
Lead	50000	50300	-1						
Magnesium				500000	490000	2			
Manganese	50000	50300	-1						
Mercury									
Nickel	50000	49600	1						
Potassium				500000	494000	1			
Selenium	20000	20000	0						
Silver	2000	1970	2						
Sodium				500000	494000	1			
Thallium	20000	20300	-2						
Vanadium	50000	49700	1						
Zinc	50000	48300	3						
Cyanide									

Control Limits ±30

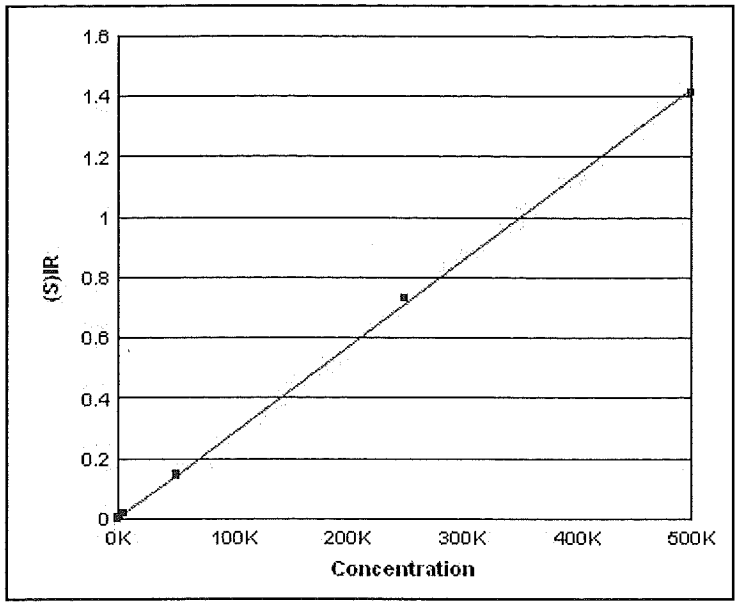
Run# i14044		Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908	V_2924	Zn2062
		Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
S0	07/10/2014 11:46:19	0.00072	0.00078	-0.00128	0.0026	-0.00014	-0.00089	0.00309	0.00028	0.00054	0.00096	-0.00001	0.0008	-0.00008	0.00002	-0.00153	-0.00328	0.00019	-0.00002	-0.00436	-0.00002	-0.00005	0.00049
SA	07/10/2014 11:49:18	0.0012	0.00617	-0.00053	0.10629	0.00523	0.0087	0.1381	0.01054	0.02957	0.0023	0.00141	0.00297	0.01779	0.00323	0.00764	0.04268	0.00191	0.00058	0.2235	0.00445	0.00095	0.03136
SB	07/10/2014 11:52:13	0.00368	0.01915	0.0052	0.38277	0.08416	0.15089	0.661	0.19933	0.11491	0.01141	0.01406	0.04112	0.08678	0.04098	0.04279	0.2233	0.00384	0.00737	1.1171	0.0128	0.00386	0.10159
SC	07/10/2014 11:54:58	0.01578	0.18945	0.06161	1.0232	0.83961	1.5135		1.9949	1.1609	0.108	0.06965	0.41536		0.41537	0.45018		0.03722	0.01487		0.13097	0.03845	1.0134
SD	07/10/2014 11:57:37	0.1442	0.47712	0.16695	2.463	2.0792	3.7542	3.1601	5.0191	2.8527	0.26197	0.66392	0.996	0.42001	0.98489	1.0994	1.113	0.09519	0.02952	5.4747	0.30638	0.09576	2.5329
SE	07/10/2014 12:00:11	0.73123	2.3406	0.85279	12.237	10.27	18.031	6.2844	24.502	13.999	1.2801	3.2922	4.897	0.85123	4.8935	5.3554	2.2893	0.46485	0.06042	11.016	1.4452	0.46532	12.219
SF	07/10/2014 12:03:43		4.7278	1.5432	24.248	20.255	33.599		45.446	27.489	2.5149		9.9951		9.9854	10.587		0.92894	0.11596		3.0709	0.92307	22.626
S500000	07/10/2014 12:07:21	1.4135						11.709				6.281		1.6253			4.4179			21.41			
		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ICV1	07/10/2014 12:10:34	2577.2	988.88	1009.7	513.07	501.75	535.19	10742	523.67	515.92	517.78	5409.1	1031.9	6200.7	510.81	525.39	9963.9	1008.9	494.18	10120	1084	512.45	1086.3
ICB1	07/10/2014 12:13:10	-45.665	-3.2986	1.4154	-0.50461	0.11026	0.30644	-0.68379	0.19619	0.17175	3.0228	11.399	0.78119	-3.6539	0.04109	-2.4486	23.639	-0.77698	0.06678	54.528	1.554	-0.23352	-0.68336
ICSA1	07/10/2014 12:16:08	243210	0.97891	-4.1514	1.8321	0.49706	-0.76305	252380	47.583	4.2744	27.2	101040	7.1825	251850	25.015	19.297	73.03	-1.9754	0.16679	844.73	3.6516	3.6268	32.468
ICSAB1	07/10/2014 12:19:09	246500	605.55	98.879	511.92	513.13	1100.8	255420	593.56	521.19	557.71	102680	59.88	255520	526.58	1076.1	52.373	51.071	209.44	863.4	107.97	515.9	1155.6
CCV1	07/10/2014 12:21:57	248680	24384	10473	24391	9897.7	10207	252730	25584	24656	25017	250650	24058	250860	23849	24548	250450	9868.3	1005.2	252220	9341.8	24495	25602
CCB1	07/10/2014 12:25:28	-17.945	-2.3836	0.37895	0.47196	0.52769	0.40612	5.9333	0.18852	0.52507	3.3331	10.53	2.5539	11.988	1.4564	0.36615	96.732	0.68232	-0.26373	83.535	3.5279	1.6088	-0.36984
PBS1	07/10/2014 12:28:27	2.5668	-1.2014	0.81915	0.05992	0.21778	0.29045	58.547	0.54038	0.1513	3.1835	13.882	1.6147	12.73	0.63484	-1.6798	34.844	-0.66499	0.26524	56.709	1.0288	0.04593	0.05472
LCS1	07/10/2014 12:31:26	431.91	117.33	21.278	423.47	10.351	11.023	11049	22.046	103.05	55.546	245.14	20.793	10624	32.237	81.516	10303	70.048	20.232	10538	54.272	104.83	134.81
MC0AC0	07/10/2014 12:34:20	148930	7.3877	2932.6	912.1	5.204	4.9867	40456	3004.1	125.98	1732.8	198400	324.33	11501	3558.8	109.57	7870.4	7.8606	-2.848	628.67	-2.8155	275.91	1605.3
MC0AC0S	07/10/2014 12:37:03	137260	F 71.854	F 3313.2	4964.8	109.21	115.28	35628	F 3551.6	1152.5	2139.3	434660	F 341.90	10242	F 5636.1	1147.5	6827.6	99.452	92.099	513.73	83.674	1261.7	2653.9
MC0AC0D	07/10/2014 12:39:50	108840	2.6745	2384	765.03	4.2074	4.4053	33727	2478.9	105.71	1423.5	165590	254.64	9030	2960.7	89.582	5721.6	7.8724	-2.3681	450.13	-5.509	221.46	1299.1
MC0AC0L	07/10/2014 12:42:35	29043	-5.5625	564.97	177.01	0.99325	1.163	7978.8	593.89	25.321	337.92	39243	64.864	2259.7	702.97	20.954	1561.4	4.2024	0.3477	135.35	-0.02748	54.791	315.85
MC0AC0A	07/10/2014 13:00:51	142510	116.51	2896.5	866.43	4.8017	5.0698	38529	2980.3	125.26	1673.7	190320	325.78	11044	10234	108.99	7500.1	1.5987	-2.3017	567.75	-8.2212	267.69	1584.5
MC0AC1	07/10/2014 13:03:34	106340	7.7814	3106.9	959.88	4.8793	5.3471	47245	4101.1	132.52	2304.5	213350	308.23	8593.2	3408.6	96.072	5941.3	4.3205	-3.6878	390.88	-3.5447	262.83	1243
CCV2	07/10/2014 13:06:17	243240	24338	10476	24112	9600.9	10194	246190	25521	24596	24451	244240	24075	245570	23314	24493	245950	9919.5	999.97	245680	9368.2	24189	25596
CCB2	07/10/2014 13:09:48	-32.569	-1.4027	1.7917	0.65427	0.49017	0.32356	2.8323	0.29619	0.77351	3.0092	18.664	1.2981	13.742	0.73438	0.83406	129.22	1.1855	0.51393	76.517	2.9314	1.7275	-0.09901

Calibration curves for i14044

Report Author: Joanna Sanchez

Published: 07/11/2014 09:59:23

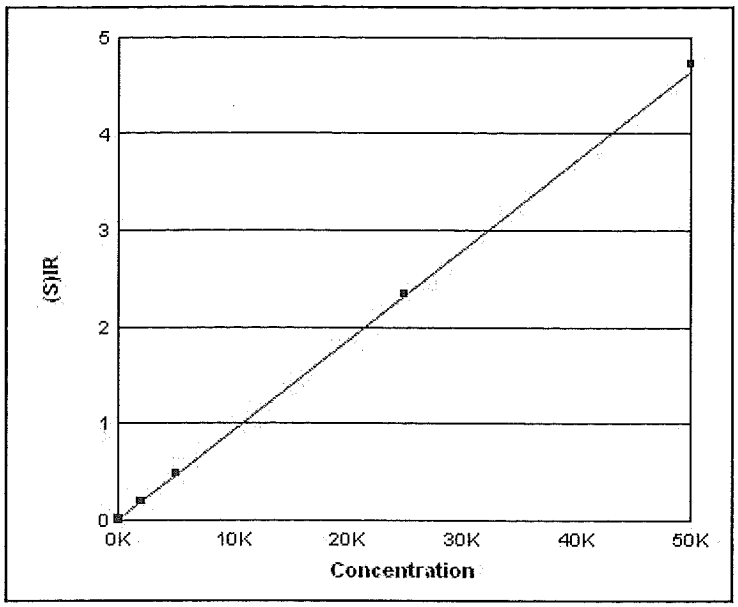
Method Name: ICP07 ISM01.3 2014 (10)



Element Name:	Al
Element Wavelength:	Al 308.215 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:10:22PM
Date of Fit:	7/10/2014 12:10:22PM
Type of Fit:	Linear
Correlation:	0.999911
A0 (Offset):	0.000715
A1 (Gain):	0.000003
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

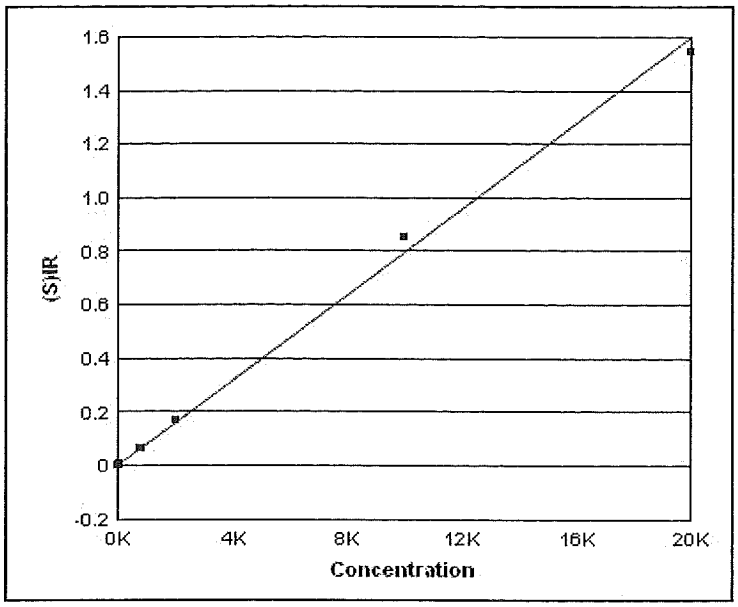
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.02	0.02	0.00	0.00	0.00	1
SA	200.00	167.25	-32.75	-16.37	0.00	0.00	1
SB	1,000.00	1,027.65	27.65	2.77	0.00	0.00	1
SC	5,000.00	5,168.85	168.85	3.38	0.02	0.00	1
SD	50,000.00	50,011.72	11.72	0.02	0.14	0.00	1
SE	250,000.00	254,639.15	4,639.15	1.86	0.73	0.00	1
S500000	500,000.00	495,155.87	-4,844.13	-0.97	1.41	0.01	1



Element Name:	Sb
Element Wavelength:	Sb 206.833 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999985
A0 (Offset):	0.000778
A1 (Gain):	0.000093
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

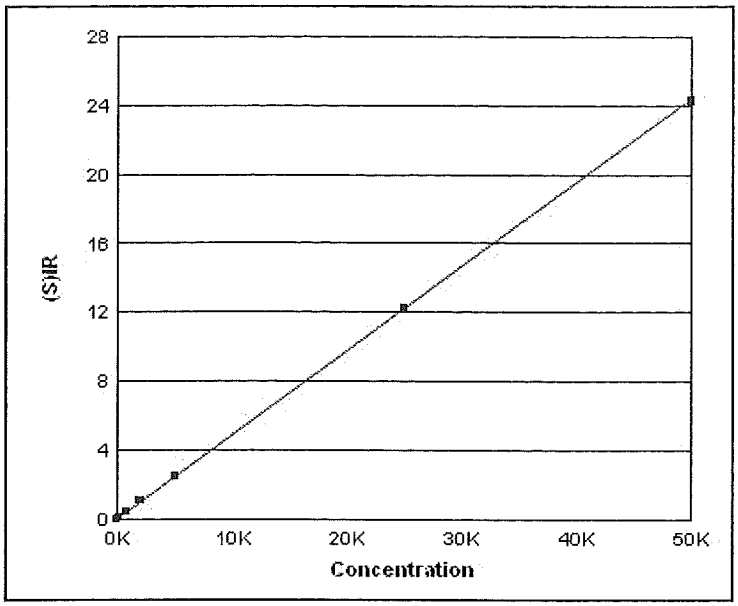
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	60.00	57.87	-2.13	-3.55	0.01	0.00	1
SB	200.00	194.79	-5.21	-2.61	0.02	0.00	1
SC	2,000.00	2,001.27	1.27	0.06	0.19	0.00	1
SD	5,000.00	5,052.04	52.04	1.04	0.48	0.00	1
SE	25,000.00	24,809.90	-190.10	-0.76	2.34	0.02	1
SF	50,000.00	50,144.15	144.15	0.29	4.73	0.05	1



Element Name:	As
Element Wavelength:	As 189.042 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.998848
A0 (Offset):	-0.001281
A1 (Gain):	0.000080
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

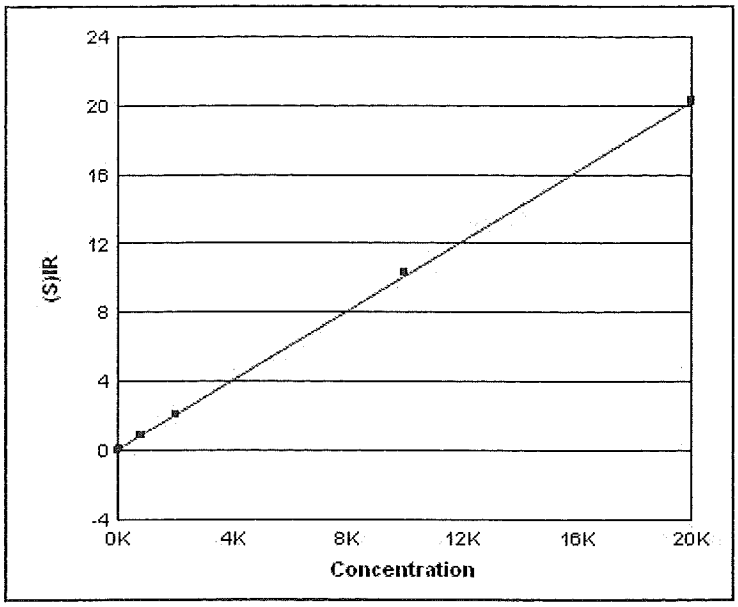
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	10.00	9.35	-0.65	-6.52	0.00	0.00	1
SB	80.00	80.80	0.80	1.00	0.01	0.00	1
SC	800.00	784.36	-15.64	-1.95	0.06	0.00	1
SD	2,000.00	2,099.37	99.37	4.97	0.17	0.00	1
SE	10,000.00	10,658.40	658.40	6.58	0.85	0.01	1
SF	20,000.00	19,258.26	-741.74	-3.71	1.54	0.02	1



Element Name:	Ba
Element Wavelength:	Ba 455.403 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999948
A0 (Offset):	0.002620
A1 (Gain):	0.000488
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

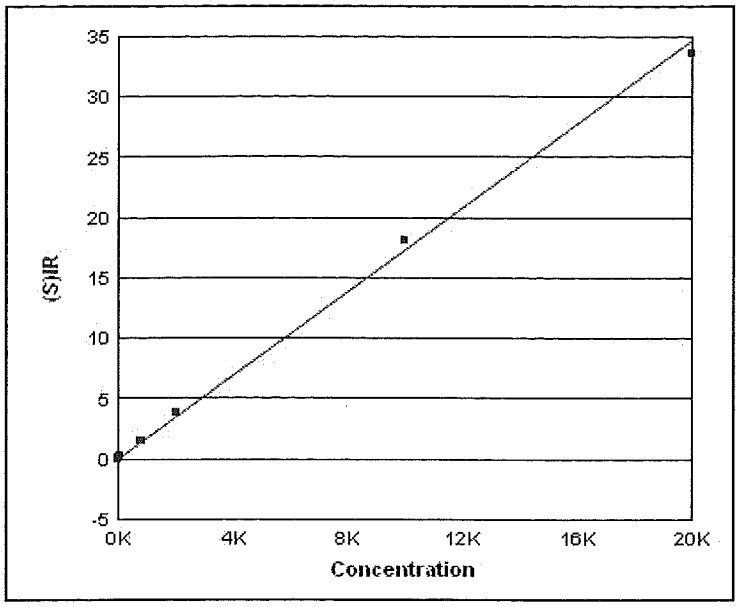
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.03	-0.03	0.00	0.00	0.00	1
SA	200.00	212.63	12.63	6.31	0.11	0.00	1
SB	750.00	779.67	29.67	3.96	0.38	0.00	1
SC	2,000.00	2,093.10	93.10	4.65	1.02	0.01	1
SD	5,000.00	5,046.12	46.12	0.92	2.46	0.04	1
SE	25,000.00	25,092.30	92.30	0.37	12.24	0.08	1
SF	50,000.00	49,726.19	-273.81	-0.55	24.25	0.33	1



Element Name:	Be
Element Wavelength:	Be 313.107 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999955
A0 (Offset):	-0.000138
A1 (Gain):	0.001012
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

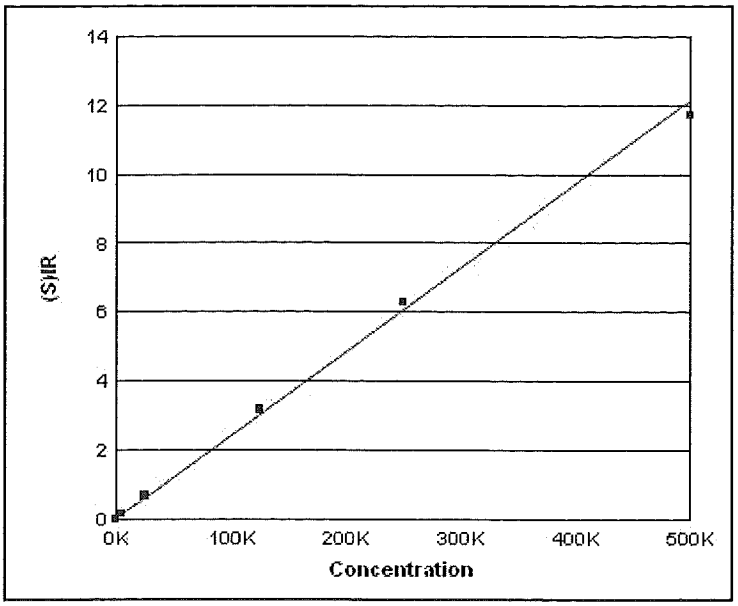
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	5.00	5.15	0.15	3.02	0.01	0.00	1
SB	80.00	82.69	2.69	3.36	0.08	0.00	1
SC	800.00	823.67	23.67	2.96	0.84	0.01	1
SD	2,000.00	2,039.43	39.43	1.97	2.08	0.03	1
SE	10,000.00	10,071.76	71.76	0.72	10.27	0.15	1
SF	20,000.00	19,862.31	-137.69	-0.69	20.26	0.33	1



Element Name:	Cd
Element Wavelength:	Cd 214.438 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999149
A0 (Offset):	-0.000883
A1 (Gain):	0.001735
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

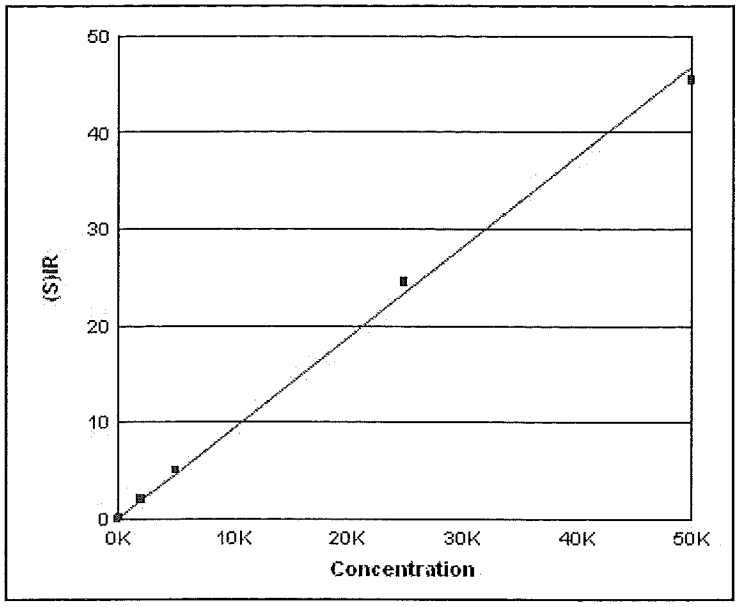
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	5.00	5.52	0.52	10.49	0.01	0.00	1
SB	80.00	87.46	7.46	9.33	0.15	0.00	1
SC	800.00	872.80	72.80	9.10	1.51	0.01	1
SD	2,000.00	2,163.63	163.63	8.18	3.75	0.04	1
SE	10,000.00	10,389.72	389.72	3.90	18.03	0.13	1
SF	20,000.00	19,365.67	-634.33	-3.17	33.60	0.15	1



Element Name:	Ca
Element Wavelength:	Ca 317.933 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:10:22PM
Date of Fit:	7/10/2014 12:10:22PM
Type of Fit:	Linear
Correlation:	0.999236
A0 (Offset):	0.003117
A1 (Gain):	0.000024
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

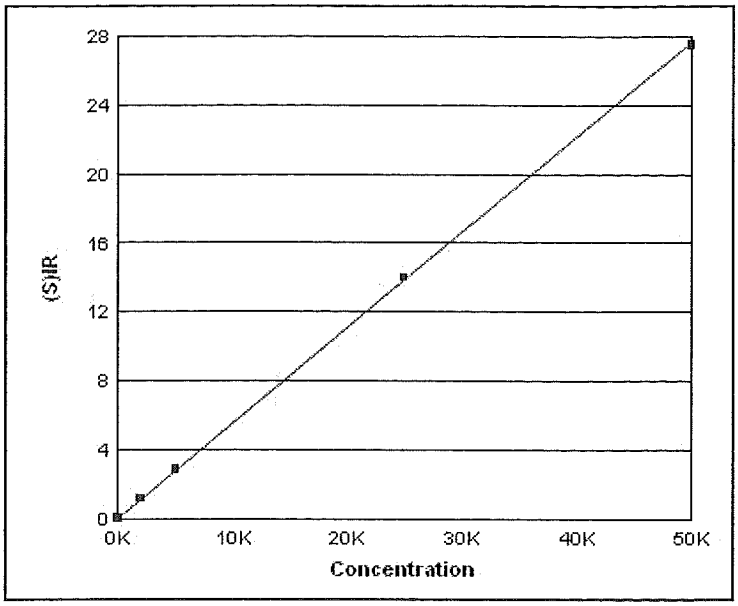
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-1.22	-1.22	0.00	0.00	0.00	1
SA	5,000.00	5,568.38	568.38	11.37	0.14	0.00	1
SB	25,000.00	27,140.03	2,140.03	8.56	0.66	0.00	1
SD	125,000.00	130,238.14	5,238.14	4.19	3.16	0.05	1
SE	250,000.00	259,127.67	9,127.67	3.65	6.28	0.12	1
S500000	500,000.00	482,925.79	-17,074.21	-3.41	11.71	0.05	1



Element Name:	Cr
Element Wavelength:	Cr 205.552 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999201
A0 (Offset):	0.000287
A1 (Gain):	0.000938
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

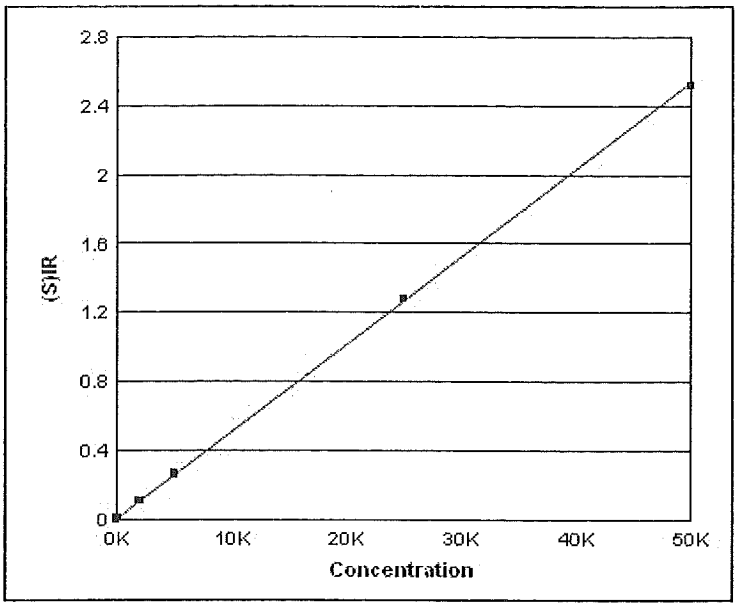
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	10.00	10.92	0.92	9.22	0.01	0.00	1
SB	200.00	212.05	12.05	6.03	0.20	0.00	1
SC	2,000.00	2,124.93	124.93	6.25	1.99	0.01	1
SD	5,000.00	5,346.76	346.76	6.94	5.02	0.05	1
SE	25,000.00	26,102.82	1,102.82	4.41	24.50	0.21	1
SF	50,000.00	48,412.51	-1,587.49	-3.17	45.45	0.14	1



Element Name:	Co
Element Wavelength:	Co 228.616 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999912
A0 (Offset):	0.000542
A1 (Gain):	0.000554
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

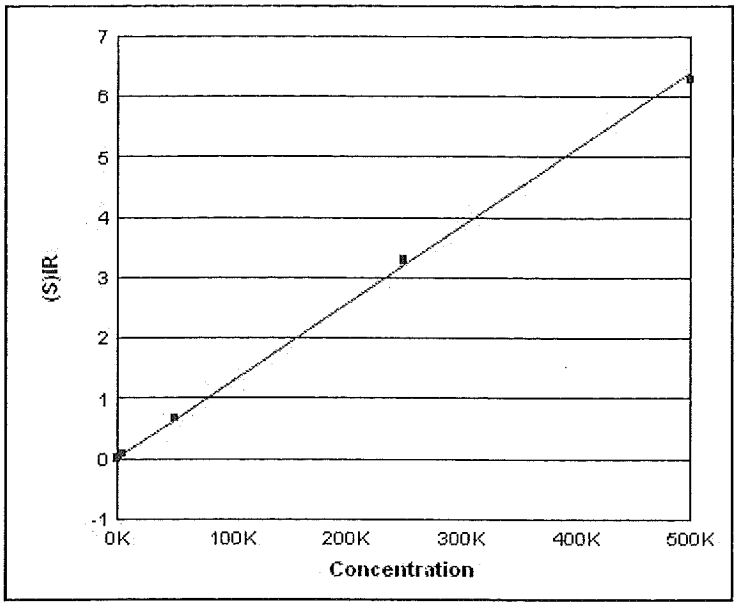
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.01	-0.01	0.00	0.00	0.00	1
SA	50.00	52.27	2.27	4.54	0.03	0.00	1
SB	200.00	205.99	5.99	3.00	0.11	0.00	1
SC	2,000.00	2,091.09	91.09	4.55	1.16	0.01	1
SD	5,000.00	5,139.15	139.15	2.78	2.85	0.02	1
SE	25,000.00	25,222.59	222.59	0.89	14.00	0.12	1
SF	50,000.00	49,538.82	-461.18	-0.92	27.49	0.32	1



Element Name:	Cu
Element Wavelength:	Cu 324.754 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999902
A0 (Offset):	0.000959
A1 (Gain):	0.000051
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

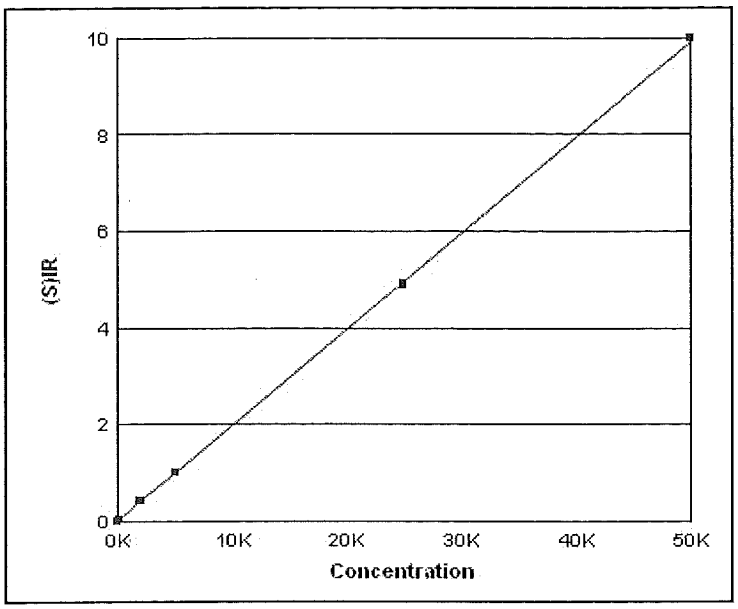
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	25.00	26.43	1.43	5.71	0.00	0.00	1
SB	200.00	205.98	5.98	2.99	0.01	0.00	1
SC	2,000.00	2,109.29	109.29	5.46	0.11	0.00	1
SD	5,000.00	5,142.48	142.48	2.85	0.26	0.00	1
SE	25,000.00	25,202.53	202.53	0.81	1.28	0.01	1
SF	50,000.00	49,538.23	-461.77	-0.92	2.51	0.04	1



Element Name:	Fe
Element Wavelength:	Fe 259.837 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:10:22PM
Date of Fit:	7/10/2014 12:10:22PM
Type of Fit:	Linear
Correlation:	0.999694
A0 (Offset):	-0.000009
A1 (Gain):	0.000013
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

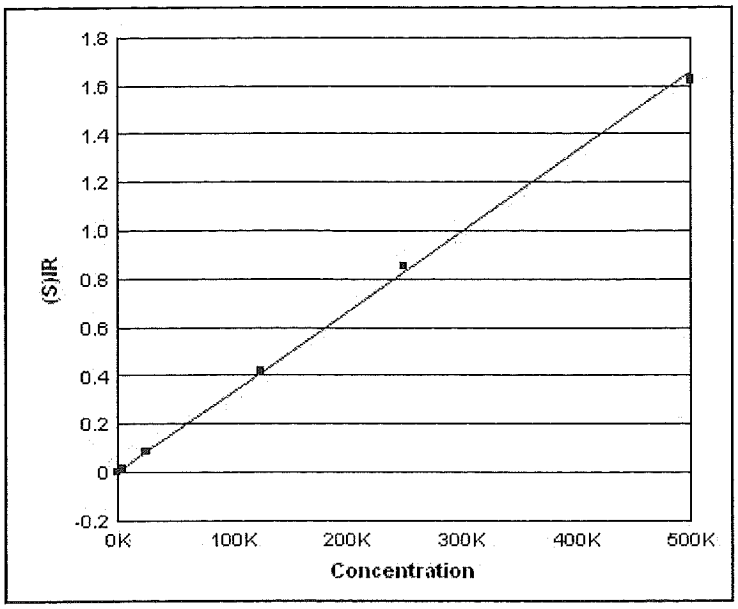
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.03	-0.03	0.00	0.00	0.00	1
SA	100.00	110.64	10.64	10.64	0.00	0.00	1
SB	1,000.00	1,098.35	98.35	9.84	0.01	0.00	1
SC	5,000.00	5,433.91	433.91	8.68	0.07	0.00	1
SD	50,000.00	51,838.91	1,838.91	3.68	0.66	0.01	1
SE	250,000.00	257,053.16	7,053.16	2.82	3.29	0.01	1
S500000	500,000.00	490,561.62	-9,438.38	-1.89	6.28	0.07	1



Element Name:	Pb
Element Wavelength:	Pb 220.353 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999918
A0 (Offset):	0.000798
A1 (Gain):	0.000198
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

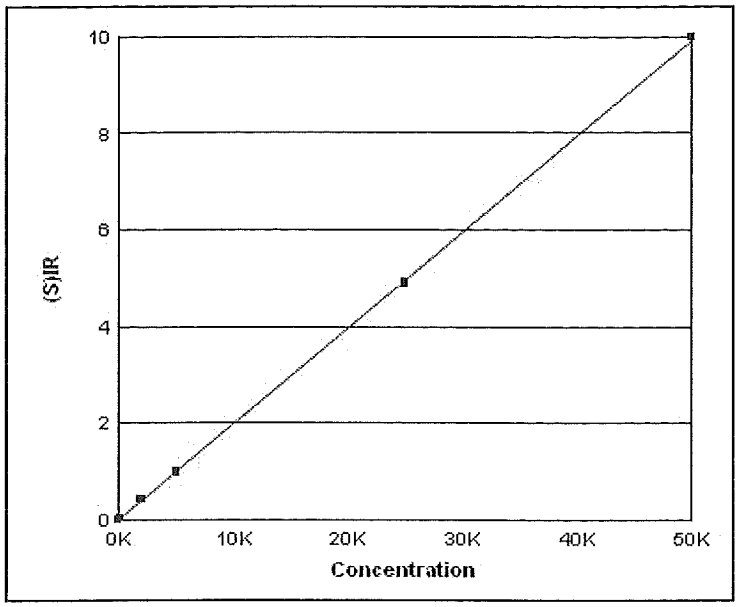
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	10.00	10.87	0.87	8.73	0.00	0.00	1
SB	200.00	202.75	2.75	1.37	0.04	0.00	1
SC	2,000.00	2,086.45	86.45	4.32	0.42	0.00	1
SD	5,000.00	4,995.20	-4.80	-0.10	1.00	0.01	1
SE	25,000.00	24,573.67	-426.33	-1.71	4.90	0.04	1
SF	50,000.00	50,342.50	342.50	0.69	10.00	0.11	1



Element Name:	Mg
Element Wavelength:	Mg 279.079 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:10:22PM
Date of Fit:	7/10/2014 12:10:22PM
Type of Fit:	Linear
Correlation:	0.999727
A0 (Offset):	-0.000080
A1 (Gain):	0.000003
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

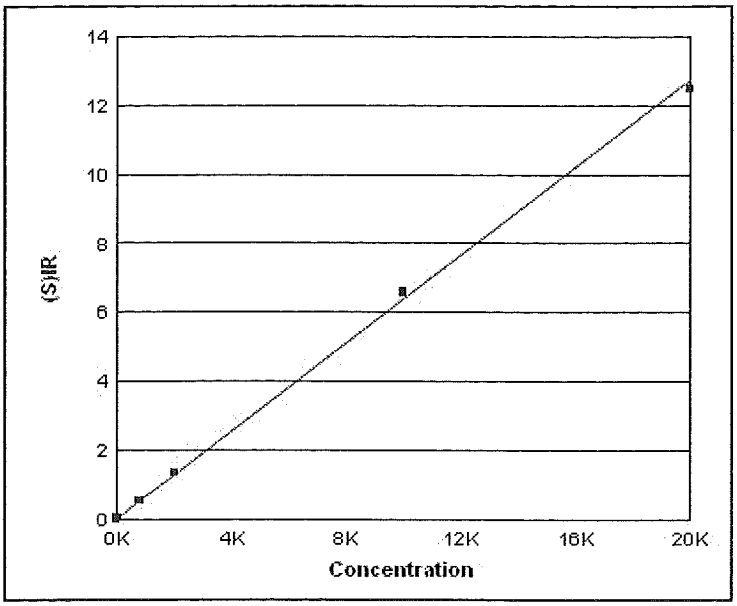
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.73	-0.73	0.00	0.00	0.00	1
SA	5,000.00	5,385.69	385.69	7.71	0.02	0.00	1
SB	25,000.00	26,186.47	1,186.47	4.75	0.09	0.00	1
SD	125,000.00	126,668.70	1,668.70	1.33	0.42	0.01	1
SE	250,000.00	256,791.63	6,791.63	2.72	0.85	0.00	1
S500000	500,000.00	489,972.59	-10,027.41	-2.01	1.63	0.01	1



Element Name:	Mn
Element Wavelength:	Mn 257.610 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999930
A0 (Offset):	0.000017
A1 (Gain):	0.000199
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

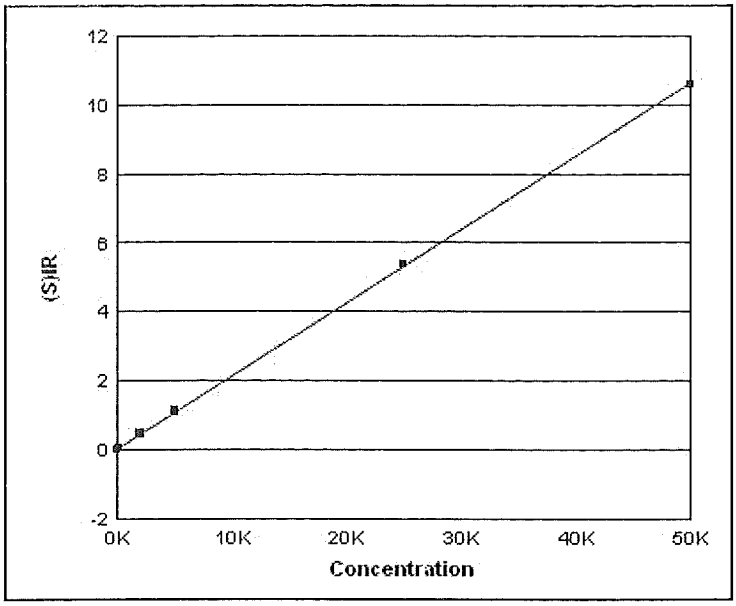
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	15.00	16.20	1.20	8.03	0.00	0.00	1
SB	200.00	206.32	6.32	3.16	0.04	0.00	1
SC	2,000.00	2,092.01	92.01	4.60	0.42	0.00	1
SD	5,000.00	4,960.47	-39.53	-0.79	0.98	0.01	1
SE	25,000.00	24,646.90	-353.10	-1.41	4.89	0.04	1
SF	50,000.00	50,293.10	293.10	0.59	9.99	0.06	1



Element Name:	Mo
Element Wavelength:	Mo 202.030 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999614
A0 (Offset):	0.000581
A1 (Gain):	0.000637
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

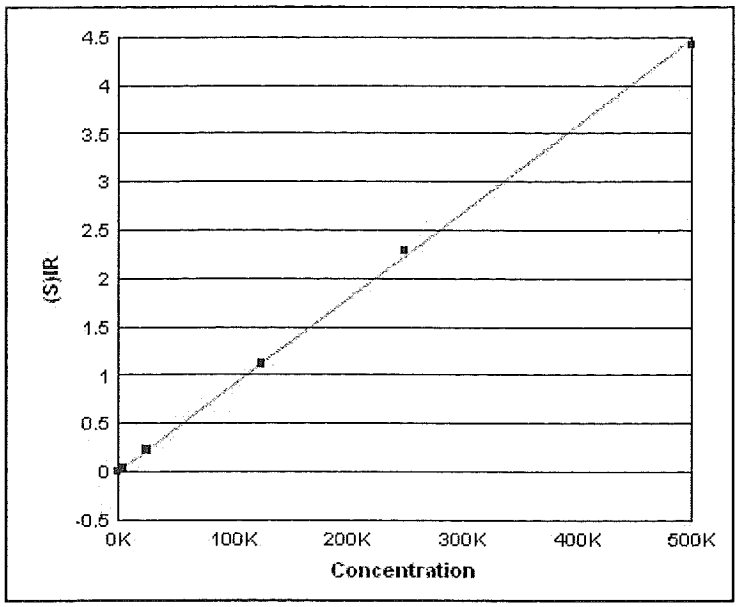
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	10.00	9.87	-0.13	-1.31	0.01	0.00	1
SB	80.00	82.49	2.49	3.11	0.05	0.00	1
SC	800.00	814.79	14.79	1.85	0.52	0.00	1
SD	2,000.00	2,098.63	98.63	4.93	1.34	0.01	1
SE	10,000.00	10,324.01	324.01	3.24	6.58	0.06	1
SF	20,000.00	19,560.21	-439.79	-2.20	12.47	0.15	1



Element Name:	Ni
Element Wavelength:	Ni 231.604 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999910
A0 (Offset):	-0.001529
A1 (Gain):	0.000213
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

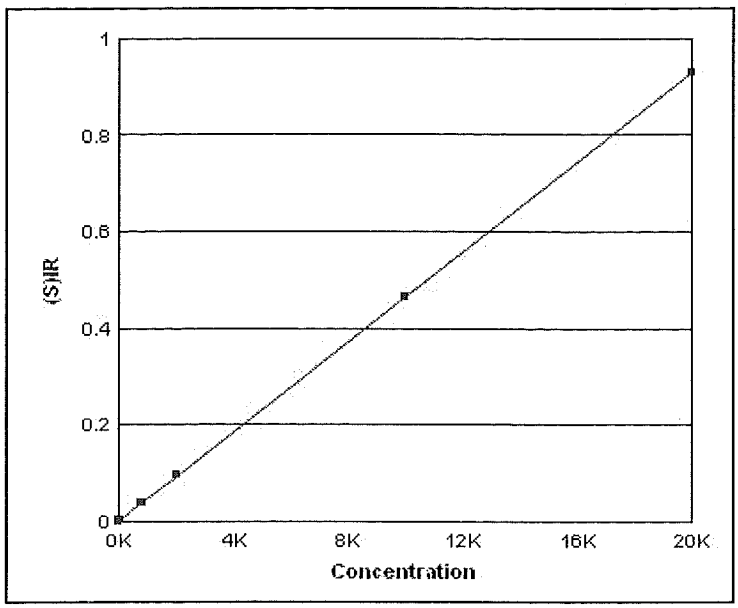
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.01	-0.01	0.00	0.00	0.00	1
SA	40.00	42.96	2.96	7.40	0.01	0.00	1
SB	200.00	207.64	7.64	3.82	0.04	0.00	1
SC	2,000.00	2,117.14	117.14	5.86	0.45	0.00	1
SD	5,000.00	5,153.78	153.78	3.08	1.10	0.01	1
SE	25,000.00	25,075.92	75.92	0.30	5.36	0.04	1
SF	50,000.00	49,642.14	-357.86	-0.72	10.59	0.12	1



Element Name:	K
Element Wavelength:	K 766.490 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:10:22PM
Date of Fit:	7/10/2014 12:10:22PM
Type of Fit:	Linear
Correlation:	0.999872
A0 (Offset):	-0.003282
A1 (Gain):	0.000009
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

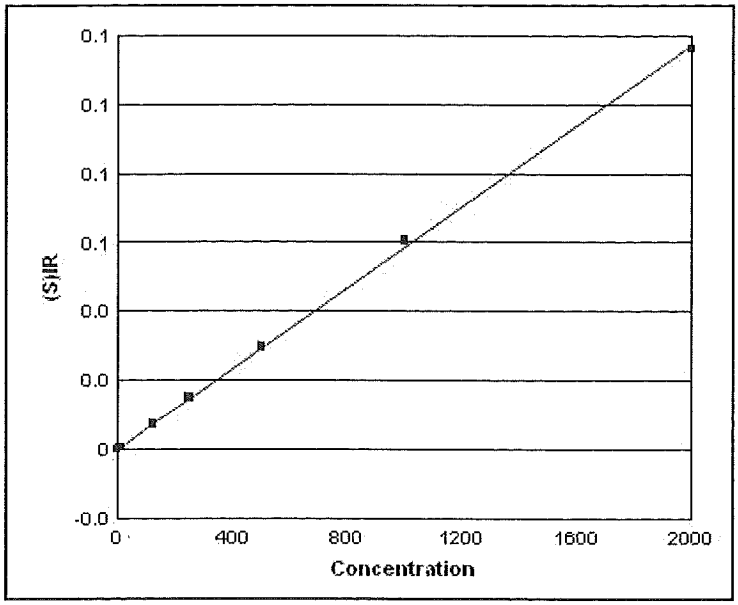
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.24	-0.24	0.00	0.00	0.00	1
SA	5,000.00	5,133.95	133.95	2.68	0.04	0.00	1
SB	25,000.00	25,307.81	307.81	1.23	0.22	0.00	1
SD	125,000.00	124,683.26	-316.74	-0.25	1.11	0.01	1
SE	250,000.00	256,063.14	6,063.14	2.43	2.29	0.00	1
S500000	500,000.00	493,811.85	-6,188.15	-1.24	4.42	0.03	1



Element Name:	Se
Element Wavelength:	Se 196.090 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999983
A0 (Offset):	0.000191
A1 (Gain):	0.000046
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

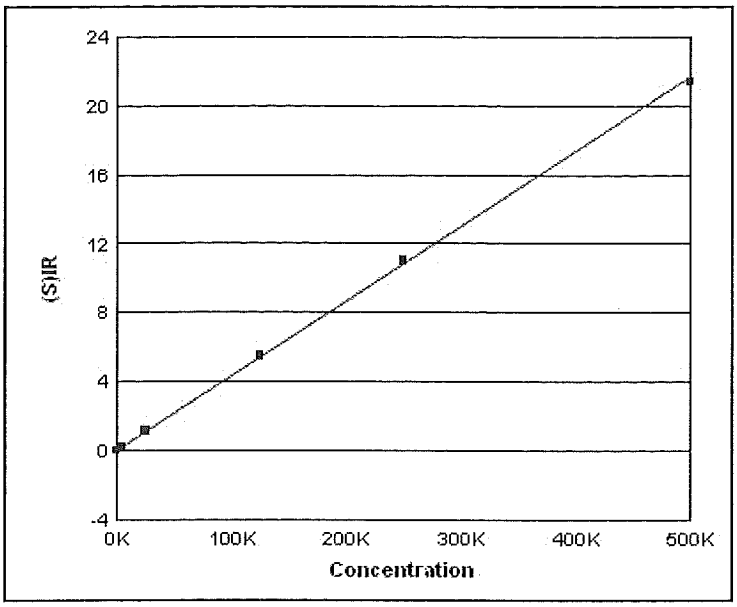
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	35.00	36.99	1.99	5.68	0.00	0.00	1
SB	80.00	78.46	-1.54	-1.92	0.00	0.00	1
SC	800.00	796.16	-3.84	-0.48	0.04	0.00	1
SD	2,000.00	2,042.45	42.45	2.12	0.10	0.00	1
SE	10,000.00	9,989.16	-10.84	-0.11	0.46	0.00	1
SF	20,000.00	19,971.78	-28.22	-0.14	0.93	0.01	1



Element Name:	Ag
Element Wavelength:	Ag 328.068 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999836
A0 (Offset):	-0.000017
A1 (Gain):	0.000059
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

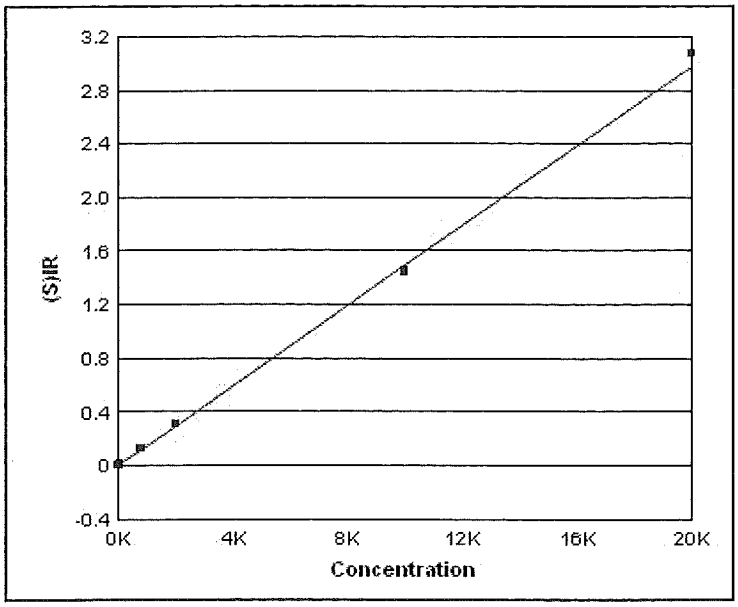
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	10.00	10.23	0.23	2.34	0.00	0.00	1
SB	125.00	126.23	1.23	0.99	0.01	0.00	1
SC	250.00	253.72	3.72	1.49	0.01	0.00	1
SD	500.00	503.22	3.22	0.64	0.03	0.00	1
SE	1,000.00	1,025.15	25.15	2.51	0.06	0.00	1
SF	2,000.00	1,966.49	-33.51	-1.68	0.12	0.00	1



Element Name:	Na
Element Wavelength:	Na 589.592 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:10:22PM
Date of Fit:	7/10/2014 12:10:22PM
Type of Fit:	Linear
Correlation:	0.999889
A0 (Offset):	-0.004341
A1 (Gain):	0.000043
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

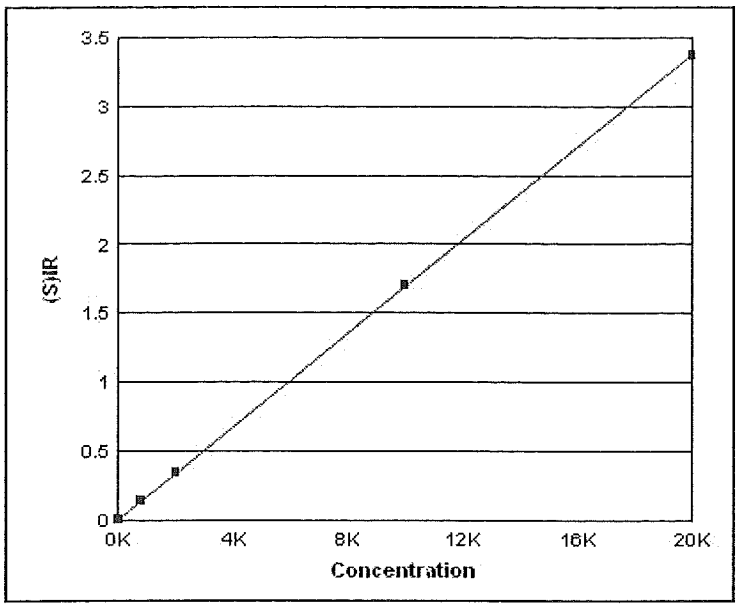
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.49	-0.49	0.00	0.00	0.00	1
SA	5,000.00	5,251.78	251.78	5.04	0.22	0.00	1
SB	25,000.00	25,848.97	848.97	3.40	1.12	0.00	1
SD	125,000.00	126,293.47	1,293.47	1.03	5.47	0.06	1
SE	250,000.00	254,009.45	4,009.45	1.60	11.02	0.05	1
S500000	500,000.00	493,596.33	-6,403.67	-1.28	21.41	0.27	1



Element Name:	Tl
Element Wavelength:	Tl 190.856 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999528
A0 (Offset):	-0.000020
A1 (Gain):	0.000149
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

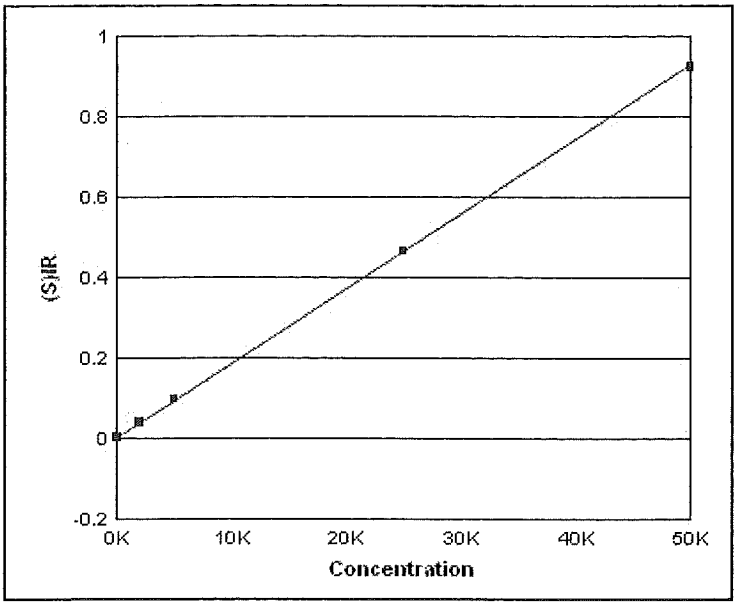
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.01	-0.01	0.00	0.00	0.00	1
SA	25.00	29.77	4.77	19.07	0.00	0.00	1
SB	80.00	84.94	4.94	6.18	0.01	0.00	1
SC	800.00	868.02	68.02	8.50	0.13	0.00	1
SD	2,000.00	2,029.11	29.11	1.46	0.31	0.00	1
SE	10,000.00	9,562.99	-437.01	-4.37	1.45	0.01	1
SF	20,000.00	20,330.05	330.05	1.65	3.07	0.03	1



Element Name:	Ti
Element Wavelength:	Ti 334.941 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999993
A0 (Offset):	0.000080
A1 (Gain):	0.000169
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

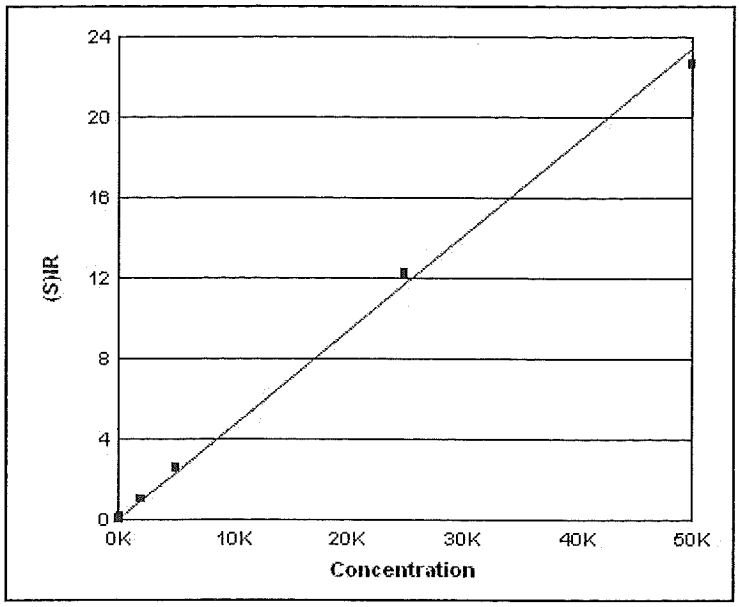
Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	0.00	0.00	0.00	0.00	0.00	1
SA	25.00	25.35	0.35	1.39	0.00	0.00	1
SB	80.00	82.17	2.17	2.71	0.01	0.00	1
SC	800.00	813.66	13.66	1.71	0.14	0.00	1
SD	2,000.00	2,002.62	2.62	0.13	0.34	0.01	1
SE	10,000.00	10,028.00	28.00	0.28	1.70	0.01	1
SF	20,000.00	19,953.03	-46.97	-0.23	3.37	0.01	1



Element Name:	V
Element Wavelength:	V 292.402 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:06PM
Date of Fit:	7/10/2014 12:07:06PM
Type of Fit:	Linear
Correlation:	0.999936
A0 (Offset):	-0.000054
A1 (Gain):	0.000019
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.01	-0.01	0.00	0.00	0.00	1
SA	50.00	54.27	4.27	8.54	0.00	0.00	1
SB	200.00	210.46	10.46	5.23	0.00	0.00	1
SC	2,000.00	2,072.89	72.89	3.64	0.04	0.00	1
SD	5,000.00	5,158.04	158.04	3.16	0.10	0.00	1
SE	25,000.00	25,052.79	52.79	0.21	0.47	0.00	1
SF	50,000.00	49,701.53	-298.47	-0.60	0.92	0.01	1



Element Name:	Zn
Element Wavelength:	Zn 206.200 nm
Concentration units:	ug/L
Date of Calibration:	7/10/2014 12:07:07PM
Date of Fit:	7/10/2014 12:07:07PM
Type of Fit:	Linear
Correlation:	0.999074
A0 (Offset):	0.000502
A1 (Gain):	0.000468
A2(Curvature):	0.000000
n (Exponent):	1.000000

Reslope		**QC Normalize**	
Slope:	1.00000	**Slope factor:**	1.00
Y-Int:	0.00000	**Offset:**	0.00

Standard Name	Stated	Found	Diff.	% Diff.	(S)IR	StdDev	Emphasis
S0	0.00	-0.02	-0.02	0.00	0.00	0.00	1
SA	60.00	65.90	5.90	9.83	0.03	0.00	1
SB	200.00	215.88	15.88	7.94	0.10	0.00	1
SC	2,000.00	2,162.95	162.95	8.15	1.01	0.01	1
SD	5,000.00	5,407.49	407.49	8.15	2.53	0.03	1
SE	25,000.00	26,090.27	1,090.27	4.36	12.22	0.09	1
SF	50,000.00	48,317.36	-1,682.64	-3.37	22.63	0.20	1

Sample Name: S0 Acquired: 7/10/2014 11:46:19 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

i140044
Joanna C. Sanchez
07/11/14

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00072**	**.00078**	**-.00128**	**.00260**	**-.00014**	**-.00089**	**.00309**
Stddev	.00002	.00014	.00004	.00009	.00014	.00004	.00001
%RSD	2.5145	17.876	3.2054	3.2759	101.30	4.2528	.47289
#1	.00070	.00064	-.00127	.00265	-.00030	-.00093	.00310
#2	.00074	.00077	-.00125	.00266	-.00007	-.00087	.00307
#3	.00071	.00092	-.00133	.00251	-.00004	-.00086	.00308

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00028**	**.00054**	**.00096**	**-.00001**	**.00080**	**-.00008**	**.00002**
Stddev	.00023	.00010	.00001	.00003	.00009	.00002	.00003
%RSD	80.326	19.166	1.1216	283.62	11.205	27.116	199.73
#1	.00042	.00048	.00096	.00002	.00087	-.00008	.00003
#2	.00002	.00048	.00095	-.00002	.00070	-.00006	-.00002
#3	.00041	.00066	.00097	-.00003	.00082	-.00011	.00004

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00058**	**-.00153**	**-.00328**	**.00019**	**-.00002**	**-.00436**	**-.00002**
Stddev	.00024	.00008	.00033	.00013	.00003	.00032	.00010
%RSD	41.495	5.0910	9.8956	68.647	176.88	7.3467	465.69
#1	.00062	-.00160	-.00330	.00013	-.00002	-.00460	-.00009
#2	.00032	-.00145	-.00360	.00010	.00001	-.00400	.00009
#3	.00080	-.00154	-.00295	.00034	-.00005	-.00449	-.00007

Elem	Ti3349	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S
Avg	**.00008**	**-.00005**	**.00049**
Stddev	.00003	.00001	.00010
%RSD	40.552	9.4099	20.209
#1	.00010	-.00005	.00061
#2	.00010	-.00006	.00043
#3	.00004	-.00006	.00044

Sample Name: S0 Acquired: 7/10/2014 11:46:19 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6174.4**	**36426.**	**593410.**	**6743.0**	**24017.**	**293960.**
Stddev	37.0	125.	1872.	43.0	128.	1226.
%RSD	.59874	.34355	.31544	.63779	.53265	.41715
#1	6206.1	36347.	592030.	6777.9	23941.	292750.
#2	6133.8	36359.	595540.	6695.0	23946.	293930.
#3	6183.4	36570.	592660.	6756.3	24165.	295200.

Sample Name: SA Acquired: 7/10/2014 11:49:18 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00120**	**.00617**	**-.00053**	**.10629**	**.00523**	**.00870**	**.13810**
Stddev	.00004	.00016	.00011	.00027	.00016	.00021	.00018
%RSD	3.3689	2.5551	19.905	.25740	3.1389	2.4204	.13265
#1	.00116	.00624	-.00045	.10645	.00533	.00858	.13792
#2	.00124	.00629	-.00065	.10645	.00504	.00859	.13809
#3	.00120	.00599	-.00050	.10598	.00531	.00895	.13828

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.01054**	**.02957**	**.00230**	**.00141**	**.00297**	**.01779**	**.00323**
Stddev	.00026	.00015	.00001	.00009	.00028	.00020	.00005
%RSD	2.5083	.49339	.64938	6.6990	9.5890	1.1304	1.5138
#1	.01084	.02942	.00232	.00151	.00329	.01778	.00318
#2	.01047	.02971	.00229	.00140	.00276	.01759	.00327
#3	.01032	.02957	.00229	.00132	.00287	.01799	.00325

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00690**	**.00764**	**.04268**	**.00191**	**.00058**	**.22350**	**.00445**
Stddev	.00013	.00012	.00031	.00018	.00002	.00139	.00023
%RSD	1.9383	1.5297	.72446	9.1867	3.9672	.62007	5.1364
#1	.00675	.00750	.04245	.00194	.00060	.22278	.00443
#2	.00692	.00769	.04256	.00207	.00056	.22263	.00423
#3	.00702	.00772	.04303	.00172	.00060	.22510	.00469

Elem	Ti3349	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S
Avg	**.00445**	**.00095**	**.03136**
Stddev	.00009	.00002	.00025
%RSD	2.1132	1.6612	.79288
#1	.00450	.00096	.03116
#2	.00451	.00094	.03164
#3	.00435	.00097	.03128

Sample Name: SA Acquired: 7/10/2014 11:49:18 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6196.7**	**36389.**	**593750.**	**6761.0**	**23965.**	**293360.**
Stddev	27.7	269.	2509.	35.0	159.	841.
%RSD	.44703	.73941	.42262	.51817	.66138	.28675
#1	6228.6	36402.	592300.	6801.3	23970.	292950.
#2	6182.1	36651.	596650.	6744.0	24120.	294320.
#3	6179.3	36113.	592310.	6737.8	23803.	292790.

Sample Name: SB Acquired: 7/10/2014 11:52:13 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.00368**	**.01915**	**.00520**	**.38277**	**.08416**	**.15089**	**.66100**	**.19933**
Stddev	.00006	.00021	.00020	.00152	.00033	.00007	.00328	.00087
%RSD	1.6516	1.1147	3.9320	.39727	.39417	.04760	.49634	.43817
#1	.00375	.01925	.00497	.38359	.08446	.15086	.66472	.19925
#2	.00363	.01891	.00538	.38102	.08381	.15097	.65976	.19851
#3	.00366	.01930	.00524	.38371	.08421	.15083	.65852	.20025

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.11491**	**.01141**	**.01406**	**.04112**	**.08678**	**.04098**	**.05326**	**.04279**
Stddev	.00039	.00005	.00026	.00041	.00058	.00015	.00028	.00020
%RSD	.34192	.45614	1.8546	.98846	.66329	.37023	.53234	.45834
#1	.11491	.01139	.01435	.04153	.08741	.04115	.05315	.04272
#2	.11452	.01138	.01384	.04072	.08667	.04085	.05305	.04264
#3	.11531	.01147	.01400	.04111	.08627	.04095	.05358	.04301

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.22330**	**.00384**	**.00737**	**1.1171**	**.01280**	**.01443**	**.00386**	**.10159**
Stddev	.00085	.00019	.00003	.0046	.00039	.00024	.00001	.00039
%RSD	.38057	4.8592	.34912	.40835	3.0228	1.6515	.17663	.38270
#1	.22422	.00400	.00736	1.1218	.01324	.01448	.00386	.10140
#2	.22254	.00363	.00740	1.1126	.01267	.01417	.00385	.10134
#3	.22314	.00389	.00736	1.1169	.01250	.01464	.00385	.10204

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6013.8**	**36558.**	**585060.**	**6573.8**	**23916.**	**283530.**
Stddev	4.6	239.	3175.	14.5	183.	2388.
%RSD	.07580	.65315	.54266	.21990	.76621	.84224
#1	6012.1	36299.	588680.	6570.0	23717.	284040.
#2	6018.9	36607.	583800.	6589.8	23951.	280920.
#3	6010.3	36769.	582710.	6561.7	24079.	285610.

Sample Name: SC Acquired: 7/10/2014 11:54:58 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Cr2055	Co2286
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.01578**	**.18945**	**.06161**	**1.0232**	**.83961**	**1.5135**	**1.9949**	**1.1609**
Stddev	.00024	.00083	.00038	.0083	.00633	.0119	.0132	.0069
%RSD	1.5039	.43645	.61127	.81598	.75370	.78666	.66062	.59765
#1	.01567	.18858	.06132	1.0192	.83671	1.4998	1.9797	1.1529
#2	.01605	.18956	.06148	1.0328	.84686	1.5205	2.0033	1.1656
#3	.01562	.19022	.06204	1.0175	.83524	1.5203	2.0017	1.1641

Elem	Cu3247	Fe2598	Pb2203	Mn2576	Mo2020	Ni2316	Se1960	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.10800**	**.06965**	**.41536**	**.41537**	**.51988**	**.45018**	**.03722**	**.01487**
Stddev	.00051	.00066	.00342	.00337	.00311	.00287	.00024	.00015
%RSD	.46853	.94296	.82287	.81047	.59907	.63702	.64294	.98831
#1	.10854	.06945	.41163	.41435	.51648	.44687	.03695	.01503
#2	.10794	.07038	.41611	.41913	.52260	.45162	.03729	.01481
#3	.10753	.06911	.41834	.41263	.52056	.45204	.03741	.01476

Elem	Tl1908	Ti3349	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.13097**	**.13755**	**.03845**	**1.0134**
Stddev	.00089	.00125	.00019	.0083
%RSD	.67934	.91162	.48922	.81954
#1	.12997	.13728	.03865	1.0039
#2	.13167	.13891	.03842	1.0166
#3	.13128	.13644	.03828	1.0196

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6209.6**	**36923.**	**605060.**	**6776.0**	**293460.**
Stddev	11.6	181.	1341.	20.2	1734.
%RSD	.18629	.48946	.22157	.29868	.59092
#1	6222.4	36978.	604050.	6797.2	291600.
#2	6206.4	36721.	604560.	6773.8	293750.
#3	6199.9	37070.	606580.	6757.0	295030.

Sample Name: SD Acquired: 7/10/2014 11:57:37 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.14420**	**.47712**	**.16695**	**2.4630**	**2.0792**	**3.7542**	**3.1601**	**5.0191**
Stddev	.00215	.00466	.00221	.0355	.0343	.0391	.0502	.0503
%RSD	1.4886	.97580	1.3267	1.4423	1.6505	1.0414	1.5883	1.0019
#1	.14494	.48040	.16824	2.4760	2.0890	3.7825	3.1755	5.0567
#2	.14588	.47179	.16439	2.4902	2.1076	3.7096	3.2009	4.9620
#3	.14179	.47917	.16821	2.4228	2.0411	3.7706	3.1041	5.0386

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2.8527**	**.26197**	**.66392**	**.99600**	**.42001**	**.98489**	**1.3384**	**1.0994**
Stddev	.0250	.00227	.00959	.00951	.00750	.01438	.0144	.0112
%RSD	.87596	.86524	1.4439	.95499	1.7851	1.4599	1.0746	1.0147
#1	2.8695	.26448	.66622	1.0018	.42088	.98923	1.3474	1.1074
#2	2.8240	.26134	.67215	.98503	.42703	.99660	1.3218	1.0866
#3	2.8646	.26008	.65340	1.0012	.41211	.96884	1.3461	1.1041

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.1130**	**.09519**	**.02952**	**5.4747**	**.30638**	**.34077**	**.09576**	**2.5329**
Stddev	.0103	.00141	.00022	.0631	.00314	.00538	.00073	.0253
%RSD	.92237	1.4816	.76165	1.1525	1.0265	1.5786	.76022	.99757
#1	1.1151	.09581	.02961	5.4884	.30809	.34219	.09649	2.5499
#2	1.1221	.09358	.02926	5.5299	.30275	.34529	.09575	2.5038
#3	1.1019	.09619	.02968	5.4059	.30831	.33482	.09504	2.5449

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5653.4**	**36657.**	**565420.**	**6437.4**	**23938.**	**275340.**
Stddev	39.0	380.	4909.	42.5	249.	403.
%RSD	.68975	1.0375	.86828	.66045	1.0412	.14647
#1	5615.3	36600.	561310.	6397.5	23908.	275230.
#2	5693.2	36309.	564090.	6482.2	23705.	275790.
#3	5651.6	37063.	570850.	6432.6	24201.	275000.

Sample Name: SE Acquired: 7/10/2014 12:00:11 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.73123**	**2.3406**	**.85279**	**12.237**	**10.270**	**18.031**	**6.2844**	**24.502**
Stddev	.00217	.0222	.00833	.079	.154	.133	.1247	.214
%RSD	.29630	.94852	.97623	.64931	1.5042	.73620	1.9840	.87232
#1	.73238	2.3662	.86229	12.264	10.447	18.185	6.3598	24.749
#2	.73258	2.3287	.84935	12.299	10.164	17.953	6.1405	24.373
#3	.72873	2.3269	.84674	12.148	10.198	17.956	6.3530	24.385

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**13.999**	**1.2801**	**3.2922**	**4.8970**	**.85123**	**4.8935**	**6.5804**	**5.3554**
Stddev	.117	.0139	.0112	.0391	.00155	.0447	.0589	.0430
%RSD	.83741	1.0878	.33897	.79888	.18178	.91324	.89485	.80238
#1	14.134	1.2962	3.3049	4.9419	.85232	4.9451	6.6483	5.4049
#2	13.933	1.2732	3.2879	4.8788	.84945	4.8683	6.5501	5.3336
#3	13.930	1.2710	3.2839	4.8702	.85190	4.8671	6.5428	5.3277

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2.2893**	**.46485**	**.06042**	**11.016**	**1.4452**	**1.6990**	**.46532**	**12.219**
Stddev	.0028	.00444	.00062	.047	.0120	.0051	.00273	.090
%RSD	.12345	.95572	1.0200	.42855	.82919	.29824	.58728	.73715
#1	2.2917	.46993	.05975	11.014	1.4589	1.7020	.46823	12.322
#2	2.2900	.46172	.06096	10.969	1.4365	1.7018	.46492	12.159
#3	2.2862	.46289	.06056	11.064	1.4402	1.6932	.46280	12.175

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5359.7**	**36090.**	**549480.**	**6270.5**	**23634.**	**267610.**
Stddev	20.0	197.	4643.	22.7	179.	612.
%RSD	.37231	.54534	.84490	.36238	.75709	.22862
#1	5337.3	36073.	545510.	6244.4	23659.	267100.
#2	5366.4	36295.	548350.	6286.0	23800.	267440.
#3	5375.6	35903.	554590.	6281.0	23444.	268290.

Sample Name: SF Acquired: 7/10/2014 12:03:43 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Sb2068	As1890	Ba4554	Be3131	Cd2144	Cr2055	Co2286	Cu3247
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**4.7278**	**1.5432**	**24.248**	**20.255**	**33.599**	**45.446**	**27.489**	**2.5149**
Stddev	.0546	.0207	.333	.327	.148	.139	.324	.0409
%RSD	1.1537	1.3438	1.3752	1.6143	.44137	.30570	1.1770	1.6278
#1	4.7821	1.5656	24.527	20.535	33.737	45.594	27.836	2.5072
#2	4.6730	1.5247	23.879	19.896	33.442	45.319	27.195	2.4784
#3	4.7281	1.5393	24.339	20.335	33.617	45.424	27.437	2.5592

Elem	Pb2203	Mn2576	Mo2020	Ni2316	Se1960	Ag3280	Tl1908	Ti3349
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**9.9951**	**9.9854**	**12.468**	**10.587**	**.92894**	**.11596**	**3.0709**	**3.3712**
Stddev	.1114	.0550	.154	.121	.00843	.00151	.0333	.0143
%RSD	1.1140	.55119	1.2361	1.1470	.90702	1.3047	1.0858	.42396
#1	10.116	10.048	12.631	10.717	.93767	.11736	3.1052	3.3855
#2	9.8971	9.9621	12.324	10.477	.92086	.11435	3.0386	3.3569
#3	9.9720	9.9459	12.449	10.566	.92829	.11617	3.0689	3.3711

Elem	V_2924	Zn2062
Units	Cts/S	Cts/S
Avg	**.92307**	**22.626**
Stddev	.00952	.199
%RSD	1.0317	.87952
#1	.92445	22.851
#2	.91293	22.476
#3	.93182	22.550

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6308.0**	**37518.**	**610330.**	**6735.9**	**296490.**
Stddev	33.9	625.	9476.	21.2	4969.
%RSD	.53817	1.6647	1.5525	.31485	1.6760
#1	6273.3	36799.	609430.	6717.6	292150.
#2	6341.2	37926.	620220.	6759.1	301910.
#3	6309.3	37829.	601330.	6730.8	295420.

Sample Name: S500000 Acquired: 7/10/2014 12:07:21 Type: Cal
Method: ICP07 ISM01.3 2014(v10) Mode: IR Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Al3082	Ca3179	Fe2598	Mg2790	K_7664	Na5895
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.4135**	**11.709**	**6.2810**	**1.6253**	**4.4179**	**21.410**
Stddev	.0075	.051	.0729	.0123	.0301	.275
%RSD	.52683	.43769	1.1603	.75718	.68035	1.2838
#1	1.4183	11.740	6.2281	1.6331	4.4045	21.727
#2	1.4049	11.650	6.2508	1.6111	4.3968	21.242
#3	1.4173	11.738	6.3641	1.6318	4.4523	21.260

Int. Std.	Sc3613	Y_3710
Units	Cts/S	Cts/S
Avg	**35885.**	**23532.**
Stddev	287.	201.
%RSD	.80059	.85541
#1	35611.	23329.
#2	36184.	23732.
#3	35860.	23536.

Sample Name: ICV1 Acquired: 7/10/2014 12:10:34 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2577.2**	**988.88**	**1009.7**	**513.07**	**501.75**	**535.19**	**10742.**
Stddev	34.0	15.48	11.6	4.14	3.91	7.59	115.
%RSD	1.3205	1.5653	1.1477	.80629	.77874	1.4189	1.0692
#1	2615.2	997.52	1013.5	515.79	505.06	539.20	10855.
#2	2549.6	971.01	996.70	515.12	502.73	526.44	10745.
#3	2566.8	998.10	1018.9	508.31	497.44	539.95	10625.
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**523.67**	**515.92**	**517.78**	**5409.1**	**1031.9**	**6200.7**	**510.81**
Stddev	6.89	6.65	3.15	34.1	15.2	67.8	5.33
%RSD	1.3152	1.2885	.60759	.62962	1.4699	1.0937	1.0428
#1	527.72	519.58	514.27	5440.6	1042.2	6279.0	515.62
#2	515.71	508.24	518.74	5413.8	1014.5	6160.5	511.72
#3	527.57	519.93	520.34	5373.0	1039.1	6162.7	505.08
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	F **-.17251**	**525.39**	**9963.9**	**1008.9**	**494.18**	**10120.**	**1084.0**
Stddev	.18637	7.57	166.8	15.2	2.28	70.	12.9
%RSD	108.04	1.4415	1.6743	1.5057	.46175	.69635	1.1938
#1	-.36860	528.35	10071.	1016.5	492.45	10177.	1094.2
#2	.00232	516.78	10048.	991.44	493.32	10141.	1069.4
#3	-.15124	531.04	9771.7	1018.9	496.76	10041.	1088.3
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	500.00						
Range	-10.501%						

Sample Name: ICV1 Acquired: 7/10/2014 12:10:34 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	F **3.0248**	**512.45**	**1086.3**
Stddev	.8402	3.03	14.0
%RSD	27.779	.59192	1.2871
#1	3.0139	508.99	1094.1
#2	2.1900	514.67	1070.1
#3	3.8704	513.68	1094.5
Check ?	Chk Fail	Chk Pass	Chk Pass
Value	500.00		
Range	-10.501%		

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6299.7**	**37099.**	**608610.**	**6878.6**	**24337.**	**297930.**
Stddev	51.3	414.	3919.	54.5	280.	1964.
%RSD	.81458	1.1170	.64394	.79301	1.1519	.65913
#1	6251.4	36660.	609920.	6821.9	24030.	295920.
#2	6353.6	37153.	604200.	6930.7	24403.	298020.
#3	6294.3	37484.	611700.	6883.1	24578.	299850.

Sample Name: ICB1 Acquired: 7/10/2014 12:13:10 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-45.665**	**-3.2986**	**1.4154**	**-.50461**	**.11026**	**.30644**	**-.68379**	**.19619**
Stddev	24.959	3.0320	2.1717	.34788	.08034	.07616	.79608	.03676
%RSD	54.658	91.919	153.43	68.940	72.870	24.855	116.42	18.735
#1	-17.212	-.25635	-.71370	-.82149	.14696	.33707	-1.0357	.23228
#2	-63.865	-6.3203	1.3325	-.55997	.01812	.36251	.22760	.15880
#3	-55.917	-3.3190	3.6274	-.13237	.16570	.21972	-1.2433	.19749
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.17175**	**3.0228**	**11.399**	**.78119**	**-3.6539**	**.04109**	**.32499**	**-2.4486**
Stddev	.16811	.3954	1.437	.73331	2.7713	.35581	.08366	1.1344
%RSD	97.882	13.079	12.610	93.872	75.846	865.90	25.741	46.327
#1	.06721	2.5788	9.9382	.48610	-6.6524	-.36775	.26862	-1.1412
#2	.08237	3.1525	12.812	1.6161	-1.1867	.21033	.28523	-3.1723
#3	.36566	3.3369	11.448	.24138	-3.1225	.28070	.42110	-3.0323
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**23.639**	**-.77698**	**.06678**	**54.528**	**1.5540**	**-.10128**	**-.23352**	**-.68336**
Stddev	25.854	3.3562	.33799	4.237	2.2037	.83896	.31102	.33315
%RSD	109.37	431.96	506.15	7.7702	141.81	828.38	133.19	48.752
#1	2.0950	2.5436	.10204	53.472	3.2334	.71035	-.09684	-.61431
#2	16.514	-.70691	.38575	59.193	2.3698	-.96514	-.01425	-.39015
#3	52.308	-4.1677	-.28746	50.919	-.94134	-.04904	-.58947	-1.0456
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Sample Name: ICB1 Acquired: 7/10/2014 12:13:10 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6322.6**	**36854.**	**605820.**	**6877.6**	**24311.**	**298670.**
Stddev	24.9	261.	1175.	6.4	157.	1135.
%RSD	.39368	.70699	.19397	.09269	.64661	.37991
#1	6294.0	36638.	605080.	6872.1	24199.	298680.
#2	6334.3	37143.	607170.	6876.1	24491.	297530.
#3	6339.5	36781.	605210.	6884.6	24243.	299800.

Sample Name: ICSA1 Acquired: 7/10/2014 12:16:08 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**243210.**	**.97891**	**-4.1514**	**1.8321**	**.49706**	**-.76305**	**252380.**
Stddev	1614.	4.9277	2.9442	.1277	.08898	.14024	2294.
%RSD	.66342	503.39	70.919	6.9676	17.901	18.379	.90889
#1	242830.	-3.5150	-2.6561	1.9786	.59856	-.89166	252000.
#2	244980.	6.2485	-2.2551	1.7444	.43251	-.78397	254850.
#3	241820.	.20326	-7.5432	1.7735	.46011	-.61353	250300.
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**47.583**	**4.2744**	**27.200**	**101040.**	**7.1825**	**251850.**	**25.015**
Stddev	1.060	.1983	.302	448.	3.3239	541.	.290
%RSD	2.2271	4.6381	1.1101	.44350	46.278	.21495	1.1593
#1	46.371	4.4549	27.537	101090.	11.010	252010.	24.995
#2	48.044	4.3061	27.108	101460.	5.5116	252290.	25.315
#3	48.335	4.0622	26.954	100570.	5.0255	251250.	24.736
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-1.3453**	**19.297**	**73.030**	**-1.9754**	**.16679**	**844.73**	**3.6516**
Stddev	.4085	.160	38.185	2.7631	.21581	7.42	2.4933
%RSD	30.364	.82877	52.287	139.87	129.39	.87848	68.280
#1	-.95567	19.481	28.953	1.1424	.40603	836.36	5.7475
#2	-1.3099	19.217	94.050	-2.9477	-.01321	850.49	.89429
#3	-1.7703	19.193	96.087	-4.1209	.10754	847.35	4.3130
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Sample Name: ICSA1 Acquired: 7/10/2014 12:16:08 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**-11.103**	**3.6268**	**32.468**
Stddev	1.134	.3265	1.293
%RSD	10.215	9.0033	3.9822
#1	-10.576	3.6227	31.334
#2	-12.405	3.3024	33.876
#3	-10.329	3.9554	32.195
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5563.6**	**36420.**	**564320.**	**6498.3**	**23965.**	**276030.**
Stddev	39.8	149.	2263.	40.0	80.	275.
%RSD	.71452	.40915	.40095	.61545	.33199	.09965
#1	5608.2	36249.	562310.	6540.8	23874.	275920.
#2	5531.9	36519.	566770.	6461.5	24023.	276340.
#3	5550.6	36492.	563890.	6492.4	23999.	275820.

Sample Name: ICSAB1 Acquired: 7/10/2014 12:19:09 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**246500.**	**605.55**	**98.879**	**511.92**	**513.13**	**1100.8**	**255420.**
Stddev	2636.	10.01	1.202	4.71	6.14	16.0	2665.
%RSD	1.0692	1.6523	1.2157	.91926	1.1958	1.4518	1.0433
#1	248160.	594.55	99.390	515.33	516.94	1082.4	255710.
#2	247880.	607.98	99.740	513.88	516.40	1111.4	257930.
#3	243460.	614.12	97.506	506.55	506.05	1108.6	252620.
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**593.56**	**521.19**	**557.71**	**102680.**	**59.880**	**255520.**	**526.58**
Stddev	8.44	8.40	1.59	1203.	4.899	3335.	5.16
%RSD	1.4225	1.6122	.28473	1.1720	8.1819	1.3052	.98020
#1	583.82	511.52	557.36	103420.	54.381	256820.	527.28
#2	597.92	526.75	556.32	103320.	63.779	258000.	531.36
#3	598.93	525.29	559.44	101290.	61.482	251730.	521.11
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-1.6744**	**1076.1**	**52.373**	**51.071**	**209.44**	**863.40**	**107.97**
Stddev	.4693	16.2	26.782	1.821	1.11	11.88	1.98
%RSD	28.028	1.5030	51.138	3.5649	.52938	1.3755	1.8307
#1	-2.2051	1057.6	40.115	49.367	208.46	857.76	105.96
#2	-1.5043	1087.6	33.913	52.989	210.64	877.04	109.91
#3	-1.3139	1083.0	83.090	50.858	209.21	855.39	108.04
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Sample Name: ICSAB1 Acquired: 7/10/2014 12:19:09 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**-10.780**	**515.90**	**1155.6**
Stddev	.316	2.75	14.9
%RSD	2.9296	.53353	1.2875
#1	-10.834	516.65	1138.4
#2	-10.441	512.85	1164.3
#3	-11.066	518.20	1164.1
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5532.5**	**36554.**	**561760.**	**6481.2**	**24047.**	**273130.**
Stddev	37.4	538.	3293.	34.4	338.	1338.
%RSD	.67614	1.4729	.58629	.53058	1.4070	.49001
#1	5573.6	36617.	559660.	6519.2	24125.	273900.
#2	5500.6	35987.	565560.	6452.4	23677.	271590.
#3	5523.2	37058.	560070.	6471.9	24341.	273910.

Sample Name: CCV1 Acquired: 7/10/2014 12:21:57 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**248680.**	**24384.**	**10473.**	**24391.**	**9897.7**	**10207.**	**252730.**
Stddev	2157.	271.	100.	101.	160.0	77.	5049.
%RSD	.86729	1.1093	.95782	.41304	1.6169	.75104	1.9978
#1	251040.	24670.	10576.	24499.	10031.	10294.	258490.
#2	248200.	24349.	10467.	24376.	9942.2	10181.	250660.
#3	246810.	24133.	10376.	24299.	9720.0	10147.	249050.
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**25584.**	**24656.**	**25017.**	**250650.**	**24058.**	**250860.**	**23849.**
Stddev	259.	225.	330.	2180.	204.	2068.	320.
%RSD	1.0107	.91125	1.3199	.86982	.84808	.82433	1.3425
#1	25873.	24901.	25153.	252900.	24279.	252930.	24096.
#2	25502.	24609.	24640.	250510.	24019.	250880.	23487.
#3	25376.	24459.	25257.	248550.	23876.	248790.	23963.
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**10092.**	**24548.**	**250450.**	**9868.3**	**1005.2**	**252220.**	**9341.8**
Stddev	102.	200.	1168.	130.7	12.0	3785.	88.3
%RSD	1.0080	.81573	.46624	1.3243	1.1977	1.5006	.94488
#1	10207.	24773.	251770.	9998.8	991.98	255130.	9439.3
#2	10058.	24480.	250060.	9868.8	1015.5	253600.	9318.8
#3	10012.	24390.	249530.	9737.4	1008.2	247940.	9267.3
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Sample Name: CCV1 Acquired: 7/10/2014 12:21:57 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**9793.5**	**24495.**	**25602.**
Stddev	58.3	194.	188.
%RSD	.59504	.79093	.73524
#1	9853.9	24609.	25818.
#2	9789.0	24271.	25521.
#3	9737.6	24605.	25468.
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5457.8**	**36313.**	**556990.**	**6371.9**	**23765.**	**271770.**
Stddev	17.4	295.	1629.	18.0	190.	861.
%RSD	.31837	.81297	.29237	.28217	.80101	.31670
#1	5438.9	36008.	557340.	6353.5	23555.	271880.
#2	5461.5	36334.	558420.	6372.9	23813.	270850.
#3	5473.0	36597.	555220.	6389.4	23927.	272560.

Sample Name: CCB1 Acquired: 7/10/2014 12:25:28 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-17.945**	**-2.3836**	**.37895**	**.47196**	**.52769**	**.40612**	**5.9333**	**.18852**
Stddev	13.635	2.3726	2.5447	.75199	.29630	.06274	7.6629	.09545
%RSD	75.981	99.537	671.52	159.33	56.151	15.448	129.15	50.630
#1	-16.376	-4.1262	-1.4556	1.1794	.86965	.34487	14.777	.25627
#2	-32.296	-3.3431	3.2841	.55430	.36639	.47025	1.2657	.07936
#3	-5.1624	.31844	-.69162	-.31781	.34704	.40323	1.7569	.22991
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.52507**	**3.3331**	**10.530**	**2.5539**	**11.988**	**1.4564**	**.49447**	**.36615**
Stddev	.33506	.3901	.162	.5202	11.668	.2662	.51811	.51878
%RSD	63.814	11.702	1.5377	20.369	97.334	18.277	104.78	141.68
#1	.91046	3.3127	10.468	3.0406	13.632	1.7346	.98889	.92407
#2	.36189	2.9537	10.714	2.6153	-.41517	1.4305	.53897	.27607
#3	.30285	3.7330	10.409	2.0056	22.747	1.2042	-.04445	-.10169
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**96.732**	**.68232**	**-.26373**	**83.535**	**3.5279**	**.54429**	**1.6088**	**-.36984**
Stddev	69.360	.12798	.99319	8.062	1.5393	.25012	.4243	.41838
%RSD	71.704	18.756	376.59	9.6513	43.632	45.953	26.374	113.13
#1	53.895	.57640	.84171	75.738	4.9290	.25738	2.0987	.11078
#2	59.545	.82452	-1.0809	83.027	1.8802	.65914	1.3597	-.56770
#3	176.76	.64604	-.55200	91.839	3.7743	.71636	1.3680	-.65258
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Sample Name: CCB1 Acquired: 7/10/2014 12:25:28 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6390.6**	**36857.**	**614800.**	**6932.3**	**24362.**	**299580.**
Stddev	47.9	630.	2136.	36.4	393.	201.
%RSD	.74963	1.7098	.34734	.52465	1.6138	.06716
#1	6445.6	36224.	614150.	6974.2	23958.	299810.
#2	6357.9	37484.	617180.	6913.2	24744.	299460.
#3	6368.3	36862.	613060.	6909.4	24384.	299470.

Sample Name: PBS1 Acquired: 7/10/2014 12:28:27 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2.5668**	**-1.2014**	**.81915**	**.05992**	**.21778**	**.29045**	**58.547**	**.54038**
Stddev	13.242	2.3904	.59772	.20500	.07839	.03912	2.204	.08103
%RSD	515.89	198.96	72.969	342.10	35.994	13.468	3.7646	14.996
#1	8.6253	-.27937	.13490	.28439	.27118	.26836	58.207	.62664
#2	11.696	-3.9155	1.2395	.01278	.12779	.26736	56.533	.46585
#3	-12.620	.59062	1.0830	-.11740	.25438	.33561	60.902	.52864

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.15130**	**3.1835**	**13.882**	**1.6147**	**12.730**	**.63484**	**.15967**	**-1.6798**
Stddev	.16123	.2702	7.127	.8692	8.741	.43290	.51194	.9809
%RSD	106.57	8.4890	51.343	53.831	68.662	68.191	320.62	58.396
#1	.33124	3.4421	20.088	.78380	9.9349	1.0479	.70668	-.58506
#2	.10267	3.2056	15.460	1.5427	5.7288	.18449	.08023	-1.9753
#3	.01997	2.9029	6.0978	2.5178	22.526	.67215	-.30790	-2.4790

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**34.844**	**-.66499**	**.26524**	**56.709**	**1.0288**	**.74609**	**.04593**	**.05472**
Stddev	12.424	2.9012	.88158	21.925	1.0359	.67865	.39708	.42261
%RSD	35.657	436.27	332.37	38.662	100.69	90.961	864.57	772.27
#1	48.638	1.7646	.68801	68.296	.46489	1.2884	.50200	.13427
#2	24.534	-3.8772	.85581	70.408	2.2243	.96480	-.22296	.43191
#3	31.359	.11759	-.74810	31.422	.39713	-.01495	-.14126	-.40201

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6428.4**	**37373.**	**618230.**	**6957.0**	**24534.**	**301540.**
Stddev	45.3	421.	2774.	46.7	292.	1940.
%RSD	.70463	1.1258	.44876	.67131	1.1902	.64341
#1	6473.4	37776.	617500.	7002.3	24842.	299400.
#2	6382.9	37407.	621290.	6909.0	24499.	302050.
#3	6429.0	36936.	615890.	6959.7	24261.	303180.

Sample Name: LCS1 Acquired: 7/10/2014 12:31:26 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**431.91**	**117.33**	**21.278**	**423.47**	**10.351**	**11.023**	**11049.**
Stddev	11.31	2.47	1.716	2.77	.053	.064	58.
%RSD	2.6191	2.1035	8.0649	.65293	.51569	.58135	.52278
#1	443.52	114.49	22.513	423.86	10.290	11.075	11048.
#2	420.92	118.97	22.001	420.53	10.390	11.042	10992.
#3	431.29	118.51	19.318	426.02	10.373	10.951	11108.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**22.046**	**103.05**	**55.546**	**245.14**	**20.793**	**10624.**	**32.237**
Stddev	.158	.65	.584	4.88	.266	51.	.612
%RSD	.71579	.63021	1.0513	1.9916	1.2810	.47605	1.8991
#1	22.152	102.39	55.906	243.02	21.097	10645.	32.647
#2	21.865	103.69	55.861	250.73	20.598	10566.	31.533
#3	22.122	103.08	54.873	241.68	20.684	10660.	32.532

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	F **.07491**	**81.516**	**10303.**	**70.048**	**20.232**	**10538.**	**54.272**
Stddev	.47280	.587	71.	2.540	.287	61.	2.084
%RSD	631.18	.72035	.68973	3.6263	1.4209	.58120	3.8398
#1	-.40702	81.209	10270.	72.422	20.338	10591.	54.970
#2	.53801	81.147	10255.	70.354	20.452	10471.	55.918
#3	.09374	82.194	10385.	67.369	19.907	10550.	51.929

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	F **.38615**	**104.83**	**134.81**
Stddev	.66555	1.76	.27
%RSD	172.35	1.6796	.20387
#1	.66819	106.78	134.49
#2	-.37397	104.36	134.96
#3	.86424	103.35	134.98

Sample Name: LCS1 Acquired: 7/10/2014 12:31:26 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6320.7**	**37555.**	**608640.**	**6857.5**	**24625.**	**296790.**
Stddev	16.4	268.	5768.	15.7	180.	1417.
%RSD	.25957	.71449	.94762	.22930	.73153	.47731
#1	6331.3	37685.	606070.	6874.2	24681.	295410.
#2	6301.8	37734.	604610.	6843.0	24771.	298240.
#3	6329.1	37247.	615250.	6855.2	24424.	296710.

Sample Name: MC0AC0 Acquired: 7/10/2014 12:34:20 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**148930.**	**7.3877**	**2932.6**	**912.10**	**5.2040**	**4.9867**	**40456.**
Stddev	982.	2.4560	20.9	4.88	.1583	.2577	275.
%RSD	.65929	33.245	.71219	.53495	3.0429	5.1674	.67897
#1	150060.	7.3512	2937.0	916.77	5.1736	4.9369	40765.
#2	148380.	4.9501	2909.9	907.04	5.3754	4.7575	40361.
#3	148340.	9.8617	2950.9	912.50	5.0631	5.2656	40241.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**3004.1**	**125.98**	**1732.8**	**198400.**	**324.33**	**11501.**	**3558.8**
Stddev	25.7	1.33	10.8	1195.	2.30	83.	23.0
%RSD	.85614	1.0574	.62497	.60234	.71002	.71949	.64668
#1	3016.6	126.67	1741.7	199770.	321.68	11596.	3584.5
#2	2974.5	124.45	1735.9	197610.	325.47	11450.	3540.2
#3	3021.1	126.82	1720.7	197810.	325.84	11456.	3551.7

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**12.796**	**109.57**	**7870.4**	**7.8606**	**-2.8480**	**628.67**	**-2.8155**
Stddev	.463	.34	81.7	6.3621	.2975	16.75	.5814
%RSD	3.6204	.31482	1.0381	80.936	10.445	2.6647	20.649
#1	12.270	109.95	7958.4	13.403	-2.8742	647.45	-3.4865
#2	12.974	109.27	7797.0	9.2658	-3.1315	623.29	-2.4991
#3	13.143	109.50	7855.7	.91338	-2.5383	615.27	-2.4610

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**2959.7**	**275.91**	**1605.3**
Stddev	21.6	1.70	8.2
%RSD	.73137	.61579	.51118
#1	2982.7	277.72	1607.6
#2	2939.7	275.66	1596.2
#3	2956.7	274.35	1612.1

Sample Name: MC0AC0 Acquired: 7/10/2014 12:34:20 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6111.2**	**38137.**	**606760.**	**7074.0**	**25721.**	**300970.**
Stddev	39.9	235.	2031.	21.1	238.	2815.
%RSD	.65273	.61502	.33474	.29888	.92384	.93522
#1	6083.6	38118.	604420.	7055.0	25721.	298330.
#2	6156.9	37913.	607850.	7096.8	25484.	303930.
#3	6093.0	38381.	608030.	7070.3	25959.	300640.

Sample Name: MC0AC0S Acquired: 7/10/2014 12:37:03 Type: RQC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**137260.**	F **71.854**	F **3313.2**	**4964.8**	**109.21**	**115.28**	**35628.**
Stddev	285.	2.196	49.3	9.6	.53	1.85	142.
%RSD	.20728	3.0567	1.4893	.19282	.48751	1.6027	.39959
#1	137020.	70.433	3260.4	4954.1	108.62	113.21	35514.
#2	137570.	70.745	3321.0	4972.7	109.67	115.87	35788.
#3	137180.	74.384	3358.2	4967.6	109.33	116.75	35584.
Check ?	None	Chk Fail	Chk Fail	Chk Pass	Chk Pass	Chk Pass	None
Value		200.00	80.000				
Range		-25.000%	25.000%				
Recovery	None	64.466	380.63	4052.7	104.00	110.29	None
% Recovery		32.233%	475.79%	101.32%	104.00%	110.29%	

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	F **3551.6**	**1152.5**	**2139.3**	**434660.**	F **341.90**	**10242.**	F **5636.1**
Stddev	50.7	18.4	9.8	3558.	5.64	9.	14.7
%RSD	1.4274	1.5978	.45880	.81855	1.6504	.08578	.26145
#1	3494.8	1132.0	2136.8	432770.	335.39	10249.	5620.4
#2	3568.0	1157.6	2131.0	438770.	344.89	10233.	5649.7
#3	3592.2	1167.8	2150.2	432450.	345.42	10245.	5638.3
Check ?	Chk Fail	Chk Pass	Chk Pass	None	Chk Fail	None	Chk Fail
Value	400.00				40.000		1000.0
Range	25.000%				-25.000%		25.000%
Recovery	547.55	1026.5	406.55	None	17.570	None	2077.3
% Recovery	136.89%	102.65%	81.310%		43.925%		207.73%

Sample Name: MC0AC0S Acquired: 7/10/2014 12:37:03 Type: RQC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep: 3050B
Comment:

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**28.430**	**1147.5**	**6827.6**	**99.452**	**92.099**	**513.73**	**83.674**
Stddev	.327	13.8	43.7	7.462	1.324	6.08	1.498
%RSD	1.1509	1.2005	.63942	7.5027	1.4378	1.1827	1.7903
#1	28.053	1132.0	6780.2	92.736	93.172	509.43	82.389
#2	28.608	1152.0	6836.4	98.137	90.619	511.08	83.314
#3	28.630	1158.4	6866.2	107.48	92.506	520.68	85.319
Check ?	None	Chk Pass	None	Chk Pass	Chk Pass	None	Chk Pass
Value							
Range							
Recovery	None	1037.9	None	91.592	94.947	None	86.490
% Recovery		103.79%		91.592%	94.947%		86.490%

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**2505.9**	**1261.7**	**2653.9**
Stddev	6.7	6.9	39.2
%RSD	.26572	.54519	1.4757
#1	2506.0	1264.3	2610.4
#2	2512.5	1253.9	2665.1
#3	2499.1	1266.9	2686.3
Check ?	None	Chk Pass	Chk Pass
Value			
Range			
Recovery	None	985.78	1048.6
% Recovery		98.578%	104.86%

Sample Name: MC0AC0S Acquired: 7/10/2014 12:37:03 Type: RQC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6067.9**	**37854.**	**601660.**	**7086.5**	**25665.**	**301000.**
Stddev	47.7	169.	1716.	48.6	99.	2364.
%RSD	.78664	.44598	.28513	.68530	.38533	.78545
#1	6121.7	37924.	603640.	7142.6	25707.	299710.
#2	6051.2	37662.	600670.	7059.9	25552.	303730.
#3	6030.8	37977.	600670.	7057.1	25737.	299570.

Sample Name: MC0AC0D Acquired: 7/10/2014 12:39:50 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**108840.**	**2.6745**	**2384.0**	**765.03**	**4.2074**	**4.4053**	**33727.**
Stddev	835.	2.2881	11.2	6.94	.0720	.0796	396.
%RSD	.76692	85.552	.46916	.90770	1.7105	1.8081	1.1732
#1	109760.	1.4645	2393.6	772.88	4.2282	4.3177	34184.
#2	108130.	1.2454	2371.8	759.69	4.2667	4.4734	33503.
#3	108630.	5.3135	2386.7	762.52	4.1273	4.4249	33494.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2478.9**	**105.71**	**1423.5**	**165590.**	**254.64**	**9030.0**	**2960.7**
Stddev	10.2	.02	12.3	1790.	3.49	159.6	37.0
%RSD	.41163	.01970	.86609	1.0811	1.3687	1.7671	1.2502
#1	2486.8	105.71	1436.7	167630.	258.22	9213.3	3003.2
#2	2467.4	105.70	1421.6	164260.	251.26	8955.5	2935.2
#3	2482.6	105.74	1412.2	164890.	254.46	8921.4	2943.7

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**10.081**	**89.582**	**5721.6**	**7.8724**	**-2.3681**	**450.13**	**-5.5090**
Stddev	.404	.398	88.9	2.8608	.5711	16.28	2.2536
%RSD	4.0107	.44391	1.5542	36.340	24.116	3.6167	40.908
#1	9.7376	89.881	5809.1	6.1537	-2.3622	437.93	-5.1203
#2	10.527	89.131	5631.3	6.2886	-1.7999	443.85	-3.4750
#3	9.9792	89.734	5724.5	11.175	-2.9420	468.61	-7.9317

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**2308.8**	**221.46**	**1299.1**
Stddev	18.2	1.61	6.7
%RSD	.78771	.72866	.51190
#1	2328.8	222.92	1305.1
#2	2293.3	221.74	1292.0
#3	2304.3	219.73	1300.2

Sample Name: MC0AC0D Acquired: 7/10/2014 12:39:50 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6171.2**	**37955.**	**606170.**	**7063.3**	**25467.**	**301260.**
Stddev	16.3	667.	5078.	4.4	390.	1130.
%RSD	.26340	1.7580	.83767	.06268	1.5311	.37492
#1	6152.5	37198.	600310.	7058.3	25023.	300200.
#2	6180.0	38210.	609230.	7066.7	25624.	301120.
#3	6181.3	38457.	608970.	7064.8	25754.	302450.

Sample Name: MC0AC0L Acquired: 7/10/2014 12:42:35 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**29043.**	**-5.5625**	**564.97**	**177.01**	**.99325**	**1.1630**	**7978.8**	**593.89**
Stddev	140.	1.8634	3.76	1.20	.22208	.0498	36.6	3.06
%RSD	.48246	33.500	.66508	.68033	22.359	4.2778	.45930	.51535
#1	28882.	-3.6122	560.76	175.89	.97875	1.1115	7937.9	590.57
#2	29118.	-5.7504	567.99	176.86	.77876	1.2107	7990.2	596.60
#3	29130.	-7.3248	566.17	178.28	1.2222	1.1668	8008.5	594.50

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**25.321**	**337.92**	**39243.**	**64.864**	**2259.7**	**702.97**	**2.2051**	**20.954**
Stddev	.445	3.23	204.	1.047	20.3	3.38	.1683	.342
%RSD	1.7587	.95599	.51903	1.6145	.89862	.48099	7.6314	1.6307
#1	24.862	338.55	39008.	65.285	2236.8	699.41	2.2855	20.560
#2	25.351	334.42	39370.	65.636	2267.1	703.35	2.3180	21.144
#3	25.751	340.78	39352.	63.672	2275.3	706.15	2.0117	21.160

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1561.4**	**4.2024**	**.34770**	**135.35**	**-.02748**	**577.95**	**54.791**	**315.85**
Stddev	56.2	3.5270	.31616	13.56	1.6467	2.07	.403	2.30
%RSD	3.5982	83.929	90.930	10.017	5991.4	.35830	.73552	.72696
#1	1529.2	6.6861	.06001	150.46	1.7744	577.50	54.968	313.34
#2	1528.6	.16530	.29691	131.34	-.40274	576.15	54.330	316.39
#3	1626.2	5.7556	.68619	124.24	-1.4541	580.21	55.076	317.84

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6353.8**	**37786.**	**615410.**	**6976.2**	**24902.**	**299490.**
Stddev	18.2	169.	577.	5.0	104.	179.
%RSD	.28625	.44832	.09375	.07203	.41711	.05960
#1	6363.2	37976.	615860.	6979.4	25020.	299510.
#2	6332.8	37732.	615610.	6970.4	24862.	299310.
#3	6365.4	37651.	614760.	6978.8	24825.	299660.

Sample Name: MC0AC0A Acquired: 7/10/2014 13:00:51 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep: 3050B
Comment: Sb-120, Mn-7120

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**142510.**	**116.51**	**2896.5**	**866.43**	**4.8017**	**5.0698**	**38529.**
Stddev	1354.	2.42	10.6	9.22	.0200	.1603	338.
%RSD	.95040	2.0733	.36555	1.0636	.41654	3.1626	.87832
#1	143730.	113.75	2901.4	872.41	4.8147	5.1721	38824.
#2	141050.	117.51	2884.4	855.82	4.8118	5.1522	38160.
#3	142740.	118.26	2903.8	871.06	4.7787	4.8850	38605.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2980.3**	**125.26**	**1673.7**	**190320.**	**325.78**	**11044.**	**10234.**
Stddev	10.8	.25	7.0	1676.	3.50	89.	92.
%RSD	.36388	.20046	.41537	.88071	1.0730	.80318	.90251
#1	2984.5	125.07	1671.6	191630.	325.99	11107.	10307.
#2	2968.0	125.15	1681.5	188430.	322.19	10943.	10130.
#3	2988.4	125.54	1668.0	190900.	329.17	11083.	10264.

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**11.705**	**108.99**	**7500.1**	**1.5987**	**-2.3017**	**567.75**	**-8.2212**
Stddev	.128	1.92	64.5	2.3622	.1426	11.52	1.1381
%RSD	1.0919	1.7659	.85991	147.75	6.1953	2.0295	13.844
#1	11.565	110.10	7574.2	2.2149	-2.1378	554.54	-9.4192
#2	11.736	106.77	7457.1	3.5918	-2.3971	573.03	-7.1543
#3	11.815	110.11	7468.9	-1.0105	-2.3702	575.69	-8.0901

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**2826.4**	**267.69**	**1584.5**
Stddev	24.8	1.23	5.7
%RSD	.87783	.45864	.36123
#1	2845.6	268.35	1585.1
#2	2798.4	268.45	1578.6
#3	2835.3	266.28	1590.0

Sample Name: MC0AC0A Acquired: 7/10/2014 13:00:51 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep: 3050B
Comment: Sb-120, Mn-7120

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6020.9**	**38267.**	**603470.**	**7008.5**	**25685.**	**298550.**
Stddev	30.9	148.	5723.	41.5	125.	2650.
%RSD	.51299	.38788	.94827	.59226	.48711	.88756
#1	5985.4	38098.	601520.	6960.7	25541.	296010.
#2	6041.7	38331.	598980.	7029.0	25748.	298340.
#3	6035.5	38373.	609920.	7035.7	25767.	301300.

Sample Name: MC0AC1 Acquired: 7/10/2014 13:03:34 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep: 3050B
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**106340.**	**7.7814**	**3106.9**	**959.88**	**4.8793**	**5.3471**	**47245.**
Stddev	236.	4.5544	17.0	5.23	.1360	.1737	132.
%RSD	.22211	58.529	.54746	.54442	2.7880	3.2494	.27999
#1	106170.	2.5576	3126.3	954.64	4.9147	5.5312	47129.
#2	106230.	10.919	3094.6	959.91	4.7290	5.3243	47216.
#3	106610.	9.8680	3099.8	965.09	4.9941	5.1859	47389.

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**4101.1**	**132.52**	**2304.5**	**213350.**	**308.23**	**8593.2**	**3408.6**
Stddev	18.5	.49	3.4	1072.	2.86	89.8	19.1
%RSD	.45199	.36969	.14548	.50225	.92765	1.0454	.56000
#1	4121.6	133.02	2306.0	212790.	310.72	8610.6	3396.3
#2	4085.7	132.04	2300.7	212680.	305.11	8495.9	3399.1
#3	4095.9	132.50	2306.9	214590.	308.88	8673.1	3430.6

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**13.322**	**96.072**	**5941.3**	**4.3205**	**-3.6878**	**390.88**	**-3.5447**
Stddev	.436	1.879	57.4	3.5538	.9412	10.32	1.2846
%RSD	3.2698	1.9554	.96655	82.254	25.522	2.6397	36.241
#1	13.475	98.170	5875.2	4.4739	-2.6448	396.44	-2.2067
#2	12.830	95.501	5970.1	.69248	-4.4738	397.23	-4.7683
#3	13.660	94.546	5978.6	7.7951	-3.9446	378.98	-3.6591

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**1723.5**	**262.83**	**1243.0**
Stddev	11.8	.75	2.0
%RSD	.68480	.28353	.15837
#1	1711.7	263.52	1243.4
#2	1723.7	262.94	1240.8
#3	1735.3	262.04	1244.7

Sample Name: MC0AC1 Acquired: 7/10/2014 13:03:34 Type: Unk
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep: 3050B
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6119.6**	**38422.**	**613590.**	**7053.1**	**25702.**	**299080.**
Stddev	18.2	178.	2236.	19.2	118.	1705.
%RSD	.29792	.46423	.36444	.27190	.45878	.57005
#1	6100.9	38225.	611010.	7031.1	25577.	299480.
#2	6137.3	38572.	614940.	7066.4	25812.	297220.
#3	6120.7	38469.	614820.	7061.8	25718.	300560.

Sample Name: CCV2 Acquired: 7/10/2014 13:06:17 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**243240.**	**24338.**	**10476.**	**24112.**	**9600.9**	**10194.**	**246190.**
Stddev	575.	233.	105.	409.	70.7	83.	1545.
%RSD	.23658	.95534	1.0047	1.6952	.73689	.81363	.62771
#1	242640.	24602.	10593.	23953.	9533.4	10284.	244460.
#2	243280.	24161.	10388.	23806.	9674.5	10120.	247440.
#3	243790.	24252.	10447.	24576.	9594.8	10179.	246650.
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Cr2055	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**25521.**	**24596.**	**24451.**	**244240.**	**24075.**	**245570.**	**23314.**
Stddev	227.	204.	587.	534.	194.	1392.	235.
%RSD	.89079	.82913	2.4017	.21880	.80658	.56665	1.0070
#1	25773.	24815.	24288.	243900.	24278.	244260.	23355.
#2	25331.	24412.	23963.	243970.	23891.	245420.	23061.
#3	25460.	24560.	25103.	244860.	24057.	247030.	23525.
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Elem	Mo2020	Ni2316	K_7664	Se1960	Ag3280	Na5895	Tl1908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**10068.**	**24493.**	**245950.**	**9919.5**	**999.97**	**245680.**	**9368.2**
Stddev	83.	192.	2337.	85.6	10.37	4255.	72.7
%RSD	.82692	.78327	.95017	.86288	1.0372	1.7318	.77605
#1	10157.	24699.	243600.	10018.	988.14	240930.	9447.5
#2	9992.3	24319.	245980.	9865.6	1004.3	249140.	9304.8
#3	10055.	24462.	248270.	9874.6	1007.5	246960.	9352.2
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value							
Range							

Sample Name: CCV2 Acquired: 7/10/2014 13:06:17 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L
Avg	**9602.2**	**24189.**	**25596.**
Stddev	32.9	236.	224.
%RSD	.34231	.97448	.87519
#1	9584.4	24051.	25834.
#2	9582.2	24055.	25389.
#3	9640.2	24461.	25565.
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5494.0**	**36419.**	**564280.**	**6405.5**	**23758.**	**271820.**
Stddev	21.6	88.	3339.	29.5	62.	503.
%RSD	.39309	.24249	.59172	.46110	.26218	.18499
#1	5477.9	36517.	565090.	6373.4	23828.	271380.
#2	5518.6	36348.	567140.	6431.5	23735.	271730.
#3	5485.7	36391.	560610.	6411.7	23710.	272370.

Sample Name: CCB2 Acquired: 7/10/2014 13:09:48 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Elem	Al3082	Sb2068	As1890	Ba4554	Be3131	Cd2144	Ca3179	Cr2055
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-32.569**	**-1.4027**	**1.7917**	**.65427**	**.49017**	**.32356**	**2.8323**	**.29619**
Stddev	20.728	.7241	.5063	.15886	.10287	.03715	5.0532	.06183
%RSD	63.642	51.619	28.257	24.281	20.986	11.482	178.41	20.874
#1	-31.913	-.67212	1.5688	.75595	.45154	.36465	8.6517	.24693
#2	-12.178	-2.1201	1.4352	.47120	.60676	.31365	.29211	.27606
#3	-53.618	-1.4160	2.3712	.73564	.41221	.29236	-.44680	.36557
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Co2286	Cu3247	Fe2598	Pb2203	Mg2790	Mn2576	Mo2020	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.77351**	**3.0092**	**18.664**	**1.2981**	**13.742**	**.73438**	**.59853**	**.83406**
Stddev	.29337	.4987	2.652	1.5583	1.879	.25468	.37367	.49256
%RSD	37.927	16.574	14.208	120.04	13.673	34.680	62.431	59.056
#1	1.1109	3.5833	21.088	2.6851	12.808	.68210	1.0248	1.3290
#2	.63080	2.6825	19.073	-.38806	15.906	1.0111	.32756	.34390
#3	.57880	2.7619	15.832	1.5972	12.514	.50989	.44323	.82929
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	K_7664	Se1960	Ag3280	Na5895	Tl1908	Ti3349	V_2924	Zn2062
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**129.22**	**1.1855**	**.51393**	**76.517**	**2.9314**	**-.23334**	**1.7275**	**-.09901**
Stddev	11.88	.9996	.54667	9.944	1.1069	.63574	.4453	.36806
%RSD	9.1893	84.318	106.37	12.996	37.761	272.45	25.775	371.74
#1	140.62	2.2879	.31908	65.574	4.1391	-.14238	1.3805	-.14582
#2	116.92	.33792	.09139	78.980	1.9651	-.90966	2.2295	.29022
#3	130.13	.93079	1.1313	84.999	2.6900	.35202	1.5724	-.44143
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Sample Name: CCB2 Acquired: 7/10/2014 13:09:48 Type: QC
Method: ICP07 ISM01.3 2014(v10) Mode: CONC Corr. Factor: 1.000000
User: Sanchez SDG: MC0AC0 Case: 44460 Prep:
Comment:

Int. Std.	Sc2273	Sc3613	Sc3613-2	Y_2243	Y_3710	Y_3710-2
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**6429.9**	**37224.**	**618430.**	**6976.6**	**24514.**	**299320.**
Stddev	39.5	362.	2860.	41.4	305.	1302.
%RSD	.61497	.97360	.46251	.59293	1.2441	.43486
#1	6473.1	37498.	620450.	7018.9	24707.	297890.
#2	6395.5	37361.	619670.	6936.3	24674.	300440.
#3	6421.1	36813.	615150.	6974.7	24163.	299630.

ISM 3050B PHYSICAL DESCRIPTION

Sample ID	Matrix	Method	Prep Date	Amount Sample Used (g)	Final Sample Volume	PH	Color/Clarity/Texture Before Color	Before Texture	After Color	After Clarity	Init.
PBS1	ASTM Type II H_2O	3050B	07/07/14	NA	100 mL	NA	Colorless	Clear	Colorless	Clear	KL
LCS1	ASTM Type II H_2O	↓	↓	NA	↓	↓	Colorless	Clear	Colorless	Clear	↓
MC0AC0	Soil	↓	↓	1.1398	↓	↓	Brown	Medium	Yellow	Clear	↓
MC0AC0S	↓	↓	↓	1.1471	↓	↓	Brown	Medium	Yellow	Clear	↓
MC0AC0D	↓	↓	↓	1.1486	↓	↓	Brown	Medium	Yellow	Clear	↓
MC0AC1	↓	↓	↓	1.4879	↓	↓	Brown	Medium	Yellow	Clear	↓

PREPARED BY:
Kelsey Lockwood

START DATE/TIME:
07/07/14 11:20
END DATE/TIME:
07/08/14 9:40
WORKORDER(S):
1417553

SDG:
MC0AC0
CASE:
44460
METHOD/MATRIX:
3050B/Soil
BATCH:
4954
HBN #:
129801
MOD:
NA

QC ID	QC TYPE	MATRIX SOURCE	SPIKE SOURCE	PIPETTE ID	VOLUME SPIKED	INITIALS	Method Reagents	
PBS1	PBS	ASTM Type II H_2O	NA	NA	NA	KL	1:1 HNO_3 Baker LOT #:	0000074185
LCS1	LCS	ASTM Type II H_2O	21088	WR-22	2000 µl	↓	CONC. HNO_3 Baker LOT #:	0000074185
MC0AC0S	MS	MC0AC0	19951 19952	WR-22	200 µl	↓	30% H_2O_2 CCI LOT #:	2014021259
MC0AC0D	MD	MC0AC0	NA	NA	NA	↓	CONC. HCl LOT #:	EMD 53010

BALANCE ID:
102683

Samples weighed and transferred into 100 mL flat-bottom tubes. QCs prepared as indicated above. 10 mL 1:1 HNO_3 added to all. Samples covered and placed on hotblock at ~95°C for 10 minutes, removed from heat, and allowed to cool. 5 mL concentrated HNO_3 added to all. Samples returned to hotblock for 30 minutes, removed from heat, and allowed to cool. Samples were returned to heat and allowed to reduce to 5 mL. Temperature was checked with thermometer 122074430, which read 95.0 °C. Samples removed from heat. 2 mL ASTM Type II H_2O and 3 mL 30% H_2O_2 added, returned to hotblock, and heated until bubbling reaction subsided. Samples removed from heat. An additional 1 mL of H_2O_2 was added to all samples and heated until effervesence subsided. Samples removed from heat and allowed to cool. Samples returned to heat and allowed to reduce to 5 mL. Samples removed from heat and allowed to cool. 10 mL conc. HCl added. Samples returned to hotblock for 15 minutes, removed from heat, and allowed to cool. Samples diluted to 100 mL final volume with ASTM Type II H2O. Samples inverted several times to mix. Samples transferred to 50 mL tubes for analysis.

% Moistures & Solids

Analyst: IJO
Queue: EGRV
Batch: 4770
Instrument: GRAV03

Oven Start Time	06/26/2014 10:00	**Start Oven Temp:**	105°	**Start Desiccator:**	06/27/2014 06:50
Oven Finish Time	06/27/2014 06:50	**End Oven Temp:**	105°	**End Desiccator:**	06/27/2014 07:20

Workorder	Dish#	Lab Sample ID	Dish (g)	Dish + Soil (g)	Soil Weight (g)	Dish + DS (g)	Dry Soil (g)	% Solids	% Moistures
1417553	1	1417553001	1.3286	9.9891	8.6605	7.2586	5.9300	68.4718%	31.5282%
1417553	2	396334	1.3175	9.9861	8.6686	7.4800	6.1625	71.0899%	28.9101%
1417553	3	1417553004	1.3202	9.6890	8.3688	7.6017	6.2815	75.0586%	24.9414%

From: (484) 213-8723
Erik Armistead
WESTON
1400 Weston Way

West Chester, PA 19380

Origin ID: BIGA

FedEx Express

J14101402070326

Ship Date: 23JUN14
ActWgt: 40.0 LB
CAD: 105266671/INET3490

Dims: 30 X 14 X 18 IN

Copy original in SDR. MCX AAD

Delivery Address Bar Code

Ref # 20403.016.001.0233.00
Invoice #
PO #
Dept #

ae 06/24/14 10:06

SHIP TO: (801) 266-7700 BILL SENDER

Sample Recieving
ALS Laboratory Group
960 West LeVoy Dr

SALT LAKE CITY, UT 84123

TUE - 24 JUN 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7703 8001 4214

XH NPHA

84123
UT-US
SLC

522G5/9BC4/F220

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Precautionary Measures Against Hidden Hazards in Laboratory Samples

Notice to Laboratory Personnel

Background

Under the authority of Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) of 1980, Section 311 of the Clean Water Act, and Subtitle I of the Resource Conservation and Recovery Act (RCRA), EPA has been delegated the responsibility to undertake response actions with respect to the release or potential release of oil, petroleum or hazardous substances that pose a substantial threat to human health or welfare, or the environment. In addition, EPA provides technical assistance to help mitigate endangerment of the public health, welfare or environment during other emergencies and natural disasters.

EPA's successful implementation of these emergency response action responsibilities requires that technical support capabilities be provided in the form of contracted Superfund Technical Assessment and Response Team (START) teams for each EPA Region. The Weston Solutions Inc. (WESTON) START Region III Eastern Area Contract provides support to EPA Region III.

Hazard Communication

The samples which accompany this notice have been shipped to your laboratory for analysis in accordance with applicable DOT or IATA Regulations and were collected by the WESTON START team and were tentatively designated by the field response team as either environmental or hazardous material samples.

In general, *Environmental Samples* are collected from streams, farm ponds, small lakes, wells and off-site soils that are not reasonably expected to be contaminated with hazardous materials. Samples of on-site soils or water and materials collected from drums, bulk storage tanks, obviously contaminated ponds, impoundments, lagoons, pools, and leachates from hazardous waste sites are considered *Hazardous Samples.* Samples which are obtained from a known radioactive material contamination site or which demonstrate beta or gamma activity greater than three times the average background as scanned with a Geiger-Mueller radiation survey meter are considered *Radioactive Samples.*

The samples which accompany this notice have been tentatively classified by the field response team as:

X Environmental _____ Hazardous _____ Combination (Env. & Haz) _____ Radioactive

The field team which collected the samples used the following Level(s) of personal protection as designated by EPA and OSHA conventions to provided protection against possible radiological or chemical exposure:

_____ Level A _____ Level B _____ Level C X Level D

This information is intended for use as a guide for the safe handling of these laboratory samples in accordance with EPA and OSHA regulations. The sample classification(s) and Levels of personal protection used by the WESTON START team are not represented to be, nor are they adequate or applicable in all situations, nor are they intended to serve as substitutes for professional/personal judgment.

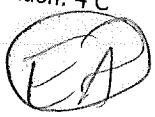
This form was prepared by: Erik Armistead

Analytical Services TDD No. or Case No.: 44460

Weston Solutions, Inc. Office: West Chester, PA Phone: 610-701-3500 Fax: 610-701-3187

Laboratory Name: ALS Laboratory Group

Sample # MC0AC1 Case # 44460
Tag: 1021 Sampler: START
Date: 6/20/2014 Time: 16:08
Location: 157
Analyses: Arsenic, Copper, Chromium only
Preservation: 4 C



Sample Delivery Group (SDG)
Cover Sheet

SDG Number: MC0AC0

☒ ICPAES ☐ ICPMS ☐ HG ☐ CN

Laboratory Name: ALS Laboratory Group (SLC) Laboratory Code: DATAC

Contract No.: EPW09036 Case No.: 44460

Analysis Price: N/A SDG Turnaround: 21

Modified Analysis NO Program: ISM01.3

Modification Reference No.: N/A

EPA Sample Numbers in SDG (Listed in Numerical Order)

1) MC0AC0	7)	13)	19)
2) MC0AC1	8)	14)	20)
3)	9)	15)	21)
4)	10)	16)	22)
5)	11)	17)	23)
6)	12)	18)	24)

aa 07/02/14 aa 07/02/14 aa 07/02/14 aa 07/02/14

MC0AC0	MC0AC1
First Sample in SDG	Last Sample in SDG
06/24/14	06/24/14
First Sample Receipt Date	Last Sample Receipt Date

Note: *There are a maximum of 20 field samples (excluding PE samples) in an SDG. Attach the TR/COC records to this form in alphanumeric order (the order listed above on this form).*

Signature Augusta Ahlstrom Date: 7/2/2014

EPA Sample Receipt History

Client: U. S. EPA Region 3 **Contract:** EPW09036 **Case:** **44460** **SDG:** **MC0AC0** **Mod:** None

Due to Client: **Tue, Jul 15, 2014** **TAT:** 21 **Date Reported:** Not Reported **Status:** **CLOSED**

Workorder Information **Program:** ISM01.3 **EDD Level:** 2b

Work Order	Received	PR	Fractions
1417553	06/24/14 10:06 AM	No	ICP-AES

Sample Information

Lab ID	Client ID	Type	Matrix	ICPAES	ICPMS	HG	CN
1417553001	MC0AC0	SAMPLE	Soil[S]	☒	☐	☐	☐
1417553003	MC0AC0D	MD	Soil	☒	☐	☐	☐
1417553002	MC0AC0S	MS	Soil	☒	☐	☐	☐
1417553004	MC0AC1	SAMPLE	Soil[S]	☒	☐	☐	☐
Field Samples: 2		**MS: 1**	**MSD:** 0	**MD: 1**		**PE:** 0	

Report Parameters = SDG:MC0AC0 Case:<NULL> Region:<NULL>
Mod:<NULL> Workorder:<NULL> BeginDate:<NULL> EndDate:<NULL>
OpenSummary:No SortBy:Case

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW09036	Split:	Workorder ID: 1417553	Level: EPAISMB21
Client: U. S. EPA Region 3		Account: 8201	Type: 8ozGWM
Comments:			Preservatives: COOL

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	Requested Analysis: ISM01.3 ICP-AES, Soil
1	06/20/2014 16:11	MC0AC0	1417553001		Soil/Solid/Sediment	A	1	A
2	06/20/2014 16:11	MC0AC0S	1417553002	MS	Soil/Solid/Sediment	A	1	A
3	06/20/2014 16:11	MC0AC0D	1417553003	MD	Soil/Solid/Sediment	A	1	A
4	06/20/2014 16:08	MC0AC1	1417553004		Soil/Solid/Sediment	A	1	A
5								
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Ahlstrom, Anjanette	06/24/2014 10:06	ALS Sample Receiving	Sample Login
Anjahlstrom	06/24/14 1410	R33.1 2C	Storage
R-33-12C IJO	06/26/14 9:04	Ilse g Ovalle	solid
Ilse g Ovalle	06/26/14 15:00	R_33_12C IJO	Storage
2C KL	7/07/14 10:00	metlab KL	metals

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: ICP metals — Lab Notebook No.: Network

Prepared / Analyzed by: KL — Date / Time: 07/07/14 11:20

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
metlab KL	7/8/14 946	ICP lab KL	analysis

ALS Environmental

CHAIN-OF-CUSTODY

Project / Job / Task: EPW09036	Split:	Workorder ID: 1417553	Level: EPAISMB21
Client: U. S. EPA Region 3		Account: 8201	Type: 8ozGWM
Comments:			Preservatives: COOL

Requested Analysis

Item	Collect Date/Time	Sample ID	Lab ID	QC	Matrix	Containers ID(s)	Containers Count	ISM01.3 ICP-AES, Soil
1	06/20/2014 16:11	MC0AC0	1417553001		Soil/Solid/Sediment	A	1	A
2	06/20/2014 16:11	MC0AC0S	1417553002	MS	Soil/Solid/Sediment	A	1	A
3	06/20/2014 16:11	MC0AC0D	1417553003	MD	Soil/Solid/Sediment	A	1	A
4	06/20/2014 16:08	MC0AC1	1417553004		Soil/Solid/Sediment	A	1	A
5								
6								
7								
8								
9								
10								

ORIGINAL FIELD SAMPLE CHAIN-OF-CUSTODY

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location
Ahlstrom, Anjanette	06/24/2014 10:06	ALS Sample Receiving	Sample Login
Anjahlstrom	06/24/14 14:10	R33.1 2C	Storage
R-33-12C IJO	06/26/14 9:04	Else J Ovalle	solid
Else J Ovalle	06/26/14 15:00	R-33-12C IJO	Storage

SAMPLE PREPARATION / ANALYSIS CHAIN-OF-CUSTODY

Sample Prep / Analysis for: _____ Lab Notebook No.: _____

Prepared / Analyzed by: _____ Date / Time: _____

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Reason for Transfer / Storage Location

Batch Worklist

Batch: EIPX/ 4954 Created: 7/7/2014 10:13 Instrument: NONE HBN: 129801

Rule: ISM ICP-AES 3050B Prep Analyst: K. Lockwood Status: NA

Workorder: 1417553 SDG: MC0AC0 Case: 44460

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	397996	PBS1	1 grams	100 mL		PBS	4		ISMAESS.4P	6174	1/3/2015	6/30/2014	7/7/2014
2	397997	LCS1	1 grams	100 mL		LCS	4		ISMAESS.4P	6174	1/3/2015	6/30/2014	7/7/2014
3	1417553001	MC0AC0	1.1398 grams	100 mL		SAMPLE	4	1417553001-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
4	1417553002	MC0AC0S	1.1471 grams	100 mL		MS	4	1417553002-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
5	1417553003	MC0AC0D	1.1486 grams	100 mL		MD	4	1417553003-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014
6	1417553004	MC0AC1	1.4879 grams	100 mL		SAMPLE	4	1417553004-A	I13AESS.4P	5936	12/21/2014	6/30/2014	7/7/2014

1417553

STANDARD REPORT

Stock Standard - ICP-CLP-CRQL

ICP-CLP-CRQL		**Description - ISM CRQL Solution**
Standard: 21088	**Created By:** K. Lockwood	**Amount:** 250 mL
MFG: Inorganic Ventures	**Create Date:** 10/23/2013	**Expires:** 11/1/2014
MFG Lot: F2-MEB445010	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: CLP-AES-CRQL-2		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	20 ug/mL
2	7440-36-0	Antimony	6 ug/mL
3	7440-38-2	Arsenic	1 ug/mL
4	7440-39-3	Barium	20 ug/mL
5	7440-41-7	Beryllium	0.5 ug/mL
6	7440-43-9	Cadmium	0.5 ug/mL
7	7440-70-2	Calcium	500 ug/mL
8	7440-47-3	Chromium	1 ug/mL
9	7440-48-4	Cobalt	5 ug/mL
10	7440-50-8	Copper	2.5 ug/mL
11	7439-89-6	Iron	10 ug/mL
12	7439-92-1	Lead	1 ug/mL
13	7439-95-4	Magnesium	500 ug/mL
14	7439-96-5	Manganese	1.5 ug/mL
15	7440-02-0	Nickel	4 ug/mL
16	7440-09-7	Potassium	500 ug/mL
17	7782-49-2	Selenium	3.5 ug/mL
18	7440-22-4	Silver	1 ug/mL
19	7440-23-5	Sodium	500 ug/mL
20	7440-28-0	Thallium	2.5 ug/mL
21	7440-62-2	Vanadium	5 ug/mL
22	7440-66-6	Zinc	6 ug/mL

STANDARD REPORT

Stock Standard - ICP CLP SPK1

ICP CLP SPK1		**Description - ISM ICP Matrix Spike Soln #1**
Standard: 19951	**Created By:** K. Price	**Amount:** 125 mL
MFG: Inorganic Ventures	**Create Date:** 7/17/2013	**Expires:** 8/1/2014
MFG Lot: D2-MEB324145	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: CLPP-SPK-1		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	2000 ug/mL
2	7440-39-3	Barium	2000 ug/mL
3	7440-41-7	Beryllium	50 ug/mL
4	7440-47-3	Chromium	200 ug/mL
5	7440-48-4	Cobalt	500 ug/mL
6	7440-50-8	Copper	250 ug/mL
7	7439-89-6	Iron	1000 ug/mL
8	7439-96-5	Manganese	500 ug/mL
9	7440-02-0	Nickel	500 ug/mL
10	7440-22-4	Silver	50 ug/mL
11	7440-62-2	Vanadium	500 ug/mL
12	7440-66-6	Zinc	500 ug/mL

STANDARD REPORT

Stock Standard - ICP CLP SPK2

ICP CLP SPK2		**Description - ISM ICP Matrix Spike Soln #2**
Standard: 19952	**Created By:** K. Price	**Amount:** 125 mL
MFG: Inorganic Ventures	**Create Date:** 7/17/2013	**Expires:** 8/1/2014
MFG Lot: B2-MEB263095	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: CLPP-SPK-5		

Pos.	Analyte	Name	Concentration
1	7440-36-0	Antimony	100 ug/mL
2	7440-38-2	Arsenic	40 ug/mL
3	7440-43-9	Cadmium	50 ug/mL
4	7439-92-1	Lead	20 ug/mL
5	7782-49-2	Selenium	50 ug/mL
6	7440-28-0	Thallium	50 ug/mL

Batch Worklist

Batch: EGRV/ 4770 **Created:** 6/26/2014 09:30 **Instrument:** **HBN:** 129171

Rule: Solids/Moisture Determination **Analyst:** I. Ovalle **Status:** WP

Workorder: 1417553 **SDG:** MC0AC0 **Case:** 44460

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	1417553001	MC0AC0				SAMPLE	4		XX-EP-800	5936		7/7/2014	
2	396334	MC0AC0(1417553001MD)				MD	4		XX-EP-800	6092		7/7/2014	
3	1417553004	MC0AC1				SAMPLE	4		XX-EP-800	5936		7/7/2014	

Batch Worklist

Batch: EICP/ 4577 Created: 7/14/2014 08:03 Instrument: ICP07 HBN: 130272
Rule: ISM ICP-AES Analysis Analyst: J. Sanchez Status: RE

Workorder: 1417553 SDG: MC0AC0 Case: 44460

Pos	Lab ID	Sample ID	Prep Initial	Prep Final	Dust Weight	Type	Mx	Container	Procedure	Mgr	Expire Date	Due Date	Run Date
1	399129	S0				STB	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
	*i14044												
2	399130	SA				STC	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
3	399131	SB				STD	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
4	399132	SC				STD	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
5	399133	SD				STD	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
6	399134	SE				STD	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
7	399135	SF				STD	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
8	399136	S500000				STD	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
9	399137	ICV1				ICV	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
10	399138	ICB1				ICB	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
11	399139	ICSA1				ICSA	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
12	399140	ICSAB1				ICSAB	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
13	399141	CCV1				CCV	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
14	399142	CCB1				CCB	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
15	397996	PBS1	1 grams	100 mL		PBS	4		ISMAESS..4	6174	1/3/2015	7/14/2014	7/10/2014
16	397997	LCS1	1 grams	100 mL		LCS	4		ISMAESS..4	6174	1/3/2015	7/14/2014	7/10/2014
17	1417553001	MC0AC0	1.1398 grams	100 mL		SAMPLE	4	1417553001-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
18	1417553002	MC0AC0S	1.1471 grams	100 mL		MS	4	1417553002-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
19	1417553003	MC0AC0D	1.1486 grams	100 mL		MD	4	1417553003-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
20	399143	MC0AC0L				SD	4		ISMAESW..3	5967	12/21/2014	7/14/2014	7/10/2014
21	399144	MC0AC0A				PDS	4		ISMAESW..3	5967	12/21/2014	7/14/2014	7/10/2014
	*Sb-120, Mn-7120												
22	1417553004	MC0AC1	1.4879 grams	100 mL		SAMPLE	4	1417553004-A	I13AESS..4	5936	12/21/2014	7/14/2014	7/10/2014
23	399145	CCV2				CCV	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014
24	399146	CCB2				CCB	3		ISMAESW..3	5967	1/10/2015	7/14/2014	7/10/2014

File #: i14044

WorkOrder#	Sample #'s	Analytes/Matrix	Prep Batch HBN	Prep Date/Time	Prep Method
1417553	MC0AC0, C1	See Below/Soil	129801	07/07/14 1120	3050B

Analytes = Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, K, Se, Ag, Na, Tl, V, Zn

3050B Conversion Factor: (µg/L from instrument)(Dilution Factor)(0.1 L/1.0 g) = 0.1 µg/g

CALIBRATION AND QC STANDARDS UTILIZED:

	ID #	Book/Page
S0/ICB/CCB	ICP-14-057	4535/52
SA	23707	Horizon
SB	23708	Horizon
SC	23709	Horizon
SD	23762	Horizon
SE/CCV	24220	Horizon
SF	23763	Horizon
S500000	23139	Horizon
ICV	24142	Horizon
ICSA	23198	Horizon
ICSAB	24221	Horizon
Bubbler Rinse	ICP-14-042	4535/51
Internal Standard	ICP-14-036	4535/51
Rinse	ICP-14-052	4535/51

SDG # MC0AC0
CASE # 44460
Account # 8201
Analysis Method: ISM01.3
Analysis Date: 7/10/2014
Instrument ID: ICP07
HBN # 130272
Analyst: Joanna Sanchez

ANALYSIS PARAMETERS:
Pump Rate = 25 rpm
RF Power = 1200 W
Auxiliary Gas = 0.2 L/min
Nebulizer Flow = 0.50 L/min
Coolant Gas Flow = 14 L/min
ASXpress Plus = 3 mL Loop

Dilutions: None were required.

Pipettes: ICP-10, ICP-1

Comments: No problems during analysis.

A Serial Dilution was done by combining 2 mL of MC0AC0 with 8 mL of ICP-14-057 (4535/52) in a 15 mL tube.

A Post Digestion Spike was done by combining 10 mL of MC0AC0 with 60.0 µL of 20 ppm Sb and 71.2 µL of 1000 ppm Mn in a 15 mL tube.

Post Digestion Spike Targets: Sb - 120 — 20 ppm Sb standard # 24141
Mn - 7120 — 1000 ppm Mn standard # 24370

Project No. NA

TITLE ALS Environmental ICP07 Analysis Run Logbook Book No. 4527

From Page No. 54

Date	Time On	Time Off	Total Time	Method	Matrix	Workorder(s)	SDG(s)	Low Axial SC / High Axial SC	# of Samples	Run #	Initials
05/22/14	14:44	16:08	84 min.	ISM01.3 2014Mod	water	IEC Run		6751 / 616560	6	i14029	gcs
05/28/14	10:50	13:35	165 min.	ISM01.3 2014Mod	water	200.7 MDLs		5944 / 627780	32	i14030	gcs
05/28/14	14:03	16:13	130 min.	ISM01.3 2014Mod	soil	3050B MDLs		5337 / 577590	23	i14031	gcs
05/29/14	12:48	15:33	165 min.	ISM01.3 2014Mod	soil	3050B MDLs		5791 / 461910	32	i14032	gcs
05/29/14	16:01	18:45	164 min.	ISM01.3 2014Mod	wipe	3050B Wipe MDLs		6051 / 458290	32	i14033	gcs
05/29/14	18:56	21:41	165 min.	ISM01.3 2014 Mod	water	200.7 MDLs		5871 / 453670	32	i14034	gcs
05/30/14	09:26	11:09	103 min.	ISM01.3 2014Mod	soil	3050B MDLs		5970 / 543130	16	i14035	gcs
06/27/14	13:11	16:06	175 min.	ISM01.3 2014	soil	1417764	MH4AE0	5591 / 518050	20	i14036	gcs
06/27/14	16:21	18:15	114 min.	ISM01.3 2014	soil	1417742	MH4AA0	5700 / 528840	20	i14037	gcs
06/30/14	09:49	12:01	132 min.	ISM01.3 2014	soil	1417766	MH4AG0	5779 / 540050	20	i14038	gcs
06/30/14	12:51	14:45	114 min.	ISM01.3 2014	soil	1417773	MH4AJ0	5760 / 563040	20	i14039	gcs
06/30/14	17:22	19:30	128 min.	ISM01.3 2014	soil	1417775	MH4AL0	5879 / 544370	20	i14040	gcs
07/01/14	11:12	14:33	201 min.	ISM01.3 2014	soil	1417785 1417744	MH4AS0 MH4AC0	5957 / 555960	22	i14041	gcs
07/01/14	14:46	16:56	130 min.	ISM01.3 2014	soil	1417778	MH4AN0	6578 / 628160	20	i14042	gcs
07/01/14	17:16	20:37	201 min.	ISM01.3 2014	soil	1417782	MH4AQ0	5939 / 536170	20	i14043	gcs
07/10/14	11:46	13:09	83 min.	ISM01.3 2014	soil	1417553	MC0AC0	6174 / 593410	2	i14044	gcs
07/10/14	13:55	15:54	119 min.	ISM01.3 2014	soil	1417548	MC0AA0	6254 / 617380	20	i14045	gcs

To Page No. ____

Witnessed & Understood by me, Date

Invented by: Date

Recorded by:

Project No. NA

TITLE ALS Environmental ICP Solutions/Reagents Logbook

Book No. 4535

From Page No. 51

Date	ICP Solution #	Solution Type	Primary Solution Horizon ID #	Acid Lots	Expiration Date	Recipe Page	Initials	Comments
06/25/2014 LE 06/25/2014	ICP-14-056	RINSE 5%/5%	N/A	HNO_3 - 0000077192 HCl - 53010	12/25/2014	1	LE	2L MADE FOR SO, ICB, CCB, DILUTENT...
06/25/2014	ICP-14-057	RINSE 5%/5%	N/A	↓	12/25/2014	1	LE	↓

To Page No. ____

Witnessed & Understood by me, | Date | Invented by: | Date

Recorded by:

Project No. NA

TITLE ALS Environmental ICP Solutions/Reagents Logbook Book No. 4535

From Page No. 50

Date	ICP Solution #	Solution Type	Primary Solution Horizon ID #	Acid Lots	Expiration Date	Recipe Page	Initials	Comments
03/13/14	ICP-14-021	ScYIS	Sc-19203, Y-19164	HNO_3-0000053953 HCl-53186	05/30/14	1	GCS	2L made
03/13/14	ICP-14-022	ScYIS	Sc-19203, Y-19164	HNO_3-0000053953 HCl-53186	05/30/14	1	GCS	2L made
03/13/14	ICP-14-023	ScYIS	Sc-19203, Y-19164	HNO_3-0000053953 HCl-53186	05/30/14	1	GCS	2L made
03/13/14	ICP-14-024	5%/5%	NA	HNO_3-0000053953 HCl-53186	09/13/14	1	GCS	2L made for SD, ICB, CCB and Dilutent
03/18/14	ICP-14-025	ScYIS	Sc-19203, Y-19164	HNO_3-0000050770 HCl-53186	05/30/14	1	GCS	2L made
03/18/14	ICP-14-026	5%/5%	NA	HNO_3-0000050770 HCl-53186	09/18/14	1	GCS	2L made for SD, ICB, CCB and Dilutent
03/18/14	ICP-14-027	5%/5%	NA	HNO_3-0000050770 HCl-53186	09/18/14	1	GCS	1L made for SD, ICB, CCB and Dilutent
03/18/14	ICP-14-028	Rinse 5%/5%	NA	HNO_3-0000053953 0000050770 HCl-53010	09/18/14	1	GCS	10L made
03/18/14	ICP-14-029	Rinse 5%/5%	NA	HNO_3-0000050770 HCl-53010	09/18/14	1	GCS	10L made
04/08/14	ICP-14-030	Rinse 5%/5%	NA	HNO_3-0000050770 HCl-53010	10/08/14	1	GCS	2L made
04/15/2014	ICP-14-031	RINSE 5%/5%	N/A	HNO_3-0000050990 HCl-53010	10/15/2014	1	NE	2L MADE FOR SD, ICB, CCB + DILUTENT
04/22/2014	ICP-14-032	RINSE 5%/5%	N/A	HNO_3-0000050990 HCl-53010	10/22/2014	1	NE	2L MADE
04/22/2014	ICP-14-033	RINSE 5%/5%	N/A	HNO_3-0000050990 HCl-53010	10/22/2014	1	NE	2L MADE
04/29/2014	ICP-14-034	ScYIS	Sc-19203, Y-19164	HNO_3-0000053953 HCl-53010	05/30/2014	1	NE	2L MADE
04/29/2014	ICP-14-035	ScYIS	Sc-19203, Y-19164	HNO_3-0000053953 HCl-53010	05/30/2014	1	NE	2L MADE
04/29/2014	ICP-14-036	ScYIS	Sc-22846, Y-22482	HNO_3-0000053953 HCl-53010	10/29/2014	1	NE	2L MADE
04/29/2014	ICP-14-037	ScYIS	Sc-22846, Y-22482	HNO_3-0000053953 HCl-53010	10/29/2014	1	NE	2L MADE
04/29/2014	ICP-14-038	RINSE 5%/5%	N/A	HNO_3-0000053953 HCl-53010	10/29/2014	1	NE	2L MADE FOR SD, ICB, CCB + DILUTENT
04/29/2014	ICP-14-039	RINSE 5%/5%	N/A	HNO_3-0000053953 HCl-53010	10/29/2014	1	NE	↓
05/23/2014	ICP-14-040	RINSE 5%/5%	N/A	HNO_3-0000053953 HCl-53010	11/23/2014	1	NE	2L MADE FOR SD, ICB, CCB + DILUTENT.
05/27/2014	ICP-14-041	RINSE 5%/5%	N/A	HNO_3-0000053953 HCl-53010	11/27/2014	1	NE	2L MADE
05/27/2014	ICP-14-042	↓	N/A	HNO_3-0000066236 HCl-53010	11/27/2014	1	NE	2L MADE
06/02/2014	ICP-14-043	RINSE 5%/5%	N/A	HNO_3-0000066236 HCl-53010	12/02/2014	1	NE	10L MADE
06/05/14	ICP-14-044	Rinse 5%/5%	NA	HNO_3-0000066236 HCl-53010	12/05/14	1	GCS	2L made
06/05/14	ICP-14-045	Rinse 5%/5%	NA	HNO_3-0000066236 HCl-53010	12/05/14	1	GCS	2L made
06/05/14	ICP-14-046	Rinse 5%/5%	NA	HNO_3-0000066236 HCl-53010	12/05/14	1	GCS	2L made
06/05/14	ICP-14-047	ScYIS	Sc-22846, Y-22482	HNO_3-0000066236 HCl-53010	12/05/14	1	GCS	2L made
06/05/14	ICP-14-048	ScYIS	Sc-22846, Y-22482	HNO_3-0000066236 HCl-53010	12/05/14	1	GCS	2L made
06/05/14	ICP-14-049	ScYIS	Sc-22846, Y-22482	HNO_3-0000066236 HCl-53010	12/05/14	1	GCS	2L made
06/05/14	ICP-14-050	ScYIS	Sc-22846, Y-22482	HNO_3-0000066236 HCl-53010	12/05/14	1	GCS	2L made
06/06/2014	ICP-14-051	RINSE 5%/5%	N/A	HNO_3-0000066236 HCl-53221	12/06/2014	1	NE	10L MADE
06/06/2014	ICP-14-052	RINSE 5%/5%	N/A	HNO_3-0000066236 HCl-53221	12/06/2014	1	NE	10L MADE
06/06/2014	ICP-14-053	RINSE 5%/5%	N/A	HNO_3-0000066236 HCl-53221	12/06/2014	1	NE	10L MADE
06/10/2014	ICP-14-054	RINSE 5%/5%	N/A	HNO_3-0000066236 HCl-53010	12/10/2014	1	NE	2L MADE FOR SD, ICB, CCB, + DILUTENT.
06/15/2014	ICP-14-055	TAS	Zn-22483	HNO_3-0000066236 MeOH-K38813	12/15/2014	1	NE	1L MADE

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Witnessed & Understood by me, Joanna C. Sanchez

Date 06/17/14

Invented by: N/A

Recorded by:

Date 06/15/2014

TITLE ALS Environmental ICP ~~DATACHEM LABORATORIES~~ SOLUTION/REAGENTS LOGIBOOK JSS 7/25/12

Project No. N/A

Book No. 4535

From Page No. X

RECIPES

7.5% HNO_3 = TRANSFERRED SOME ASTM TYPE II H_2O TO A 2L FLASK. ADD 150ML OF HNO_3 TO THE FLASK. BRING TO VOLUME WITH MORE ASTM TYPE II H_2O. STOPPER FLASK, SHAKE TO MIX. USE FOR SO, ICB, CCB AND DILUTANT.

Sc IS = ADDED SOME WATER TO A 2L FLASK. ADD ~~75~~ 100 ML OF HNO_3 AND ~~50~~ 100 ML OF HCl. ADD 1.2mL OF A 10,000 µg/mL Sc STAND. BRING TO VOLUME WITH MORE ASTM TYPE II H_2O. STOPPER FLASK AND SHAKE WELL.

7.5%/1% RINSE = ADD SOME ASTM TYPE II H_2O TO A 2L FLASK. ADD 150mL OF HNO_3 + 20mL OF HCl. BRING TO VOLUME WITH MORE ASTM TYPE II H_2O. STOPPER FLASK AND SHAKE WELL.

2ppm Zn. = ADD SOME ASTM TYPE II H_2O TO A 200mL VOLUMETERIC FLASK. ADD 2mL OF HNO_3. SPIKE IN 40µl OF 10,000 µg/mL Zn. BRING TO VOLUME WITH MORE ASTM TYPE II H_2O. STOPPER AND SHAKE WELL. USE FOR TORCH ALIGNMENT.

5%/5% RINSE = ADD SOME ASTM TYPE II H_2O TO A 2L FLASK. ADD 100mL OF HNO_3 AND 100mL OF HCl TO THE FLASK. BRING TO VOLUME WITH MORE ASTM TYPE II H_2O. STOPPER FLASK AND SHAKE WELL.

Thermo Torch Alignment Solution = Add some ASTM Type II H_2O to a 250 mL flask. Add 2.5 mL of HNO_3, 7.5 µL of MeOH and 50 µL of 10,000 µg/mL Zn. Bring to volume with ASTM Type II H_2O, Stopper and shake to mix. 0.03 mL/L MeOH, 2 mg/L Zn in 1% HNO_3.

ScYIS = ADD SOME WATER TO A 2L FLASK, THEN ADD 100mL OF HNO_3 AND 100mL OF HCl TO THE FLASK. SPIKE IN 1.2mL OF Sc STANDARD (10,000 µg/mL) AND 0.5mL OF Y STANDARD (10,000 µg/mL). BRING TO VOLUME WITH MORE ASTM TYPE II H_2O. STOPPER AND SHAKE FLASK.

2% HNO_3 = Add some ASTM Type II H_2O to a 2L flask. Add 40mL of HNO_3 to the flask. Bring to volume with more ASTM Type II H_2O. Stopper flask and shake well. Use for SO, ICB, CCB and Serial Dilutions or use for Rinse.

2% ScYIS = Add some ASTM Type II H_2O to a 2L flask. Add 40mL of HNO_3 to the flask. Spike in 1.2mL of 10,000 µg/mL Sc standard and 0.5mL of 10,000 µg/mL Y standard. Bring to volume with more ASTM Type II H_2O. Stopper flask and shake well.

To Page No. ____

Witnessed & Understood by me,	Date	Invented by:	Date
		Recorded by:	

STANDARD REPORT

Working Standard - ISM01.3 SA

ISM01.3 SA		Description - ISM01.3 SA
Standard: 23707	**Created By:** J. Sanchez	**Amount:** 1000 mL
MFG: JCS	**Create Date:** 06/06/2014	**Expires:** 11/01/2014
MFG Lot:	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-10, ICP-2, ICP-1		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	200 ug/L
2	7440-36-0	Antimony	60 ug/L
3	7440-38-2	Arsenic	10 ug/L
4	7440-39-3	Barium	200 ug/L
5	7440-41-7	Beryllium	5 ug/L
6	7440-43-9	Cadmium	5 ug/L
7	7440-70-2	Calcium	5000 ug/L
8	7440-47-3	Chromium	10 ug/L
9	7440-48-4	Cobalt	50 ug/L
10	7440-50-8	Copper	25 ug/L
11	7439-89-6	Iron	100 ug/L
12	7439-92-1	Lead	10 ug/L
13	7439-95-4	Magnesium	5000 ug/L
14	7439-96-5	Manganese	15 ug/L
15	7440-02-0	Nickel	40 ug/L
16	7440-09-7	Potassium	5000 ug/L
17	7782-49-2	Selenium	35 ug/L
18	7440-22-4	Silver	10 ug/L
19	7440-23-5	Sodium	5000 ug/L
20	7440-28-0	Thallium	25 ug/L
21	7440-62-2	Vanadium	50 ug/L
22	7440-66-6	Zinc	60 ug/L
23	7440-32-6	Titanium	25 ug/L
24	7439-98-7	Molybdenum	10 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	889.65 mL	11/07/2025
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
21088	ICP-CLP-CRQL	ISM CRQL Solution	ICP-CLP	10 mL	11/01/2014
23113	HNO3	Concentrated Nitric Acid	HNO3 (66236)	50 mL	04/04/2019
23705	100x of Mo	100x of Mo stock	ICP-CLP	0.1 mL	12/06/2014
23706	100x of Ti	100x of Ti stock	ICP-CLP	0.25 mL	12/06/2014

STANDARD REPORT

Working Standard - ISM01.3 SB

ISM01.3 SB		Description - ISM01.3 Standard B
Standard: 23708	**Created By:** J. Sanchez	**Amount:** 1000 mL
MFG: JCS	**Create Date:** 06/06/2014	**Expires:** 08/01/2014
MFG Lot:	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-10, ICP-2, ICP-1		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	1000 ug/L
2	7439-89-6	Iron	1000 ug/L
3	7440-70-2	Calcium	25000 ug/L
4	7440-09-7	Potassium	25000 ug/L
5	7439-95-4	Magnesium	25000 ug/L
6	7440-23-5	Sodium	25000 ug/L
7	7440-39-3	Barium	750 ug/L
8	7440-22-4	Silver	125 ug/L
9	7440-62-2	Vanadium	200 ug/L
10	7440-41-7	Beryllium	80 ug/L
11	7440-43-9	Cadmium	80 ug/L
12	7440-48-4	Cobalt	200 ug/L
13	7440-47-3	Chromium	200 ug/L
14	7440-50-8	Copper	200 ug/L
15	7439-96-5	Manganese	200 ug/L
16	7440-02-0	Nickel	200 ug/L
17	7439-92-1	Lead	200 ug/L
18	7440-66-6	Zinc	200 ug/L
19	7440-28-0	Thallium	80 ug/L
20	7440-36-0	Antimony	200 ug/L
21	7440-38-2	Arsenic	80 ug/L
22	7439-98-7	Molybdenum	80 ug/L
23	7782-49-2	Selenium	80 ug/L
24	7440-32-6	Titanium	80 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	897.16 mL	11/07/2025
19967	STD-2B	ISM01.3 Standard Mix	ICP-CLP	0.04 mL	08/01/2014
19968	STD-2C	ISM01.3 Standard Mix	ICP-CLP	0.04 mL	08/01/2014
20052	STD-2A	ISM01.3 Standard Mix	ICP-CLP	0.04 mL	08/01/2014
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
21440	STD-1	ISM01.3 Standard	ICP-CLP	0.04 mL	12/01/2014
21441	IV-STOCK-2	ISM01.3 Standard	ICP-CLP	2.5 mL	12/01/2014
22470	Ag Stock	1,000 ug/mL Ag Stock	Ag 1,000 ug/mL	0.125 mL	02/28/2015
23051	Ba Stock	10,000 ug/mL Ba Stock	SPEX Ba 10,000 ug/mL	0.055 mL	03/30/2015
23113	HNO3	Concentrated Nitric Acid	HNO3 (66236)	50 mL	04/04/2019

STANDARD REPORT

Working Standard - ISM01.3 SC

ISM01.3 SC — **Description - ISM01.3 SC**

Standard: 23709 **Created By:** J. Sanchez **Amount:** 1000 mL
MFG: JCS **Create Date:** 06/06/2014 **Expires:** 08/01/2014
MFG Lot: **Lab Lot:** ICP-CLP **Usable:** Yes
Part ID: ICP-2, ICP-1

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	5000 ug/L
2	7439-89-6	Iron	5000 ug/L
3	7440-22-4	Silver	250 ug/L
4	7440-39-3	Barium	2000 ug/L
5	7440-62-2	Vanadium	2000 ug/L
6	7440-41-7	Beryllium	800 ug/L
7	7440-43-9	Cadmium	800 ug/L
8	7440-48-4	Cobalt	2000 ug/L
9	7440-47-3	Chromium	2000 ug/L
10	7440-50-8	Copper	2000 ug/L
11	7439-96-5	Manganese	2000 ug/L
12	7440-02-0	Nickel	2000 ug/L
13	7439-92-1	Lead	2000 ug/L
14	7440-66-6	Zinc	2000 ug/L
15	7440-28-0	Thallium	800 ug/L
16	7440-36-0	Antimony	2000 ug/L
17	7440-38-2	Arsenic	800 ug/L
18	7439-98-7	Molybdenum	800 ug/L
19	7782-49-2	Selenium	800 ug/L
20	7440-32-6	Titanium	800 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	898.35 mL	11/07/2025
19967	STD-2B	ISM01.3 Standard Mix	ICP-CLP	0.4 mL	08/01/2014
19968	STD-2C	ISM01.3 Standard Mix	ICP-CLP	0.4 mL	08/01/2014
20052	STD-2A	ISM01.3 Standard Mix	ICP-CLP	0.4 mL	08/01/2014
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
21440	STD-1	ISM01.3 Standard	ICP-CLP	0.2 mL	12/01/2014
22470	Ag Stock	1,000 ug/mL Ag Stock	Ag 1,000 ug/mL	0.25 mL	02/28/2015
23113	HNO3	Concentrated Nitric Acid	HNO3 (66236)	50 mL	04/04/2019

STANDARD REPORT

Working Standard - ISM01.3 SD

ISM01.3 SD		Description - ISM01.3 SD
Standard: 23762	**Created By:** J. Sanchez	**Amount:** 1000 mL
MFG: JCS	**Create Date:** 06/09/2014	**Expires:** 08/01/2014
MFG Lot:	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-10, ICP-2		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	50000 ug/L
2	7439-89-6	Iron	50000 ug/L
3	7440-70-2	Calcium	125000 ug/L
4	7440-09-7	Potassium	125000 ug/L
5	7439-95-4	Magnesium	125000 ug/L
6	7440-23-5	Sodium	125000 ug/L
7	7440-22-4	Silver	500 ug/L
8	7440-39-3	Barium	5000 ug/L
9	7440-62-2	Vanadium	5000 ug/L
10	7440-41-7	Beryllium	2000 ug/L
11	7440-43-9	Cadmium	2000 ug/L
12	7440-48-4	Cobalt	5000 ug/L
13	7440-47-3	Chromium	5000 ug/L
14	7440-50-8	Copper	5000 ug/L
15	7439-96-5	Manganese	5000 ug/L
16	7440-02-0	Nickel	5000 ug/L
17	7439-92-1	Lead	5000 ug/L
18	7440-66-6	Zinc	5000 ug/L
19	7440-28-0	Thallium	2000 ug/L
20	7440-36-0	Antimony	5000 ug/L
21	7440-38-2	Arsenic	2000 ug/L
22	7439-98-7	Molybdenum	2000 ug/L
23	7782-49-2	Selenium	2000 ug/L
24	7440-32-6	Titanium	2000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	882 mL	11/07/2025
19967	STD-2B	ISM01.3 Standard Mix	ICP-CLP	1 mL	08/01/2014
19968	STD-2C	ISM01.3 Standard Mix	ICP-CLP	1 mL	08/01/2014
20052	STD-2A	ISM01.3 Standard Mix	ICP-CLP	1 mL	08/01/2014
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
21440	STD-1	ISM01.3 Standard	ICP-CLP	2 mL	12/01/2014
21441	IV-STOCK-2	ISM01.3 Standard	ICP-CLP	12.5 mL	12/01/2014
22470	Ag Stock	1,000 ug/mL Ag Stock	Ag 1,000 ug/mL	0.5 mL	02/28/2015
23113	HNO3	Concentrated Nitric Acid	HNO3 (66236)	50 mL	04/04/2019

STANDARD REPORT

Working Standard - ISM01.3 SE

ISM01.3 SE		Description - ISM01.3 SE
Standard: 24220	Created By: J. Sanchez	Amount: 500 mL
MFG: JCS	Create Date: 07/01/2014	Expires: 08/01/2014
MFG Lot:	Lab Lot: ICP-CLP	Usable: Yes
Part ID: ICP-10, ICP-2		

Pos.	Analyte	Name	Concentration
1	7440-22-4	Silver	1000 ug/L
2	7440-39-3	Barium	25000 ug/L
3	7440-62-2	Vanadium	25000 ug/L
4	7440-41-7	Beryllium	10000 ug/L
5	7440-43-9	Cadmium	10000 ug/L
6	7440-48-4	Cobalt	25000 ug/L
7	7440-47-3	Chromium	25000 ug/L
8	7440-50-8	Copper	25000 ug/L
9	7439-96-5	Manganese	25000 ug/L
10	7440-02-0	Nickel	25000 ug/L
11	7439-92-1	Lead	25000 ug/L
12	7440-66-6	Zinc	25000 ug/L
13	7440-28-0	Thallium	10000 ug/L
14	7440-36-0	Antimony	25000 ug/L
15	7440-38-2	Arsenic	10000 ug/L
16	7439-98-7	Molybdenum	10000 ug/L
17	7782-49-2	Selenium	10000 ug/L
18	7440-32-6	Titanium	10000 ug/L
19	7429-90-5	Aluminum	250000 ug/L
20	7439-89-6	Iron	250000 ug/L
21	7440-70-2	Calcium	250000 ug/L
22	7440-09-7	Potassium	250000 ug/L
23	7439-95-4	Magnesium	250000 ug/L
24	7440-23-5	Sodium	250000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	412 mL	11/07/2025
19967	STD-2B	ISM01.3 Standard Mix	ICP-CLP	2.5 mL	08/01/2014
19968	STD-2C	ISM01.3 Standard Mix	ICP-CLP	2.5 mL	08/01/2014
20052	STD-2A	ISM01.3 Standard Mix	ICP-CLP	2.5 mL	08/01/2014
20440	HCl	concentrated hydrochloric acid	HCl (53010)	25 mL	08/27/2018
21440	STD-1	ISM01.3 Standard	ICP-CLP	5 mL	12/01/2014
21441	IV-STOCK-2	ISM01.3 Standard	ICP-CLP	12.5 mL	12/01/2014
22470	Ag Stock	1,000 ug/mL Ag Stock	Ag 1,000 ug/mL	0.5 mL	02/28/2015
24122	HNO3	Concentrated Nitric Acid	HNO3 (74185)	25 mL	05/21/2019

STANDARD REPORT

Working Standard - ISM01.3 SF

ISM01.3 SF		Description - ISM01.3 SF
Standard: 23763	Created By: J. Sanchez	Amount: 1000 mL
MFG: JCS	Create Date: 06/09/2014	Expires: 08/01/2014
MFG Lot:	Lab Lot: ICP-CLP	Usable: Yes
Part ID: ICP-10		

Pos.	Analyte	Name	Concentration
1	7440-22-4	Silver	2000 ug/L
2	7440-39-3	Barium	50000 ug/L
3	7440-62-2	Vanadium	50000 ug/L
4	7440-41-7	Beryllium	20000 ug/L
5	7440-43-9	Cadmium	20000 ug/L
6	7440-48-4	Cobalt	50000 ug/L
7	7440-47-3	Chromium	50000 ug/L
8	7440-50-8	Copper	50000 ug/L
9	7439-96-5	Manganese	50000 ug/L
10	7440-02-0	Nickel	50000 ug/L
11	7439-92-1	Lead	50000 ug/L
12	7440-66-6	Zinc	50000 ug/L
13	7440-28-0	Thallium	20000 ug/L
14	7440-36-0	Antimony	50000 ug/L
15	7440-38-2	Arsenic	20000 ug/L
16	7439-98-7	Molybdenum	20000 ug/L
17	7782-49-2	Selenium	20000 ug/L
18	7440-32-6	Titanium	20000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	868 mL	11/07/2025
19967	STD-2B	ISM01.3 Standard Mix	ICP-CLP	10 mL	08/01/2014
19968	STD-2C	ISM01.3 Standard Mix	ICP-CLP	10 mL	08/01/2014
20052	STD-2A	ISM01.3 Standard Mix	ICP-CLP	10 mL	08/01/2014
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
22470	Ag Stock	1,000 ug/mL Ag Stock	Ag 1,000 ug/mL	2 mL	02/28/2015
23113	HNO3	Concentrated Nitric Acid	HNO3 (66236)	50 mL	04/04/2019

STANDARD REPORT

Working Standard - S500000

S500000		**Description - ISM01.3 Standard 500000**
Standard: 23139	**Created By:** J. Sanchez	**Amount:** 1000 mL
MFG: JCS	**Create Date:** 04/08/2014	**Expires:** 10/08/2014
MFG Lot:	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-10		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	500000 ug/L
2	7439-89-6	Iron	500000 ug/L
3	7440-70-2	Calcium	500000 ug/L
4	7440-09-7	Potassium	500000 ug/L
5	7439-95-4	Magnesium	500000 ug/L
6	7440-23-5	Sodium	500000 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	830 mL	11/07/2025
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
21440	STD-1	ISM01.3 Standard	ICP-CLP	20 mL	12/01/2014
21441	IV-STOCK-2	ISM01.3 Standard	ICP-CLP	50 mL	12/01/2014
21848	HNO3	Concentrated Nitric Acid	HNO3 (0000050770)	50 mL	01/04/2015

STANDARD REPORT

Working Standard - ISM ICP ICV

ISM ICP ICV		Description - ISM01.3 ICP ICV
Standard: 24142	**Created By:** J. Sanchez	**Amount:** 500 mL
MFG: JCS	**Create Date:** 06/27/2014	**Expires:** 12/27/2014
MFG Lot: ICV-1(0307)	**Lab Lot:** ICV ICP-CLP	**Usable:** Yes
Part ID: ICP-10		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	2521 ug/L
2	7440-36-0	Antimony	994 ug/L
3	7440-38-2	Arsenic	999 ug/L
4	7440-39-3	Barium	497 ug/L
5	7440-41-7	Beryllium	495 ug/L
6	7440-43-9	Cadmium	496 ug/L
7	7440-70-2	Calcium	10026 ug/L
8	7440-47-3	Chromium	490 ug/L
9	7440-48-4	Cobalt	499 ug/L
10	7440-50-8	Copper	492 ug/L
11	7439-89-6	Iron	5082 ug/L
12	7439-92-1	Lead	1002 ug/L
13	7439-95-4	Magnesium	6074 ug/L
14	7439-96-5	Manganese	499 ug/L
15	7440-02-0	Nickel	503 ug/L
16	7440-09-7	Potassium	10021 ug/L
17	7782-49-2	Selenium	1029 ug/L
18	7440-22-4	Silver	501 ug/L
19	7440-23-5	Sodium	10097 ug/L
20	7440-28-0	Thallium	1028 ug/L
21	7440-62-2	Vanadium	501 ug/L
22	7440-66-6	Zinc	1025 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	400 mL	11/07/2025
14732	CLPICP-ICV1	CLP-ICP/ICPMS-ICV-1	ICP-CLP	50 mL	03/23/2022
20440	HCl	concentrated hydrochloric acid	HCl (53010)	25 mL	08/27/2018
24122	HNO3	Concentrated Nitric Acid	HNO3 (74185)	25 mL	05/21/2019

STANDARD REPORT

Working Standard - ISM01.3 ICSA

ISM01.3 ICSA		**Description - ISM01.3 ICP ICSA**
Standard: 23198	**Created By:** J. Sanchez	**Amount:** 1000 mL
MFG: JCS	**Create Date:** 04/17/2014	**Expires:** 10/17/2014
MFG Lot: ICSA(1206)	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-10		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	244100 ug/L
2	7440-39-3	Barium	2 ug/L
3	7440-70-2	Calcium	234900 ug/L
4	7440-47-3	Chromium	43 ug/L
5	7440-48-4	Cobalt	4 ug/L
6	7440-50-8	Copper	23 ug/L
7	7439-89-6	Iron	95600 ug/L
8	7439-92-1	Lead	10 ug/L
9	7439-95-4	Magnesium	247500 ug/L
10	7439-96-5	Manganese	19 ug/L
11	7440-02-0	Nickel	21 ug/L
12	7440-66-6	Zinc	28 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	800 mL	11/07/2025
14730	CLPICP-ICS-A	CLP-ICP-ICS-Part A	ICP-CLP	100 mL	03/23/2022
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
21848	HNO3	Concentrated Nitric Acid	HNO3 (0000050770)	50 mL	01/04/2015

STANDARD REPORT

Working Standard - ISM ICSAB

ISM ICSAB		Description - ISM01.3 ICSAB
Standard: 24221	**Created By:** J. Sanchez	**Amount:** 1000 mL
MFG: JCS	**Create Date:** 07/01/2014	**Expires:** 01/01/2015
MFG Lot: ICSAB-(1206/0203)	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: Grad Cylinder		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	241100 ug/L
2	7440-36-0	Antimony	589 ug/L
3	7440-38-2	Arsenic	101 ug/L
4	7440-39-3	Barium	495 ug/L
5	7440-41-7	Beryllium	475 ug/L
6	7440-43-9	Cadmium	940 ug/L
7	7440-70-2	Calcium	231100 ug/L
8	7440-47-3	Chromium	511 ug/L
9	7440-48-4	Cobalt	461 ug/L
10	7440-50-8	Copper	548 ug/L
11	7439-89-6	Iron	94800 ug/L
12	7439-92-1	Lead	61 ug/L
13	7439-95-4	Magnesium	251100 ug/L
14	7439-96-5	Manganese	502 ug/L
15	7440-02-0	Nickel	984 ug/L
16	7782-49-2	Selenium	53 ug/L
17	7440-22-4	Silver	206 ug/L
18	7440-28-0	Thallium	103 ug/L
19	7440-62-2	Vanadium	494 ug/L
20	7440-66-6	Zinc	1028 ug/L

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	700 mL	11/07/2025
7366	CLPICP-ICS-B	CLP-ICP-ICS-Part B(0203)	ICP-CLP	100 mL	02/24/2020
14730	CLPICP-ICS-A	CLP-ICP-ICS-Part A	ICP-CLP	100 mL	03/23/2022
20440	HCl	concentrated hydrochloric acid	HCl (53010)	50 mL	08/27/2018
23985	HNO3	Concentrated Nitric Acid	HNO3 (0000077192)	50 mL	06/20/2024

STANDARD REPORT

Working Standard - 20ppm Sb

20ppm Sb		**Description - 20ppm Sb for PDS**
Standard: 24141	**Created By:** J. Sanchez	**Amount:** 50 mL
MFG: JCS	**Create Date:** 06/27/2014	**Expires:** 12/27/2014
MFG Lot:	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-1		

Pos.	Analyte	Name	Concentration
1	7440-36-0	Antimony	20 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	47.4 mL	11/07/2025
23068	Sb Stock	10,000 ug/mL Sb Stock	SPEX Sb 10,000 ug/mL	0.1 mL	03/30/2015
24122	HNO3	Concentrated Nitric Acid	HNO3 (74185)	2.5 mL	05/21/2019

STANDARD REPORT

Working Standard - Mn 1000

Mn 1000		**Description - Mn 1000**
Standard: 24370	**Created By:** J. Sanchez	**Amount:** 10 mL
MFG: JCS	**Create Date:** 07/10/2014	**Expires:** 01/10/2015
MFG Lot:	**Lab Lot:** JCS-071014-1	**Usable:** Yes
Part ID: ICP-10, ICP-2		

Pos.	Analyte	Name	Concentration
1	7439-96-5	Manganese	1000 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	8 mL	11/07/2025
20440	HCl	concentrated hydrochloric acid	HCl (53010)	0.5 mL	08/27/2018
23061	Mn Stock	10,000 ug/mL Mn Stock	SPEX Mn 10,000 ug/mL	1 mL	03/30/2015
23985	HNO3	Concentrated Nitric Acid	HNO3 (0000077192)	0.5 mL	06/20/2024

STANDARD REPORT

Stock Standard - Y Stock

Y Stock		**Description - 10,000 ug/mL Y Stock**
Standard: 22482	**Created By:** P. Foote	**Amount:** 125 mL
MFG: SPEX CertiPrep	**Create Date:** 2/11/2014	**Expires:** 2/28/2015
MFG Lot: AI15-90YY	**Lab Lot:** SPEX Y 10,000 ug/mL	**Usable:** Yes
Part ID: PLY2-3Y		

Pos.	Analyte	Name	Concentration
1	7440-65-5	Yttrium	10000 ug/mL

STANDARD REPORT

Stock Standard - Sc Stock

Sc Stock		**Description - 10,000 ug/mL Sc Stock**
Standard: 22846	**Created By:** P. Foote	**Amount:** 125 mL
MFG: Inorganic Ventures	**Create Date:** 3/13/2014	**Expires:** 4/1/2015
MFG Lot: F2-SC02097	**Lab Lot:** IV Sc 10,000 ug/mL	**Usable:** Yes
Part ID: CGSC10-1		

Pos.	Analyte	Name	Concentration
1	7440-20-2	Scandium	10000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - CLPICP-ICS-B

CLPICP-ICS-B		**Description - CLP-ICP-ICS-Part B(0203)**
Standard: 7366	**Created By:** J. Sanchez	**Amount:** 100 mL
MFG: QATS Laboratory	**Create Date:** 2/24/2010	**Expires:** 2/24/2020
MFG Lot: 0203	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID:		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	-30000 ug/L
2	7440-36-0	Antimony	5890 ug/L
3	7440-38-2	Arsenic	1010 ug/L
4	7440-39-3	Barium	4930 ug/L
5	7440-41-7	Beryllium	4750 ug/L
6	7440-43-9	Cadmium	9400 ug/L
7	7440-70-2	Calcium	-38000 ug/L
8	7440-47-3	Chromium	4680 ug/L
9	7440-48-4	Cobalt	4570 ug/L
10	7440-50-8	Copper	5250 ug/L
11	7439-89-6	Iron	-8000 ug/L
12	7439-92-1	Lead	510 ug/L
13	7439-95-4	Magnesium	36000 ug/L
14	7439-96-5	Manganese	4830 ug/L
15	7440-02-0	Nickel	9630 ug/L
16	7782-49-2	Selenium	530 ug/L
17	7440-22-4	Silver	2060 ug/L
18	7440-28-0	Thallium	1030 ug/L
19	7440-62-2	Vanadium	4940 ug/L
20	7440-66-6	Zinc	10000 ug/L

STANDARD REPORT

Constituent

Stock Standard - CLPICP-ICS-A

CLPICP-ICS-A		**Description - CLP-ICP-ICS-Part A**
Standard: 14730	**Created By:** J. Sanchez	**Amount:** 100 mL
MFG: QATS Laboratory	**Create Date:** 3/23/2012	**Expires:** 3/23/2022
MFG Lot: ICSA-(1206)	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID:		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	2441000 ug/L
2	7440-39-3	Barium	20 ug/L
3	7440-70-2	Calcium	2349000 ug/L
4	7440-47-3	Chromium	430 ug/L
5	7440-48-4	Cobalt	40 ug/L
6	7440-50-8	Copper	230 ug/L
7	7439-89-6	Iron	956000 ug/L
8	7439-92-1	Lead	100 ug/L
9	7439-95-4	Magnesium	2475000 ug/L
10	7439-96-5	Manganese	190 ug/L
11	7440-02-0	Nickel	210 ug/L
12	7440-66-6	Zinc	280 ug/L

STANDARD REPORT

Constituent

Stock Standard - CLPICP-ICV1

CLPICP-ICV1 — **Description - CLP-ICP/ICPMS-ICV-1**

Standard: 14732	**Created By:** J. Sanchez	**Amount:** 100 mL
MFG: QATS Laboratory	**Create Date:** 3/23/2012	**Expires:** 3/23/2022
MFG Lot: ICV-1(0307)	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID:		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	25210 ug/L
2	7440-36-0	Antimony	9940 ug/L
3	7440-38-2	Arsenic	9990 ug/L
4	7440-39-3	Barium	4970 ug/L
5	7440-41-7	Beryllium	4950 ug/L
6	7440-43-9	Cadmium	4960 ug/L
7	7440-70-2	Calcium	100260 ug/L
8	7440-47-3	Chromium	4900 ug/L
9	7440-48-4	Cobalt	4990 ug/L
10	7440-50-8	Copper	4920 ug/L
11	7439-89-6	Iron	50820 ug/L
12	7439-92-1	Lead	10020 ug/L
13	7439-95-4	Magnesium	60740 ug/L
14	7439-96-5	Manganese	4990 ug/L
15	7440-02-0	Nickel	5030 ug/L
16	7440-09-7	Potassium	100210 ug/L
17	7782-49-2	Selenium	10290 ug/L
18	7440-22-4	Silver	5010 ug/L
19	7440-23-5	Sodium	100970 ug/L
20	7440-28-0	Thallium	10280 ug/L
21	7440-62-2	Vanadium	5010 ug/L
22	7440-66-6	Zinc	10250 ug/L

STANDARD REPORT

Constituent

Stock Standard - STD-2B

STD-2B		**Description - ISM01.3 Standard Mix**
Standard: 19967	**Created By:** J. Sanchez	**Amount:** 250 mL
MFG: Inorganic Ventures	**Create Date:** 7/18/2013	**Expires:** 8/1/2014
MFG Lot: G2-MEB484100	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ALSUT-STD-2B		

Pos.	Analyte	Name	Concentration
1	7440-39-3	Barium	5000 ug/mL
2	7440-62-2	Vanadium	5000 ug/mL
3	7440-41-7	Beryllium	2000 ug/mL
4	7440-43-9	Cadmium	2000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - STD-2C

STD-2C		Description - ISM01.3 Standard Mix
Standard: 19968	Created By: J. Sanchez	Amount: 250 mL
MFG: Inorganic Ventures	Create Date: 7/18/2013	Expires: 8/1/2014
MFG Lot: G2-MEB484101	Lab Lot: ICP-CLP	Usable: Yes
Part ID: ALSUT-STD-2C		

Pos.	Analyte	Name	Concentration
1	7440-48-4	Cobalt	5000 ug/mL
2	7440-47-3	Chromium	5000 ug/mL
3	7440-50-8	Copper	5000 ug/mL
4	7439-96-5	Manganese	5000 ug/mL
5	7440-02-0	Nickel	5000 ug/mL
6	7439-92-1	Lead	5000 ug/mL
7	7440-66-6	Zinc	5000 ug/mL
8	7440-28-0	Thallium	2000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - STD-2A

STD-2A		**Description - ISM01.3 Standard Mix**
Standard: 20052	**Created By:** J. Sanchez	**Amount:** 250 mL
MFG: Inorganic Ventures	**Create Date:** 7/24/2013	**Expires:** 8/1/2014
MFG Lot: G2-MEB487014	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ALSUT-STD-2A		

Pos.	Analyte	Name	Concentration
1	7440-36-0	Antimony	5000 ug/mL
2	7440-38-2	Arsenic	2000 ug/mL
3	7439-98-7	Molybdenum	2000 ug/mL
4	7782-49-2	Selenium	2000 ug/mL
5	7440-32-6	Titanium	2000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - ICP-CLP-CRQL

ICP-CLP-CRQL		**Description - ISM CRQL Solution**
Standard: 21088	**Created By:** K. Lockwood	**Amount:** 250 mL
MFG: Inorganic Ventures	**Create Date:** 10/23/2013	**Expires:** 11/1/2014
MFG Lot: F2-MEB445010	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: CLP-AES-CRQL-2		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	20 ug/mL
2	7440-36-0	Antimony	6 ug/mL
3	7440-38-2	Arsenic	1 ug/mL
4	7440-39-3	Barium	20 ug/mL
5	7440-41-7	Beryllium	0.5 ug/mL
6	7440-43-9	Cadmium	0.5 ug/mL
7	7440-70-2	Calcium	500 ug/mL
8	7440-47-3	Chromium	1 ug/mL
9	7440-48-4	Cobalt	5 ug/mL
10	7440-50-8	Copper	2.5 ug/mL
11	7439-89-6	Iron	10 ug/mL
12	7439-92-1	Lead	1 ug/mL
13	7439-95-4	Magnesium	500 ug/mL
14	7439-96-5	Manganese	1.5 ug/mL
15	7440-02-0	Nickel	4 ug/mL
16	7440-09-7	Potassium	500 ug/mL
17	7782-49-2	Selenium	3.5 ug/mL
18	7440-22-4	Silver	1 ug/mL
19	7440-23-5	Sodium	500 ug/mL
20	7440-28-0	Thallium	2.5 ug/mL
21	7440-62-2	Vanadium	5 ug/mL
22	7440-66-6	Zinc	6 ug/mL

STANDARD REPORT

Constituent

Stock Standard - STD-1

STD-1		**Description - ISM01.3 Standard**
Standard: 21440	**Created By:** J. Sanchez	**Amount:** 250 mL
MFG: Inorganic Ventures	**Create Date:** 11/26/2013	**Expires:** 12/1/2014
MFG Lot: G2-MEB501059	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ALSUT-STD-1		

Pos.	Analyte	Name	Concentration
1	7429-90-5	Aluminum	25000 ug/mL
2	7439-89-6	Iron	25000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - IV-STOCK-2

IV-STOCK-2		**Description - ISM01.3 Standard**
Standard: 21441	**Created By:** J. Sanchez	**Amount:** 500 mL
MFG: Inorganic Ventures	**Create Date:** 11/26/2013	**Expires:** 12/1/2014
MFG Lot: G2-MEB463149	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: P1081H		

Pos.	Analyte	Name	Concentration
1	7440-70-2	Calcium	10000 ug/mL
2	7440-09-7	Potassium	10000 ug/mL
3	7439-95-4	Magnesium	10000 ug/mL
4	7440-23-5	Sodium	10000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - Ag Stock

Ag Stock		**Description - 1,000 ug/mL Ag Stock**
Standard: 22470	**Created By:** P. Foote	**Amount:** 125 mL
MFG: Spex CertiPrep	**Create Date:** 2/11/2014	**Expires:** 2/28/2015
MFG Lot: 19-13AGY	**Lab Lot:** Ag 1,000 ug/mL	**Usable:** Yes
Part ID: PLAG2-2Y		

Pos.	Analyte	Name	Concentration
1	7440-22-4	Silver	1000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - Ti Stock

Ti Stock		**Description - 10,000 ug/mL Ti Stock**
Standard: 22478	**Created By:** P. Foote	**Amount:** 125 mL
MFG: SPEX CertiPrep	**Create Date:** 2/11/2014	**Expires:** 2/28/2015
MFG Lot: AL14-169TIY	**Lab Lot:** SPEX Ti 10,000 ug/mL	**Usable:** Yes
Part ID: PLTI9-3Y		

Pos.	Analyte	Name	Concentration
1	7440-32-6	Titanium	10000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - Ba Stock

Ba Stock		**Description - 10,000 ug/mL Ba Stock**
Standard: 23051	**Created By:** P. Foote	**Amount:** 125 mL
MFG: SPEX CertiPrep	**Create Date:** 3/17/2014	**Expires:** 3/30/2015
MFG Lot: AE14-190BAY	**Lab Lot:** SPEX Ba 10,000 ug/mL	**Usable:** Yes
Part ID: PLBA2-3Y		

Pos.	Analyte	Name	Concentration
1	7440-39-3	Barium	10000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - Mn Stock

Mn Stock		**Description - 10,000 ug/mL Mn Stock**
Standard: 23061	**Created By:** P. Foote	**Amount:** 125 mL
MFG: SPEX CertiPrep	**Create Date:** 3/17/2014	**Expires:** 3/30/2015
MFG Lot: AF15-55MNY	**Lab Lot:** SPEX Mn 10,000 ug/mL	**Usable:** Yes
Part ID: PLMN2-3Y		

Pos.	Analyte	Name	Concentration
1	7439-96-5	Manganese	10000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - Mo Stock

Mo Stock		**Description - 10,000 ug/mL Mo Stock**
Standard: 23062	**Created By:** P. Foote	**Amount:** 125 mL
MFG: SPEX CertiPrep	**Create Date:** 3/17/2014	**Expires:** 3/30/2015
MFG Lot: AG15-94MOY	**Lab Lot:** SPEX Mo 10,000 ug/mL	**Usable:** Yes
Part ID: PLMO9-3Y		

Pos.	Analyte	Name	Concentration
1	7439-98-7	Molybdenum	10000 ug/mL

STANDARD REPORT

Constituent

Stock Standard - Sb Stock

Sb Stock		**Description - 10,000 ug/mL Sb Stock**
Standard: 23068	**Created By:** P. Foote	**Amount:** 125 mL
MFG: SPEX CertiPrep	**Create Date:** 3/17/2014	**Expires:** 3/30/2015
MFG Lot: AI15-34SBY	**Lab Lot:** SPEX Sb 10,000 ug/mL	**Usable:** Yes
Part ID: PLSB7-3Y		

Pos.	Analyte	Name	Concentration
1	7440-36-0	Antimony	10000 ug/mL

STANDARD REPORT

Constituent

Working Standard - 100x of Mo

100x of Mo		Description - 100x of Mo stock
Standard: 23705	Created By: J. Sanchez	Amount: 10 mL
MFG: JCS	Create Date: 06/06/2014	Expires: 12/06/2014
MFG Lot:	Lab Lot: ICP-CLP	Usable: Yes
Part ID: ICP-10, ICP-1		

Pos.	Analyte	Name	Concentration
1	7439-98-7	Molybdenum	100 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	8.9 mL	11/07/2025
20440	HCl	concentrated hydrochloric acid	HCl (53010)	0.5 mL	08/27/2018
21092	HNO3	Concentrated Nitric Acid (69.0	HNO3 (0000053953)	0.5 mL	10/23/2018
23062	Mo Stock	10,000 ug/mL Mo Stock	SPEX Mo 10,000 ug/mL	0.1 mL	03/30/2015

STANDARD REPORT

Constituent

Working Standard - 100x of Ti

100x of Ti		Description - 100x of Ti stock
Standard: 23706	**Created By:** J. Sanchez	**Amount:** 10 mL
MFG: JCS	**Create Date:** 06/06/2014	**Expires:** 12/06/2014
MFG Lot:	**Lab Lot:** ICP-CLP	**Usable:** Yes
Part ID: ICP-10, ICP-1		

Pos.	Analyte	Name	Concentration
1	7440-32-6	Titanium	100 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	8.9 mL	11/07/2025
20440	HCl	concentrated hydrochloric acid	HCl (53010)	0.5 mL	08/27/2018
21092	HNO3	Concentrated Nitric Acid (69.0	HNO3 (0000053953)	0.5 mL	10/23/2018
22478	Ti Stock	10,000 ug/mL Ti Stock	SPEX Ti 10,000 ug/mL	0.1 mL	02/28/2015

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O			**Description - ASTM Type II Water**
Standard: 109		**Created By:** ALS Support (Lims)	**Amount:** 100 L
MFG: DCL In House		**Create Date:** 10/6/2005	**Expires:** 11/7/2025
MFG Lot:		**Lab Lot:** LAB 109	**Usable:** Yes
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - HCl

HCl			**Description - concentrated hydrochloric acid**
Standard: 20440	**Created By:** K. Tucker		**Amount:** 2 L
MFG: EMD	**Create Date:** 8/27/2013		**Expires:** 8/27/2018
MFG Lot: 53010	**Lab Lot:** HCl (53010)		**Usable:** Yes
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - HNO3

HNO3			Description - Concentrated Nitric Acid (69.0
Standard: 21092		Created By: P. Foote	Amount: 2.5 L
MFG: JT Baker		Create Date: 10/23/2013	Expires: 10/23/2018
MFG Lot: 0000053953		Lab Lot: HNO3 (0000053953)	Usable: Yes
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - HNO3

HNO3			Description - Concentrated Nitric Acid
Standard: 21848	Created By: K. Lockwood	Amount: 2 L	
MFG: JT Baker	Create Date: 1/4/2014	Expires: 1/4/2015	
MFG Lot: 0000050770	Lab Lot: HNO3 (0000050770)	Usable: Yes	
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - HNO3

HNO3			**Description - Concentrated Nitric Acid**
Standard: 23113	**Created By:** C. Hansen	**Amount:** 2.5 L	
MFG: JT Baker	**Create Date:** 4/4/2014	**Expires:** 4/4/2019	
MFG Lot: 0000066236	**Lab Lot:** HNO3 (66236)	**Usable:** Yes	
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - HNO3

HNO3			**Description - Concentrated Nitric Acid**
Standard: 23985	**Created By:** J. Sanchez	**Amount:** 2 L	
MFG: JT Baker	**Create Date:** 6/20/2014	**Expires:** 6/20/2024	
MFG Lot: 0000077192	**Lab Lot:** HNO3 (0000077192)	**Usable:** Yes	
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - HNO3

HNO3			**Description - Concentrated Nitric Acid**
Standard: 24122	**Created By:** C. Hansen	**Amount:** 2.5 L	
MFG: JT Baker	**Create Date:** 5/21/2014	**Expires:** 5/21/2019	
MFG Lot: 0000074185	**Lab Lot:** HNO3 (74185)	**Usable:** Yes	
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

Quality Control Sample Batch Report

Analysis Information

Workorder(s): 1416452

Limits: Historical/Performance	**Preparation:** NA	**Analysis:** IH GC-FID QC
Basis: ALS Laboratory Group	**Batch:** NA	**Batch:** IFID/5658 (HBN: 130064)
	Prepared By: NA	**Analyzed By:** Young Hee Yoon

Blank

MB: 398612
Analyzed: 07/11/2014 00:00
Units: mg/sample

Analyte	Result	MDL	RL
2,3-Pentanedione	ND	NA	0.00200

Laboratory Control Sample - Laboratory Control Sample Duplicate

LCS: 398613
Analyzed: 07/11/2014 00:00
Dilution: 1
Units: mg/sample

LCSD: 398614
Analyzed: 07/11/2014 00:00
Dilution: 1
Units: mg/sample

Analyte	Result	Target	% Rec	QC Limits		Result	% Rec	RPD	QC Limits	
2,3-Pentanedione	0.194	0.186	104	80.0	120.0	0.207	111	6.48	0.0	20.0

QC Data Approved and Reviewed by

Young Hee Yoon

Analyst | Peer Review | Date

Symbols and Definitions

* - Analyte above reporting limit or outside of control limits
▲ - Sample result is greater than 4 times the spike added
● - Sample and Matrix Duplicate less than 5 times the reporting limit

RPD - Relative % Difference (Spike / Spike Duplicate)
ND - Not Detected (U - Qualifier also flags analyte as not detected)
NA - Not Applicable
QC results are not adjusted for moisture correction, where applicable

00151

STANDARD REPORT

Working Standard - Hg ICV Work

Hg ICV Work		**Description - Hg ICV Working Solution**
Standard: 24295	**Created By:** C. Hansen	**Amount:** 50 mL
MFG: CRH	**Create Date:** 07/08/2014	**Expires:** 07/15/2014
MFG Lot:	**Lab Lot:** HgICV 070814	**Usable:** Yes
Part ID:		

Pos.	Analyte	Name	Concentration
1	7439-97-6	Mercury	1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	48.95 mL	11/07/2025
22609	Hg ICV Stock	Hg ICV Stock Solution	SPEX Hg-1000	0.05 mL	02/28/2015
24122	HNO3	Concentrated Nitric Acid	HNO3 (74185)	1 mL	05/21/2019

STANDARD REPORT

Working Standard - Hg A Cal Sol

Hg A Cal Sol		**Description - Hg A Calibration Solution**
Standard: 24296	**Created By:** C. Hansen	**Amount:** 50 mL
MFG: CRH	**Create Date:** 07/08/2014	**Expires:** 07/15/2014
MFG Lot:	**Lab Lot:** HgA 070814-071414	**Usable:** Yes
Part ID:		

Pos.	Analyte	Name	Concentration
1	7439-97-6	Mercury	1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	44 mL	11/07/2025
24122	HNO3	Concentrated Nitric Acid	HNO3 (74185)	1 mL	05/21/2019
24294	Hg Working	Hg CCV/Calibration Working	HgWS 070814	5 mL	07/15/2014

STANDARD REPORT

Working Standard - Hg B Cal Sol

Hg B Cal Sol		**Description - Hg B Calibration Solution**
Standard: 24297	**Created By:** C. Hansen	**Amount:** 50 mL
MFG: CRH	**Create Date:** 07/08/2014	**Expires:** 07/15/2014
MFG Lot:	**Lab Lot:** HgB 070814-071414	**Usable:** Yes
Part ID:		

Pos.	Analyte	Name	Concentration
1	7439-97-6	Mercury	0.1 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	48.5 mL	11/07/2025
24122	HNO3	Concentrated Nitric Acid	HNO3 (74185)	1 mL	05/21/2019
24294	Hg Working	Hg CCV/Calibration Working	HgWS 070814	0.5 mL	07/15/2014

STANDARD REPORT

Solvent Standard - 5% K2S2O8

5% K2S2O8			Description - 50g K2S2O8 / 1L DDI water
Standard: 22734	**Created By:** C. Hansen		**Amount:** 4 L
MFG: Alfa Aesar	**Create Date:** 3/6/2014		**Expires:** 3/6/2015
MFG Lot: F22W007	**Lab Lot:** 5% Potassium Persulfate		**Usable:** Yes
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Solvent Standard - 5% KMnO4

5% KMnO4		Description - 50g KMnO4 / 1L DDI water
Standard: 23478	**Created By:** C. Hansen	**Amount:** 8 L
MFG: Alfa Aesar	**Create Date:** 5/20/2014	**Expires:** 5/20/2015
MFG Lot: F29Y023	**Lab Lot:** 5% Potassium Permanganate	**Usable:** Yes
Part ID:		

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Stock Standard - Hg WS Stock

Hg WS Stock		**Description - Hg CCV/Cal Stock Solution**
Standard: 21476	**Created By:** C. Hansen	**Amount:** 125 mL
MFG: Inorganic Ventures	**Create Date:** 12/2/2013	**Expires:** 12/1/2014
MFG Lot: G2-HG02114	**Lab Lot:** InorganicVenturesHg1000	**Usable:** Yes
Part ID: AAHG1-1		

Pos.	Analyte	Name	Concentration
1	7439-97-6	Mercury	1000 mg/L

STANDARD REPORT

Constituent

Stock Standard - Hg ICV Stock

Hg ICV Stock		**Description - Hg ICV Stock Solution**
Standard: 22609	**Created By:** C. Hansen	**Amount:** 125 mL
MFG: SPEX CertiPrep	**Create Date:** 2/27/2014	**Expires:** 2/28/2015
MFG Lot: CL6-66HGY	**Lab Lot:** SPEX Hg-1000	**Usable:** Yes
Part ID: CLHG4-2Y		

Pos.	Analyte	Name	Concentration
1	7439-97-6	Mercury	1000 ug/mL

STANDARD REPORT

Constituent

Working Standard - Hg Working

Hg Working			Description - Hg CCV/Calibration Working
Standard: 24294	Created By: C. Hansen	Amount: 50 mL	
MFG: CRH	Create Date: 07/08/2014	Expires: 07/15/2014	
MFG Lot:	Lab Lot: HgWS 070814	Usable: Yes	
Part ID:			

Pos.	Analyte	Name	Concentration
1	7439-97-6	Mercury	10 ug/mL

Composition

Standard	Standard ID	Description	Lab Lot ID	Volume	Expires
109	ASTM H2O	ASTM Type II Water	LAB 109	48.5 mL	11/07/2025
21476	Hg WS Stock	Hg CCV/Cal Stock Solution	InorganicVenturesHg10	0.5 mL	12/01/2014
24122	HNO3	Concentrated Nitric Acid	HNO3 (74185)	1 mL	05/21/2019

STANDARD REPORT

Constituent

Solvent Standard - ASTM H2O

ASTM H2O			**Description - ASTM Type II Water**
Standard: 109		**Created By:** ALS Support (Lims)	**Amount:** 100 L
MFG: DCL In House		**Create Date:** 10/6/2005	**Expires:** 11/7/2025
MFG Lot:		**Lab Lot:** LAB 109	**Usable:** Yes
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

STANDARD REPORT

Constituent

Solvent Standard - HNO3

HNO3			**Description - Concentrated Nitric Acid**
Standard: 24122	**Created By:** C. Hansen	**Amount:** 2.5 L	
MFG: JT Baker	**Create Date:** 5/21/2014	**Expires:** 5/21/2019	
MFG Lot: 0000074185	**Lab Lot:** HNO3 (74185)	**Usable:** Yes	
Part ID:			

Pos.	Analyte	Name	Concentration
Solvent - Analyte(s) not applicable			

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: October 21, 2014

SUBJECT: Region III Data QA Review

FROM: Brandon McDonald
Region III ESAT PO (3EA22)

TO: Ruth Scharr
On-Scene Coordinator (3HS31)

Attached is the inorganic data validation report for the New Kent Wood Preservatives, Inc. site for Case 44664; SDG#:MC0AD4 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Laura Mathew (WESTON)

TO: #0002 TDF: #1014018

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ICF International
ESAT Region 3
US Environmental Protection Agency Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Phone 410-305-3011

Date: October 17, 2014

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Kurt Roby
Data Reviewer

Lisa Penix
Oversight Chemist

Subject: Inorganic Data Validation (S4VEM)
Site: New Kent Wood Preservatives, Inc.
Case: 44664 SDG: MC0AD4

Overview

Case 44664, Sample Delivery Group (SDG) MC0AD4, consisted of three (3) sediment samples and seventeen (17) soil samples including one (1) field duplicate pair analyzed for metals by ICP-AES. Analyses were performed by ChemTech Consulting Group (CHEM) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM01.3 through the Routine Analytical Services (RAS) program.

Summary

Data were validated according to inorganic National Functional Guidelines, utilizing Environmental Data Exchange and Evaluation System (EXES) and is assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). The following validation narrative is an evaluation of laboratory reported data for the purpose of usability.

Minor Problems

Matrix spike recovery was low (<75% but >30%) for antimony (Sb). The post-digestion spike recovery was within control limits. Low recoveries may be attributed to matrix interferences or analyte lost during the digestion process. Positive results and quantitation limits for this analyte are estimated and have been qualified “J” and “UJ”, respectively.

Percent recovery for selenium (Se) in ICP interference check standard ICSAB exceeded the control limit (>120%). Positive results reported for this analyte may be estimated high due to possible elemental interferences and have been qualified “J+”.

Percent difference (%D) in the ICP serial dilution analysis was outside the control limit (>10%) for cadmium (Cd). Positive results for this analyte are estimated due to possible physical or chemical interferences in the sample matrix and have been qualified "J".

Notes

Analytes detected below Contract Required Quantitation Limits (CRQLs) not attributed to blank contamination are qualified "J".

Potassium has been positively identified in laboratory blanks associated with the samples in this SDG. Samples which reported positive results for this analyte less than CRQL have been reported at the CRQL and qualified "U".

Laboratory instrumentation reported a negative value for potassium (K) in ICP interference check standard ICSAB greater than the absolute value of the Method Detection Limit (MDL); however, this analyte was not included in this standard. Positive results reported for this analyte less than ten times (<10X) the absolute value of the standard concentration are attributed to blank contamination and have not been qualified due to this outlier.

Results reported for field duplicate pair MC0AD6/MC0AD7 were within twenty (20) Relative Percent Difference (RPD), ± CRQL only for Sb, Cd, K, Se, silver (Ag), sodium (Na) and thallium (Tl). No data were qualified based on these findings.

Glossary of Data Qualifier Codes (INORGANIC)

U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
B	The result is presumed a blank contaminant. This qualifier is used only for drinking water samples.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

DCN: R3ESAT-2014-V558

Sample Summary Report

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	LCS	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:	09/22/2014	Sample Time:	18:44:45
% Moisture :				% Solids :	100		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Spike	36.5		mg/kg	36.5		1	Yes	S4VEM
Antimony	Spike	11.2		mg/kg	11.18		1	Yes	S4VEM
Arsenic	Spike	1.7		mg/kg	1.68		1	Yes	S4VEM
Barium	Spike	42.1		mg/kg	42.06		1	Yes	S4VEM
Beryllium	Spike	1.0		mg/kg	1.036		1	Yes	S4VEM
Cadmium	Spike	0.98		mg/kg	0.9757		1	Yes	S4VEM
Chromium	Spike	2.0		mg/kg	1.951		1	Yes	S4VEM
Cobalt	Spike	9.7		mg/kg	9.687		1	Yes	S4VEM
Copper	Spike	4.8		mg/kg	4.83		1	Yes	S4VEM
Iron	Spike	21.9		mg/kg	21.9		1	Yes	S4VEM
Lead	Spike	2.0		mg/kg	2.01		1	Yes	S4VEM
Manganese	Spike	3.3		mg/kg	3.31		1	Yes	S4VEM
Nickel	Spike	7.7		mg/kg	7.74		1	Yes	S4VEM
Selenium	Spike	6.4		mg/kg	6.37		1	Yes	S4VEM
Silver	Spike	2.0		mg/kg	1.975		1	Yes	S4VEM
Thallium	Spike	5.1		mg/kg	5.11		1	Yes	S4VEM
Calcium	Spike	1060		mg/kg	1058.9		1	Yes	S4VEM
Vanadium	Spike	10.8		mg/kg	10.78		1	Yes	S4VEM
Zinc	Spike	11.4		mg/kg	11.4		1	Yes	S4VEM
Sodium	Spike	1020		mg/kg	1019.4		1	Yes	S4VEM
Potassium	Spike	995		mg/kg	995.2		1	Yes	S4VEM
Magnesium	Spike	1010		mg/kg	1010.2		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AD4	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-02	pH:	2	Sample Date:	09/10/2014	Sample Time:	08:05:00
% Moisture :				% Solids :	82.7		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	8930		mg/kg	8930		1	Yes	S4VEM
Antimony	Target	2.4	J	mg/kg	2.4	JN	1	Yes	S4VEM
Arsenic	Target	309		mg/kg	309		1	Yes	S4VEM
Barium	Target	62.3		mg/kg	62.3		1	Yes	S4VEM
Beryllium	Target	0.59		mg/kg	0.59		1	Yes	S4VEM
Cadmium	Target	0.20	J	mg/kg	0.20	JE	1	Yes	S4VEM
Calcium	Target	1650		mg/kg	1650		1	Yes	S4VEM
Chromium	Target	235		mg/kg	235		1	Yes	S4VEM
Cobalt	Target	11.3		mg/kg	11.3		1	Yes	S4VEM
Copper	Target	133		mg/kg	133		1	Yes	S4VEM
Iron	Target	20600		mg/kg	20600		1	Yes	S4VEM
Lead	Target	20.8		mg/kg	20.8		1	Yes	S4VEM
Magnesium	Target	478		mg/kg	478		1	Yes	S4VEM
Manganese	Target	321		mg/kg	321		1	Yes	S4VEM
Nickel	Target	7.4		mg/kg	7.4		1	Yes	S4VEM
Potassium	Target	458	U	mg/kg	228	J	1	Yes	S4VEM
Selenium	Target	3.5	J+	mg/kg	3.5		1	Yes	S4VEM
Silver	Target	0.92	U	mg/kg	0.92	U	1	Yes	S4VEM
Sodium	Target	48.1	J	mg/kg	48.1	J	1	Yes	S4VEM
Thallium	Target	2.3	U	mg/kg	2.3	U	1	Yes	S4VEM
Vanadium	Target	27.9		mg/kg	27.9		1	Yes	S4VEM
Zinc	Target	36.4		mg/kg	36.4		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AD5	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-01	pH:	2	Sample Date:	09/10/2014	Sample Time:	08:00:00
% Moisture :				% Solids :	60.1		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	21200		mg/kg	21200		1	Yes	S4VEM
Antimony	Target	4.6	J	mg/kg	4.6	JN	1	Yes	S4VEM
Arsenic	Target	1140		mg/kg	1140		1	Yes	S4VEM
Barium	Target	150		mg/kg	150		1	Yes	S4VEM
Beryllium	Target	1.5		mg/kg	1.5		1	Yes	S4VEM
Cadmium	Target	0.93	J	mg/kg	0.93	E	1	Yes	S4VEM
Calcium	Target	6240		mg/kg	6240		1	Yes	S4VEM
Chromium	Target	1250		mg/kg	1250		1	Yes	S4VEM
Cobalt	Target	31.3		mg/kg	31.3		1	Yes	S4VEM
Copper	Target	598		mg/kg	598		1	Yes	S4VEM
Iron	Target	53600		mg/kg	53600		1	Yes	S4VEM
Lead	Target	68.5		mg/kg	68.5		1	Yes	S4VEM
Magnesium	Target	1400		mg/kg	1400		1	Yes	S4VEM
Manganese	Target	716		mg/kg	716		1	Yes	S4VEM
Nickel	Target	22.1		mg/kg	22.1		1	Yes	S4VEM
Potassium	Target	1030		mg/kg	1030		1	Yes	S4VEM
Selenium	Target	8.3	J+	mg/kg	8.3		1	Yes	S4VEM
Silver	Target	1.2	U	mg/kg	1.2	U	1	Yes	S4VEM
Sodium	Target	150	J	mg/kg	150	J	1	Yes	S4VEM
Thallium	Target	2.9	U	mg/kg	2.9	U	1	Yes	S4VEM
Vanadium	Target	57.8		mg/kg	57.8		1	Yes	S4VEM
Zinc	Target	190		mg/kg	190		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AD6	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-03	pH:	2	Sample Date:	09/10/2014	Sample Time:	09:15:00
% Moisture :				% Solids :	75.8		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	10200		mg/kg	10200		1	Yes	S4VEM
Antimony	Target	2.3	J	mg/kg	2.3	JN	1	Yes	S4VEM
Arsenic	Target	313		mg/kg	313		1	Yes	S4VEM
Barium	Target	76.4		mg/kg	76.4		1	Yes	S4VEM
Beryllium	Target	0.51		mg/kg	0.51		1	Yes	S4VEM
Cadmium	Target	0.30	J	mg/kg	0.30	JE	1	Yes	S4VEM
Calcium	Target	2780		mg/kg	2780		1	Yes	S4VEM
Chromium	Target	339		mg/kg	339		1	Yes	S4VEM
Cobalt	Target	8.2		mg/kg	8.2		1	Yes	S4VEM
Copper	Target	223		mg/kg	223		1	Yes	S4VEM
Iron	Target	15200		mg/kg	15200		1	Yes	S4VEM
Lead	Target	21.0		mg/kg	21.0		1	Yes	S4VEM
Magnesium	Target	808		mg/kg	808		1	Yes	S4VEM
Manganese	Target	215		mg/kg	215		1	Yes	S4VEM
Nickel	Target	7.1		mg/kg	7.1		1	Yes	S4VEM
Potassium	Target	471	U	mg/kg	363	J	1	Yes	S4VEM
Selenium	Target	2.8	J+	mg/kg	2.8	J	1	Yes	S4VEM
Silver	Target	0.94	U	mg/kg	0.94	U	1	Yes	S4VEM
Sodium	Target	61.9	J	mg/kg	61.9	J	1	Yes	S4VEM
Thallium	Target	2.4	U	mg/kg	2.4	U	1	Yes	S4VEM
Vanadium	Target	19.7		mg/kg	19.7		1	Yes	S4VEM
Zinc	Target	89.5		mg/kg	89.5		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AD7	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-03-01	pH:	2	Sample Date:	09/10/2014	Sample Time:	09:15:00
% Moisture :				% Solids :	71.2		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	17300		mg/kg	17300		1	Yes	S4VEM
Antimony	Target	4.1	J	mg/kg	4.1	JN	1	Yes	S4VEM
Arsenic	Target	876		mg/kg	876		1	Yes	S4VEM
Barium	Target	135		mg/kg	135		1	Yes	S4VEM
Beryllium	Target	1.1		mg/kg	1.1		1	Yes	S4VEM
Cadmium	Target	0.76	J	mg/kg	0.76	E	1	Yes	S4VEM
Calcium	Target	5300		mg/kg	5300		1	Yes	S4VEM
Chromium	Target	1020		mg/kg	1020		1	Yes	S4VEM
Cobalt	Target	26.6		mg/kg	26.6		1	Yes	S4VEM
Copper	Target	524		mg/kg	524		1	Yes	S4VEM
Iron	Target	38800		mg/kg	38800		1	Yes	S4VEM
Lead	Target	58.8		mg/kg	58.8		1	Yes	S4VEM
Magnesium	Target	1380		mg/kg	1380		1	Yes	S4VEM
Manganese	Target	726		mg/kg	726		1	Yes	S4VEM
Nickel	Target	17.0		mg/kg	17.0		1	Yes	S4VEM
Potassium	Target	920		mg/kg	920		1	Yes	S4VEM
Selenium	Target	6.2	J+	mg/kg	6.2		1	Yes	S4VEM
Silver	Target	1.1	U	mg/kg	1.1	U	1	Yes	S4VEM
Sodium	Target	139	J	mg/kg	139	J	1	Yes	S4VEM
Thallium	Target	2.7	U	mg/kg	2.7	U	1	Yes	S4VEM
Vanadium	Target	45.1		mg/kg	45.1		1	Yes	S4VEM
Zinc	Target	174		mg/kg	174		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AD7A	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	F3940-04A	pH:	2	Sample Date:	09/10/2014	Sample Time:	09:15:00
% Moisture :				% Solids :	71.2		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Antimony	Spike	20.8		mg/kg	20.78		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AD7D	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	F3940-05	pH:	2	Sample Date:	09/10/2014	Sample Time:	09:15:00
% Moisture :				% Solids :	71.2		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	17500		mg/kg	17472.3300		1	Yes	S4VEM
Antimony	Target	3.8	J	mg/kg	3.8054	J	1	Yes	S4VEM
Arsenic	Target	884		mg/kg	883.5833		1	Yes	S4VEM
Barium	Target	137		mg/kg	136.9648		1	Yes	S4VEM
Beryllium	Target	1.2		mg/kg	1.1597		1	Yes	S4VEM
Cadmium	Target	0.74		mg/kg	0.7411		1	Yes	S4VEM
Calcium	Target	5370		mg/kg	5373.6450		1	Yes	S4VEM
Chromium	Target	1060		mg/kg	1059.1610		1	Yes	S4VEM
Cobalt	Target	26.9		mg/kg	26.8739		1	Yes	S4VEM
Copper	Target	537		mg/kg	536.6029		1	Yes	S4VEM
Iron	Target	39400		mg/kg	39373.4000		1	Yes	S4VEM
Lead	Target	59.1		mg/kg	59.1269		1	Yes	S4VEM
Magnesium	Target	1390		mg/kg	1390.7930		1	Yes	S4VEM
Manganese	Target	741		mg/kg	740.7504		1	Yes	S4VEM
Nickel	Target	17.2		mg/kg	17.1780		1	Yes	S4VEM
Potassium	Target	953		mg/kg	953.2967		1	Yes	S4VEM
Selenium	Target	6.3		mg/kg	6.3083		1	Yes	S4VEM
Silver	Target	1.1	U	mg/kg	1.0973	U	1	Yes	S4VEM
Sodium	Target	120	J	mg/kg	119.7563	J	1	Yes	S4VEM
Thallium	Target	2.7	U	mg/kg	2.7432	U	1	Yes	S4VEM
Vanadium	Target	45.6		mg/kg	45.5680		1	Yes	S4VEM
Zinc	Target	175		mg/kg	175.4512		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AD7S	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	F3940-06	pH:	2	Sample Date:	09/10/2014	Sample Time:	09:15:00
% Moisture :				% Solids :	71.2		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Antimony	Spike	18.5		mg/kg	18.4888	N	1	Yes	S4VEM
Arsenic	Spike	557		mg/kg	557.2214		1	Yes	S4VEM
Barium	Spike	709		mg/kg	708.6871		1	Yes	S4VEM
Beryllium	Spike	14.2		mg/kg	14.1779		1	Yes	S4VEM
Cadmium	Spike	13.7		mg/kg	13.7314		1	Yes	S4VEM
Chromium	Spike	782		mg/kg	781.8953		1	Yes	S4VEM
Cobalt	Spike	153		mg/kg	152.6311		1	Yes	S4VEM
Copper	Spike	466		mg/kg	466.2067		1	Yes	S4VEM
Lead	Spike	55.1		mg/kg	55.0905		1	Yes	S4VEM
Manganese	Spike	733		mg/kg	732.5934		1	Yes	S4VEM
Nickel	Spike	147		mg/kg	147.4494		1	Yes	S4VEM
Selenium	Spike	16.8		mg/kg	16.8461		1	Yes	S4VEM
Silver	Spike	12.4		mg/kg	12.4271		1	Yes	S4VEM
Thallium	Spike	11.2		mg/kg	11.1656		1	Yes	S4VEM
Vanadium	Spike	179		mg/kg	179.1202		1	Yes	S4VEM
Zinc	Spike	309		mg/kg	308.5598		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AD8	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-04	pH:	2	Sample Date:	09/10/2014	Sample Time:	08:45:00
% Moisture :				% Solids :	89.7		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	3100		mg/kg	3100		1	Yes	S4VEM
Antimony	Target	0.19	J	mg/kg	0.19	JN	1	Yes	S4VEM
Arsenic	Target	9.3		mg/kg	9.3		1	Yes	S4VEM
Barium	Target	21.9		mg/kg	21.9		1	Yes	S4VEM
Beryllium	Target	0.16	J	mg/kg	0.16	J	1	Yes	S4VEM
Cadmium	Target	0.039	J	mg/kg	0.039	JE	1	Yes	S4VEM
Calcium	Target	453		mg/kg	453		1	Yes	S4VEM
Chromium	Target	11.5		mg/kg	11.5		1	Yes	S4VEM
Cobalt	Target	0.56	J	mg/kg	0.56	J	1	Yes	S4VEM
Copper	Target	7.2		mg/kg	7.2		1	Yes	S4VEM
Iron	Target	2830		mg/kg	2830		1	Yes	S4VEM
Lead	Target	3.8		mg/kg	3.8		1	Yes	S4VEM
Magnesium	Target	255	J	mg/kg	255	J	1	Yes	S4VEM
Manganese	Target	49.2		mg/kg	49.2		1	Yes	S4VEM
Nickel	Target	1.6	J	mg/kg	1.6	J	1	Yes	S4VEM
Potassium	Target	407	U	mg/kg	23.4	J	1	Yes	S4VEM
Selenium	Target	0.68	J+	mg/kg	0.68	J	1	Yes	S4VEM
Silver	Target	0.81	U	mg/kg	0.81	U	1	Yes	S4VEM
Sodium	Target	407	U	mg/kg	407	U	1	Yes	S4VEM
Thallium	Target	2.0	U	mg/kg	2.0	U	1	Yes	S4VEM
Vanadium	Target	5.4		mg/kg	5.4		1	Yes	S4VEM
Zinc	Target	23.3		mg/kg	23.3		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AD9	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-05	pH:	2	Sample Date:	09/10/2014	Sample Time:	08:38:00
% Moisture :				% Solids :	90.5		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	3640		mg/kg	3640		1	Yes	S4VEM
Antimony	Target	0.16	J	mg/kg	0.16	JN	1	Yes	S4VEM
Arsenic	Target	15.0		mg/kg	15.0		1	Yes	S4VEM
Barium	Target	28.9		mg/kg	28.9		1	Yes	S4VEM
Beryllium	Target	0.23	J	mg/kg	0.23	J	1	Yes	S4VEM
Cadmium	Target	0.053	J	mg/kg	0.053	JE	1	Yes	S4VEM
Calcium	Target	617		mg/kg	617		1	Yes	S4VEM
Chromium	Target	17.7		mg/kg	17.7		1	Yes	S4VEM
Cobalt	Target	0.84	J	mg/kg	0.84	J	1	Yes	S4VEM
Copper	Target	13.6		mg/kg	13.6		1	Yes	S4VEM
Iron	Target	3770		mg/kg	3770		1	Yes	S4VEM
Lead	Target	5.3		mg/kg	5.3		1	Yes	S4VEM
Magnesium	Target	342	J	mg/kg	342	J	1	Yes	S4VEM
Manganese	Target	61.9		mg/kg	61.9		1	Yes	S4VEM
Nickel	Target	3.6		mg/kg	3.6		1	Yes	S4VEM
Potassium	Target	395	U	mg/kg	45.9	J	1	Yes	S4VEM
Selenium	Target	0.52	J+	mg/kg	0.52	J	1	Yes	S4VEM
Silver	Target	0.79	U	mg/kg	0.79	U	1	Yes	S4VEM
Sodium	Target	23.7	J	mg/kg	23.7	J	1	Yes	S4VEM
Thallium	Target	2.0	U	mg/kg	2.0	U	1	Yes	S4VEM
Vanadium	Target	7.0		mg/kg	7.0		1	Yes	S4VEM
Zinc	Target	27.2		mg/kg	27.2		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AE0	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-06	pH:	2	Sample Date:	09/10/2014	Sample Time:	09:20:00
% Moisture :				% Solids :	87.9		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	5060		mg/kg	5060		1	Yes	S4VEM
Antimony	Target	0.50	J	mg/kg	0.50	JN	1	Yes	S4VEM
Arsenic	Target	80.8		mg/kg	80.8		1	Yes	S4VEM
Barium	Target	49.9		mg/kg	49.9		1	Yes	S4VEM
Beryllium	Target	0.32	J	mg/kg	0.32	J	1	Yes	S4VEM
Cadmium	Target	0.25	J	mg/kg	0.25	JE	1	Yes	S4VEM
Calcium	Target	1490		mg/kg	1490		1	Yes	S4VEM
Chromium	Target	108		mg/kg	108		1	Yes	S4VEM
Cobalt	Target	3.8	J	mg/kg	3.8	J	1	Yes	S4VEM
Copper	Target	73.7		mg/kg	73.7		1	Yes	S4VEM
Iron	Target	9120		mg/kg	9120		1	Yes	S4VEM
Lead	Target	16.8		mg/kg	16.8		1	Yes	S4VEM
Magnesium	Target	534		mg/kg	534		1	Yes	S4VEM
Manganese	Target	170		mg/kg	170		1	Yes	S4VEM
Nickel	Target	4.4		mg/kg	4.4		1	Yes	S4VEM
Potassium	Target	428	U	mg/kg	184	J	1	Yes	S4VEM
Selenium	Target	1.6	J+	mg/kg	1.6	J	1	Yes	S4VEM
Silver	Target	0.86	U	mg/kg	0.86	U	1	Yes	S4VEM
Sodium	Target	36.0	J	mg/kg	36.0	J	1	Yes	S4VEM
Thallium	Target	2.1	U	mg/kg	2.1	U	1	Yes	S4VEM
Vanadium	Target	12.8		mg/kg	12.8		1	Yes	S4VEM
Zinc	Target	92.5		mg/kg	92.5		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AE1	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-07	pH:	2	Sample Date:	09/10/2014	Sample Time:	09:45:00
% Moisture :				% Solids :	87.8		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	3660		mg/kg	3660		1	Yes	S4VEM
Antimony	Target	0.29	J	mg/kg	0.29	JN	1	Yes	S4VEM
Arsenic	Target	20.3		mg/kg	20.3		1	Yes	S4VEM
Barium	Target	23.1		mg/kg	23.1		1	Yes	S4VEM
Beryllium	Target	0.20	J	mg/kg	0.20	J	1	Yes	S4VEM
Cadmium	Target	0.064	J	mg/kg	0.064	JE	1	Yes	S4VEM
Calcium	Target	1310		mg/kg	1310		1	Yes	S4VEM
Chromium	Target	22.2		mg/kg	22.2		1	Yes	S4VEM
Cobalt	Target	0.58	J	mg/kg	0.58	J	1	Yes	S4VEM
Copper	Target	14.3		mg/kg	14.3		1	Yes	S4VEM
Iron	Target	3890		mg/kg	3890		1	Yes	S4VEM
Lead	Target	9.1		mg/kg	9.1		1	Yes	S4VEM
Magnesium	Target	285	J	mg/kg	285	J	1	Yes	S4VEM
Manganese	Target	67.1		mg/kg	67.1		1	Yes	S4VEM
Nickel	Target	2.0	J	mg/kg	2.0	J	1	Yes	S4VEM
Potassium	Target	448	U	mg/kg	24.4	J	1	Yes	S4VEM
Selenium	Target	0.81	J+	mg/kg	0.81	J	1	Yes	S4VEM
Silver	Target	0.90	U	mg/kg	0.90	U	1	Yes	S4VEM
Sodium	Target	448	U	mg/kg	448	U	1	Yes	S4VEM
Thallium	Target	2.2	U	mg/kg	2.2	U	1	Yes	S4VEM
Vanadium	Target	7.2		mg/kg	7.2		1	Yes	S4VEM
Zinc	Target	17.2		mg/kg	17.2		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AE2	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-08	pH:	2	Sample Date:	09/10/2014	Sample Time:	09:47:00
% Moisture :				% Solids :	76.2		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	3970		mg/kg	3970		1	Yes	S4VEM
Antimony	Target	0.46	J	mg/kg	0.46	JN	1	Yes	S4VEM
Arsenic	Target	82.2		mg/kg	82.2		1	Yes	S4VEM
Barium	Target	31.9		mg/kg	31.9		1	Yes	S4VEM
Beryllium	Target	0.23	J	mg/kg	0.23	J	1	Yes	S4VEM
Cadmium	Target	0.095	J	mg/kg	0.095	JE	1	Yes	S4VEM
Calcium	Target	1790		mg/kg	1790		1	Yes	S4VEM
Chromium	Target	108		mg/kg	108		1	Yes	S4VEM
Cobalt	Target	1.9	J	mg/kg	1.9	J	1	Yes	S4VEM
Copper	Target	77.9		mg/kg	77.9		1	Yes	S4VEM
Iron	Target	6270		mg/kg	6270		1	Yes	S4VEM
Lead	Target	11.4		mg/kg	11.4		1	Yes	S4VEM
Magnesium	Target	470		mg/kg	470		1	Yes	S4VEM
Manganese	Target	84.4		mg/kg	84.4		1	Yes	S4VEM
Nickel	Target	3.1	J	mg/kg	3.1	J	1	Yes	S4VEM
Potassium	Target	459	U	mg/kg	77.6	J	1	Yes	S4VEM
Selenium	Target	1.2	J+	mg/kg	1.2	J	1	Yes	S4VEM
Silver	Target	0.92	U	mg/kg	0.92	U	1	Yes	S4VEM
Sodium	Target	31.1	J	mg/kg	31.1	J	1	Yes	S4VEM
Thallium	Target	2.3	U	mg/kg	2.3	U	1	Yes	S4VEM
Vanadium	Target	9.6		mg/kg	9.6		1	Yes	S4VEM
Zinc	Target	26.9		mg/kg	26.9		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AE3	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-09	pH:	2	Sample Date:	09/10/2014	Sample Time:	09:55:00
% Moisture :				% Solids :	40		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	8980		mg/kg	8980		1	Yes	S4VEM
Antimony	Target	1.0	J	mg/kg	1.0	JN	1	Yes	S4VEM
Arsenic	Target	57.9		mg/kg	57.9		1	Yes	S4VEM
Barium	Target	188		mg/kg	188		1	Yes	S4VEM
Beryllium	Target	0.48	J	mg/kg	0.48	J	1	Yes	S4VEM
Cadmium	Target	0.53	J	mg/kg	0.53	JE	1	Yes	S4VEM
Calcium	Target	16500		mg/kg	16500		1	Yes	S4VEM
Chromium	Target	91.9		mg/kg	91.9		1	Yes	S4VEM
Cobalt	Target	8.3	J	mg/kg	8.3	J	1	Yes	S4VEM
Copper	Target	81.1		mg/kg	81.1		1	Yes	S4VEM
Iron	Target	19800		mg/kg	19800		1	Yes	S4VEM
Lead	Target	39.4		mg/kg	39.4		1	Yes	S4VEM
Magnesium	Target	2440		mg/kg	2440		1	Yes	S4VEM
Manganese	Target	375		mg/kg	375		1	Yes	S4VEM
Nickel	Target	11.0		mg/kg	11.0		1	Yes	S4VEM
Potassium	Target	1850		mg/kg	1850		1	Yes	S4VEM
Selenium	Target	3.1	J+	mg/kg	3.1	J	1	Yes	S4VEM
Silver	Target	1.7	U	mg/kg	1.7	U	1	Yes	S4VEM
Sodium	Target	111	J	mg/kg	111	J	1	Yes	S4VEM
Thallium	Target	4.3	U	mg/kg	4.3	U	1	Yes	S4VEM
Vanadium	Target	28.1		mg/kg	28.1		1	Yes	S4VEM
Zinc	Target	165		mg/kg	165		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AE4	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-13	pH:	2	Sample Date:	09/10/2014	Sample Time:	10:39:00
% Moisture :				% Solids :	85.6		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	2370		mg/kg	2370		1	Yes	S4VEM
Antimony	Target	0.33	J	mg/kg	0.33	JN	1	Yes	S4VEM
Arsenic	Target	25.2		mg/kg	25.2		1	Yes	S4VEM
Barium	Target	30.7		mg/kg	30.7		1	Yes	S4VEM
Beryllium	Target	0.27	J	mg/kg	0.27	J	1	Yes	S4VEM
Cadmium	Target	0.086	J	mg/kg	0.086	JE	1	Yes	S4VEM
Calcium	Target	1600		mg/kg	1600		1	Yes	S4VEM
Chromium	Target	72.0		mg/kg	72.0		1	Yes	S4VEM
Cobalt	Target	4.1		mg/kg	4.1		1	Yes	S4VEM
Copper	Target	34.8		mg/kg	34.8		1	Yes	S4VEM
Iron	Target	8060		mg/kg	8060		1	Yes	S4VEM
Lead	Target	10.8		mg/kg	10.8		1	Yes	S4VEM
Magnesium	Target	556		mg/kg	556		1	Yes	S4VEM
Manganese	Target	159		mg/kg	159		1	Yes	S4VEM
Nickel	Target	3.6		mg/kg	3.6		1	Yes	S4VEM
Potassium	Target	408	U	mg/kg	111	J	1	Yes	S4VEM
Selenium	Target	1.5	J+	mg/kg	1.5	J	1	Yes	S4VEM
Silver	Target	0.82	U	mg/kg	0.82	U	1	Yes	S4VEM
Sodium	Target	408	U	mg/kg	408	U	1	Yes	S4VEM
Thallium	Target	2.0	U	mg/kg	2.0	U	1	Yes	S4VEM
Vanadium	Target	8.2		mg/kg	8.2		1	Yes	S4VEM
Zinc	Target	19.3		mg/kg	19.3		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AE5	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-11	pH:	2	Sample Date:	09/10/2014	Sample Time:	10:28:00
% Moisture :				% Solids :	89.4		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	4190		mg/kg	4190		1	Yes	S4VEM
Antimony	Target	1.1	J	mg/kg	1.1	JN	1	Yes	S4VEM
Arsenic	Target	36.2		mg/kg	36.2		1	Yes	S4VEM
Barium	Target	126		mg/kg	126		1	Yes	S4VEM
Beryllium	Target	0.84		mg/kg	0.84		1	Yes	S4VEM
Cadmium	Target	0.30	J	mg/kg	0.30	JE	1	Yes	S4VEM
Calcium	Target	3750		mg/kg	3750		1	Yes	S4VEM
Chromium	Target	64.2		mg/kg	64.2		1	Yes	S4VEM
Cobalt	Target	4.0	J	mg/kg	4.0	J	1	Yes	S4VEM
Copper	Target	16.4		mg/kg	16.4		1	Yes	S4VEM
Iron	Target	36200		mg/kg	36200		1	Yes	S4VEM
Lead	Target	17.6		mg/kg	17.6		1	Yes	S4VEM
Magnesium	Target	689		mg/kg	689		1	Yes	S4VEM
Manganese	Target	158		mg/kg	158		1	Yes	S4VEM
Nickel	Target	4.8		mg/kg	4.8		1	Yes	S4VEM
Potassium	Target	408	U	mg/kg	242	J	1	Yes	S4VEM
Selenium	Target	5.8	J+	mg/kg	5.8		1	Yes	S4VEM
Silver	Target	0.82	U	mg/kg	0.82	U	1	Yes	S4VEM
Sodium	Target	60.0	J	mg/kg	60.0	J	1	Yes	S4VEM
Thallium	Target	2.0	U	mg/kg	2.0	U	1	Yes	S4VEM
Vanadium	Target	24.4		mg/kg	24.4		1	Yes	S4VEM
Zinc	Target	30.7		mg/kg	30.7		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AE6	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-10	pH:	2	Sample Date:	09/10/2014	Sample Time:	10:00:00
% Moisture :				% Solids :	30.2		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	8280		mg/kg	8280		1	Yes	S4VEM
Antimony	Target	0.88	J	mg/kg	0.88	JN	1	Yes	S4VEM
Arsenic	Target	48.0		mg/kg	48.0		1	Yes	S4VEM
Barium	Target	171		mg/kg	171		1	Yes	S4VEM
Beryllium	Target	0.48	J	mg/kg	0.48	J	1	Yes	S4VEM
Cadmium	Target	0.47	J	mg/kg	0.47	JE	1	Yes	S4VEM
Calcium	Target	7170		mg/kg	7170		1	Yes	S4VEM
Chromium	Target	94.9		mg/kg	94.9		1	Yes	S4VEM
Cobalt	Target	6.9	J	mg/kg	6.9	J	1	Yes	S4VEM
Copper	Target	85.7		mg/kg	85.7		1	Yes	S4VEM
Iron	Target	17000		mg/kg	17000		1	Yes	S4VEM
Lead	Target	38.5		mg/kg	38.5		1	Yes	S4VEM
Magnesium	Target	1940		mg/kg	1940		1	Yes	S4VEM
Manganese	Target	264		mg/kg	264		1	Yes	S4VEM
Nickel	Target	9.3	J	mg/kg	9.3	J	1	Yes	S4VEM
Potassium	Target	1410		mg/kg	1410		1	Yes	S4VEM
Selenium	Target	2.9	J+	mg/kg	2.9	J	1	Yes	S4VEM
Silver	Target	2.3	U	mg/kg	2.3	U	1	Yes	S4VEM
Sodium	Target	108	J	mg/kg	108	J	1	Yes	S4VEM
Thallium	Target	5.9	U	mg/kg	5.9	U	1	Yes	S4VEM
Vanadium	Target	25.9		mg/kg	25.9		1	Yes	S4VEM
Zinc	Target	171		mg/kg	171		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AE7	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-12	pH:	2	Sample Date:	09/10/2014	Sample Time:	10:30:00
% Moisture :				% Solids :	88.2		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	4770		mg/kg	4770		1	Yes	S4VEM
Antimony	Target	0.29	J	mg/kg	0.29	JN	1	Yes	S4VEM
Arsenic	Target	10.6		mg/kg	10.6		1	Yes	S4VEM
Barium	Target	20.0		mg/kg	20.0		1	Yes	S4VEM
Beryllium	Target	0.39	J	mg/kg	0.39	J	1	Yes	S4VEM
Cadmium	Target	0.090	J	mg/kg	0.090	JE	1	Yes	S4VEM
Calcium	Target	5100		mg/kg	5100		1	Yes	S4VEM
Chromium	Target	21.8		mg/kg	21.8		1	Yes	S4VEM
Cobalt	Target	2.8	J	mg/kg	2.8	J	1	Yes	S4VEM
Copper	Target	10.6		mg/kg	10.6		1	Yes	S4VEM
Iron	Target	9300		mg/kg	9300		1	Yes	S4VEM
Lead	Target	10.5		mg/kg	10.5		1	Yes	S4VEM
Magnesium	Target	1240		mg/kg	1240		1	Yes	S4VEM
Manganese	Target	112		mg/kg	112		1	Yes	S4VEM
Nickel	Target	4.3		mg/kg	4.3		1	Yes	S4VEM
Potassium	Target	443	U	mg/kg	123	J	1	Yes	S4VEM
Selenium	Target	1.6	J+	mg/kg	1.6	J	1	Yes	S4VEM
Silver	Target	0.89	U	mg/kg	0.89	U	1	Yes	S4VEM
Sodium	Target	35.1	J	mg/kg	35.1	J	1	Yes	S4VEM
Thallium	Target	2.2	U	mg/kg	2.2	U	1	Yes	S4VEM
Vanadium	Target	15.8		mg/kg	15.8		1	Yes	S4VEM
Zinc	Target	22.8		mg/kg	22.8		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AE8	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-14	pH:	2	Sample Date:	09/10/2014	Sample Time:	10:45:00
% Moisture :				% Solids :	88.7		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	3310		mg/kg	3310		1	Yes	S4VEM
Antimony	Target	0.35	J	mg/kg	0.35	JN	1	Yes	S4VEM
Arsenic	Target	28.5		mg/kg	28.5		1	Yes	S4VEM
Barium	Target	23.6		mg/kg	23.6		1	Yes	S4VEM
Beryllium	Target	0.36	J	mg/kg	0.36	J	1	Yes	S4VEM
Cadmium	Target	0.10	J	mg/kg	0.10	JE	1	Yes	S4VEM
Calcium	Target	1530		mg/kg	1530		1	Yes	S4VEM
Chromium	Target	43.6		mg/kg	43.6		1	Yes	S4VEM
Cobalt	Target	3.9		mg/kg	3.9		1	Yes	S4VEM
Copper	Target	22.9		mg/kg	22.9		1	Yes	S4VEM
Iron	Target	11200		mg/kg	11200		1	Yes	S4VEM
Lead	Target	8.1		mg/kg	8.1		1	Yes	S4VEM
Magnesium	Target	313	J	mg/kg	313	J	1	Yes	S4VEM
Manganese	Target	126		mg/kg	126		1	Yes	S4VEM
Nickel	Target	4.1		mg/kg	4.1		1	Yes	S4VEM
Potassium	Target	389	U	mg/kg	212	J	1	Yes	S4VEM
Selenium	Target	1.8	J+	mg/kg	1.8	J	1	Yes	S4VEM
Silver	Target	0.78	U	mg/kg	0.78	U	1	Yes	S4VEM
Sodium	Target	30.9	J	mg/kg	30.9	J	1	Yes	S4VEM
Thallium	Target	1.9	U	mg/kg	1.9	U	1	Yes	S4VEM
Vanadium	Target	10.9		mg/kg	10.9		1	Yes	S4VEM
Zinc	Target	16.6		mg/kg	16.6		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AE9	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-15	pH:	2	Sample Date:	09/10/2014	Sample Time:	10:55:00
% Moisture :				% Solids :	85.5		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	2610		mg/kg	2610		1	Yes	S4VEM
Antimony	Target	0.22	J	mg/kg	0.22	JN	1	Yes	S4VEM
Arsenic	Target	21.5		mg/kg	21.5		1	Yes	S4VEM
Barium	Target	20.0		mg/kg	20.0		1	Yes	S4VEM
Beryllium	Target	0.31	J	mg/kg	0.31	J	1	Yes	S4VEM
Cadmium	Target	0.067	J	mg/kg	0.067	JE	1	Yes	S4VEM
Calcium	Target	1090		mg/kg	1090		1	Yes	S4VEM
Chromium	Target	31.1		mg/kg	31.1		1	Yes	S4VEM
Cobalt	Target	2.9	J	mg/kg	2.9	J	1	Yes	S4VEM
Copper	Target	21.5		mg/kg	21.5		1	Yes	S4VEM
Iron	Target	7400		mg/kg	7400		1	Yes	S4VEM
Lead	Target	8.7		mg/kg	8.7		1	Yes	S4VEM
Magnesium	Target	323	J	mg/kg	323	J	1	Yes	S4VEM
Manganese	Target	93.0		mg/kg	93.0		1	Yes	S4VEM
Nickel	Target	2.6	J	mg/kg	2.6	J	1	Yes	S4VEM
Potassium	Target	409	U	mg/kg	69.7	J	1	Yes	S4VEM
Selenium	Target	1.3	J+	mg/kg	1.3	J	1	Yes	S4VEM
Silver	Target	0.82	U	mg/kg	0.82	U	1	Yes	S4VEM
Sodium	Target	25.1	J	mg/kg	25.1	J	1	Yes	S4VEM
Thallium	Target	2.0	U	mg/kg	2.0	U	1	Yes	S4VEM
Vanadium	Target	8.2		mg/kg	8.2		1	Yes	S4VEM
Zinc	Target	18.0		mg/kg	18.0		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AF0	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-16	pH:	2	Sample Date:	09/10/2014	Sample Time:	10:58:00
% Moisture :				% Solids :	88.9		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	4410		mg/kg	4410		1	Yes	S4VEM
Antimony	Target	0.42	J	mg/kg	0.42	JN	1	Yes	S4VEM
Arsenic	Target	9.5		mg/kg	9.5		1	Yes	S4VEM
Barium	Target	34.7		mg/kg	34.7		1	Yes	S4VEM
Beryllium	Target	0.59		mg/kg	0.59		1	Yes	S4VEM
Cadmium	Target	0.24	J	mg/kg	0.24	JE	1	Yes	S4VEM
Calcium	Target	35600		mg/kg	35600		1	Yes	S4VEM
Chromium	Target	19.1		mg/kg	19.1		1	Yes	S4VEM
Cobalt	Target	9.0		mg/kg	9.0		1	Yes	S4VEM
Copper	Target	13.0		mg/kg	13.0		1	Yes	S4VEM
Iron	Target	13800		mg/kg	13800		1	Yes	S4VEM
Lead	Target	13.5		mg/kg	13.5		1	Yes	S4VEM
Magnesium	Target	1690		mg/kg	1690		1	Yes	S4VEM
Manganese	Target	252		mg/kg	252		1	Yes	S4VEM
Nickel	Target	5.3		mg/kg	5.3		1	Yes	S4VEM
Potassium	Target	429	U	mg/kg	276	J	1	Yes	S4VEM
Selenium	Target	2.3	J+	mg/kg	2.3	J	1	Yes	S4VEM
Silver	Target	0.86	U	mg/kg	0.86	U	1	Yes	S4VEM
Sodium	Target	119	J	mg/kg	119	J	1	Yes	S4VEM
Thallium	Target	2.1	U	mg/kg	2.1	U	1	Yes	S4VEM
Vanadium	Target	13.0		mg/kg	13.0		1	Yes	S4VEM
Zinc	Target	28.5		mg/kg	28.5		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AG4	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-WS-08	pH:	2	Sample Date:	09/10/2014	Sample Time:	15:50:00
% Moisture :				% Solids :	70.3		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	4330		mg/kg	4330		1	Yes	S4VEM
Antimony	Target	6.4	UJ	mg/kg	6.4	UN	1	Yes	S4VEM
Arsenic	Target	12.5		mg/kg	12.5		1	Yes	S4VEM
Barium	Target	40.5		mg/kg	40.5		1	Yes	S4VEM
Beryllium	Target	0.22	J	mg/kg	0.22	J	1	Yes	S4VEM
Cadmium	Target	0.15	J	mg/kg	0.15	JE	1	Yes	S4VEM
Calcium	Target	1400		mg/kg	1400		1	Yes	S4VEM
Chromium	Target	19.6		mg/kg	19.6		1	Yes	S4VEM
Cobalt	Target	1.4	J	mg/kg	1.4	J	1	Yes	S4VEM
Copper	Target	11.9		mg/kg	11.9		1	Yes	S4VEM
Iron	Target	5730		mg/kg	5730		1	Yes	S4VEM
Lead	Target	15.7		mg/kg	15.7		1	Yes	S4VEM
Magnesium	Target	394	J	mg/kg	394	J	1	Yes	S4VEM
Manganese	Target	281		mg/kg	281		1	Yes	S4VEM
Nickel	Target	2.6	J	mg/kg	2.6	J	1	Yes	S4VEM
Potassium	Target	535	U	mg/kg	17.4	J	1	Yes	S4VEM
Selenium	Target	1.0	J+	mg/kg	1.0	J	1	Yes	S4VEM
Silver	Target	1.1	U	mg/kg	1.1	U	1	Yes	S4VEM
Sodium	Target	535	U	mg/kg	535	U	1	Yes	S4VEM
Thallium	Target	2.7	U	mg/kg	2.7	U	1	Yes	S4VEM
Vanadium	Target	12.1		mg/kg	12.1		1	Yes	S4VEM
Zinc	Target	39.5		mg/kg	39.5		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AG5	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-WS-09	pH:	2	Sample Date:	09/10/2014	Sample Time:	16:00:00
% Moisture :				% Solids :	70.3		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	6660		mg/kg	6660		1	Yes	S4VEM
Antimony	Target	0.29	J	mg/kg	0.29	JN	1	Yes	S4VEM
Arsenic	Target	4.1		mg/kg	4.1		1	Yes	S4VEM
Barium	Target	52.5		mg/kg	52.5		1	Yes	S4VEM
Beryllium	Target	0.23	J	mg/kg	0.23	J	1	Yes	S4VEM
Cadmium	Target	0.19	J	mg/kg	0.19	JE	1	Yes	S4VEM
Calcium	Target	2160		mg/kg	2160		1	Yes	S4VEM
Chromium	Target	10.6		mg/kg	10.6		1	Yes	S4VEM
Cobalt	Target	2.1	J	mg/kg	2.1	J	1	Yes	S4VEM
Copper	Target	7.8		mg/kg	7.8		1	Yes	S4VEM
Iron	Target	8550		mg/kg	8550		1	Yes	S4VEM
Lead	Target	17.2		mg/kg	17.2		1	Yes	S4VEM
Magnesium	Target	738		mg/kg	738		1	Yes	S4VEM
Manganese	Target	323		mg/kg	323		1	Yes	S4VEM
Nickel	Target	3.4	J	mg/kg	3.4	J	1	Yes	S4VEM
Potassium	Target	515	U	mg/kg	240	J	1	Yes	S4VEM
Selenium	Target	1.5	J+	mg/kg	1.5	J	1	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1.0	U	1	Yes	S4VEM
Sodium	Target	30.1	J	mg/kg	30.1	J	1	Yes	S4VEM
Thallium	Target	2.6	U	mg/kg	2.6	U	1	Yes	S4VEM
Vanadium	Target	19.2		mg/kg	19.2		1	Yes	S4VEM
Zinc	Target	35.7		mg/kg	35.7		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	MC0AG6	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-WS-10	pH:	2	Sample Date:	09/10/2014	Sample Time:	16:10:00
% Moisture :				% Solids :	76		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	4600		mg/kg	4600		1	Yes	S4VEM
Antimony	Target	0.52	J	mg/kg	0.52	JN	1	Yes	S4VEM
Arsenic	Target	59.2		mg/kg	59.2		1	Yes	S4VEM
Barium	Target	34.3		mg/kg	34.3		1	Yes	S4VEM
Beryllium	Target	0.30	J	mg/kg	0.30	J	1	Yes	S4VEM
Cadmium	Target	0.50	J	mg/kg	0.50	E	1	Yes	S4VEM
Calcium	Target	809		mg/kg	809		1	Yes	S4VEM
Chromium	Target	32.7		mg/kg	32.7		1	Yes	S4VEM
Cobalt	Target	1.5	J	mg/kg	1.5	J	1	Yes	S4VEM
Copper	Target	35.5		mg/kg	35.5		1	Yes	S4VEM
Iron	Target	9390		mg/kg	9390		1	Yes	S4VEM
Lead	Target	30.9		mg/kg	30.9		1	Yes	S4VEM
Magnesium	Target	366	J	mg/kg	366	J	1	Yes	S4VEM
Manganese	Target	175		mg/kg	175		1	Yes	S4VEM
Nickel	Target	3.1	J	mg/kg	3.1	J	1	Yes	S4VEM
Potassium	Target	445	U	mg/kg	50.4	J	1	Yes	S4VEM
Selenium	Target	1.6	J+	mg/kg	1.6	J	1	Yes	S4VEM
Silver	Target	0.89	U	mg/kg	0.89	U	1	Yes	S4VEM
Sodium	Target	44.1	J	mg/kg	44.1	J	1	Yes	S4VEM
Thallium	Target	2.2	U	mg/kg	2.2	U	1	Yes	S4VEM
Vanadium	Target	12.1		mg/kg	12.1		1	Yes	S4VEM
Zinc	Target	93.2		mg/kg	93.2		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AD4	Lab Code:	CHEM
Sample Number:	PBS01	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:	09/22/2014	Sample Time:	18:40:38
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	mg/kg	20.000	U	1	Yes	S4VEM
Antimony	Target	6.0	U	mg/kg	6.000	U	1	Yes	S4VEM
Arsenic	Target	1.0	U	mg/kg	1.000	U	1	Yes	S4VEM
Barium	Target	20.0	U	mg/kg	20.000	U	1	Yes	S4VEM
Beryllium	Target	0.50	U	mg/kg	0.500	U	1	Yes	S4VEM
Cadmium	Target	0.50	U	mg/kg	0.5000	U	1	Yes	S4VEM
Calcium	Target	500	U	mg/kg	500.000	U	1	Yes	S4VEM
Chromium	Target	1.0	U	mg/kg	1.000	U	1	Yes	S4VEM
Cobalt	Target	5.0	U	mg/kg	5.000	U	1	Yes	S4VEM
Copper	Target	2.5	U	mg/kg	2.500	U	1	Yes	S4VEM
Iron	Target	10.0	U	mg/kg	10.000	U	1	Yes	S4VEM
Lead	Target	1.0	U	mg/kg	1.000	U	1	Yes	S4VEM
Magnesium	Target	500	U	mg/kg	500.000	U	1	Yes	S4VEM
Manganese	Target	1.5	U	mg/kg	1.500	U	1	Yes	S4VEM
Nickel	Target	4.0	U	mg/kg	4.000	U	1	Yes	S4VEM
Potassium	Target	500	U	mg/kg	500.000	U	1	Yes	S4VEM
Selenium	Target	3.5	U	mg/kg	3.500	U	1	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1.000	U	1	Yes	S4VEM
Sodium	Target	500	U	mg/kg	500.000	U	1	Yes	S4VEM
Thallium	Target	2.5	U	mg/kg	2.500	U	1	Yes	S4VEM
Vanadium	Target	5.0	U	mg/kg	5.000	U	1	Yes	S4VEM
Zinc	Target	6.0	U	mg/kg	6.000	U	1	Yes	S4VEM

FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

LABORATORY NAME :	CHEMTECH CONSULTING GROUP, INC.		
CITY / STATE :	MOUNTAINSIDE, NJ		
CASE NO :	44664	SDG NO :	MC0AD4
SDG NOs TO FOLLOW			
MOD. REF. NO :			
CONTRACT NO :	EPW09038		
SOW NO :	ISM01.3		

All documents delivered in the Complete SDG File must be original documents where possible. (Reference - Exhibit B Section 2.6)

		PAGE NOS: FROM	PAGE NOS: TO	CHECK LAB	CHECK REGION
1.	Inventory Sheet (DC-2)	1	2	✔	
2.	SDG Narrative	3	5	✔	
3.	Sample Log-In Sheet (DC-1)	6	6	✔	
4.	Traffic Report/Chain of Custody Record(s)	7	11	✔	
5.	Cover Page	12	13	✔	
	Inorganic Analysis				
6.	Data Sheet (Form IA-IN)	14	33	✔	
7.	Initial & Continuing Calibration Verification (Form IIA-IN)	34	37	✔	
8.	Blanks (Form III-IN)	38	40	✔	
9.	ICP-AES Interference Check Sample (Form IVA-IN)	41	42	✔	
10.	ICP-MS Interference Check Sample (Form IVB-IN)	NA	NA	✔	
11.	Matrix Spike Sample Recovery (Form VA-IN)	43	43	✔	
12.	Post-Digestion Spike Sample Recovery (Form VB-IN)	44	44	✔	
13.	Duplicates (Form VI-IN)	45	45	✔	
14.	Laboratory Control Sample (Form VII-IN)	46	46	✔	
15.	ICP-AES and ICP-MS Serial Dilutions (Form VIII-IN)	47	47	✔	
16.	Method Detection Limits (Annually) (Form IX-IN)	48	49	✔	
17.	ICP-AES Interelement Correction Factors (Annually) (Form XA-IN)	50	50	✔	
18.	ICP-AES Interelement Correction Factor (Annually) (Form XB-IN)	51	52	✔	
19.	Internal Standard Association (Form XI-IN)	NA	NA	✔	
20.	Preparation Log (Form XII-IN)	53	53	✔	
21.	Analysis Run Log (Form XIII-IN)	54	58	✔	
22.	ICP-MS Tune (Form XIV-IN)	NA	NA	✔	
23.	ICP-MS Internal Standards Relative Intensity Summary (Form XV-IN)	NA	NA	✔	
24.	Initial Calibration (Form XVI-IN)	59	63	✔	
25.	ICP-AES Raw Data	64	403	✔	
26.	ICP-MS Raw Data	NA	NA	✔	
27.	Mercury Raw Data	NA	NA	✔	

28.	Cyanide Raw Data	NA	NA	✔	
29.	Preparation Logs Raw Data	404	406	✔	
30.	Percent Solids Determination Log	407	409	✔	
31.	**USEPA Shipping/Receiving Documents**				
	Airbill (No. of Shipments) 2	410	411	✔	
	Sample Tags (***In a Plastic Bag w/ Page #***)	412	415	✔	
	Sample Log-In Sheet (Lab)	416	417	✔	
32.	Misc. Shipping/Receiving Records				
	(list all individual records)				
	Telephone log	418	423	✔	
	PE Instruction Page	NA	NA	✔	
	Modified Analysis Page	NA	NA	✔	
33.	Internal Lab Sample Transfer Records &				
	Tracking Sheets (describe or list)				
	Internal Lab COC	424	425	✔	
	Miscellaneous	NA	NA	✔	
34.	Internal Original Sample Prep &				
	Analysis Records (describe or list)				
	Prep Records	NA	NA	✔	
	Analysis Records	NA	NA	✔	
	Description	NA	NA	✔	
35.	Other Records (describe or list) Communications Log	NA	NA	✔	
36.	Comments : NA				

Completed By :

(CLP Lab) Th. Rohi for (Signature) **Mildred V. Reyes,Document Control Officer** (Print Name & Title) 6/01/2014 (Date)

Audited By :

(USEPA) (Signature) (Print Name & Title) (Date)

CHEMTECH
284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # MC0AD4
CASE # 44664
CONTRACT # EPW09038
LAB NAME: CHEMTECH
LAB CODE: CHEM
CHEMTECH PROJECT #F3940

A. Number of Samples and Date of Receipt

20 soil samples were delivered to the laboratory intact on 09/13/2014.

B. Parameters

Test requested for Metals CLP Full = Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Silver, Selenium, Sodium, Thallium, Vanadium, Zinc.

C. Cooler Temp

Indicator Bottle: **Presence**/Absence
Cooler: 3°C

D. Detail Documentation (related to Sample Handling Shipping, Analytical Problem, Temp of Cooler etc):

Issue 1: Several samples from SDG MC0AD4 have % solids results less than 50% but more than 30%.

EPA Sample ID	% Solids
MC0AE3	40
MC0AE6	30.2

Issue 2:The laboratory received samples for Case 44673. The case number on the COC (attached), sample tag and label (attached) do not match.

Issue 3: The sample IDs and tag numbers are missing from the sample tags and labels. The station location is listed in place of the sample number on both the sample tag and label.

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E. Corrective Action taken for above:

Resolution 1: Per the ISM01.3 SOW, the laboratory will proceed with the analysis of the samples according to Exhibit D, sections 1.6.4 and 1.6.5.

Resolution 2: Per Region 3, the Case number on the sample tag and label are correct. The sample is for Case 44664. The COC contained an incorrect case number. The correct COC is attached for Case 44664 and Case 44673. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Resolution 3: Per Region 3, MC0AJ3 is for Case 44664. The station location and collection time for sample MC0AJ3 match the sample tag and label per the attached corrected COC. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

F. Analytical Techniques:

All analyses were based on CLP Methodology by method ISM01.3

G. Calculation:

Calculation for ICP-AES Soil Sample:

Conversion of Results from mg/L or ppm to mg/kg (Dry Weight Basis):

$$\text{Concentration (mg/kg)} = C \times \frac{Vf}{W \times S} \times DF$$

Where,

C = Instrument value in ppm (The average of all replicate exposures)
Vf = Final digestion volume (mL)
W = Initial aliquot amount (g) (Sample amount taken in prep)
S = % Solids / 100 (Fraction of Percent Solids)
DF = Dilution Factor

Example Calculation:

If C = 12.34 ppm
Vf = 100 ml
W = 1.20 g
S = 0.90 (90/100)
DF = 1

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Mountainside, NJ 07092

Concentration (mg/kg) = $12.34 \times \frac{100}{1.2 \times 0.90} \times 1$

= 1142.6 mg/kg

= 1140 mg/kg (Reported Result with Signification)

H. QA/ QC

Calibrations met requirements. Interference check met requirements. Blank analyses did not indicate any presence of contamination. Laboratory Control sample was within control limits. Spike sample did meet requirements except for Antimony. Duplicate sample did meet requirements. Serial Dilution did meet requirements except for Cadmium.

I certify that the data package is in compliance with the terms and conditions of the contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature Th. Rohe` for Name: Mildred V. Reyes

Date 10/01/2014 Title: Document Control Officer

SAMPLE LOG-IN SHEET

Lab Name CHEMTECH CONSULTING GROUP

Page 1 of 1

Received By (Print) DEEPAK PARMAR

Log-in Date **9/13/2014**

Received By (Signature)

Case Number 44664

Sample Delivery Group No. MC0AD4

MOD.REF.NO N/A

Remarks:

1. Custody Seal(s) Present/Absent* Intact/Broken
2. Custody Seal Nos. N/A
3. Traffic Reports/Chain Of Custody Records Present/Absent*
4. Airbill Airbill/Sticker Present/Absent*
5. Airbill No. 771132424708 7711 3249 5152
6. Sample Tags Present/Absent* Sample Tag # Listed/Not Listed On TR/ Chain-of-Custody
7. Sample Condition Intact/Broken*/Leaking
8. Cooler Temperature Indicator Bottle Present/Absent*
9. Cooler Temperature 3°C
10. Does information on custody records, traffic reports, and sample tags Yes/No*
11. Date Received at Lab 9/13/14
12. Time Received 10:50

Corresponding

EPA Sample #	Aqueous Sample pH	Sample Tag #	Assigned Lab#	Remarks: Condition of Sample shipment, etc.
MC0AD4	N/A	1051	F3940-01	Intact
MC0AD5		1053	F3940-02	
MC0AD6		1055	F3940-03	
MC0AD7		1059	F3940-04	
MC0AD7D			F3940-05	
MC0AD7S		↓	F3940-06	
MC0AD8		1061	F3940-07	
MC0AD9		1063	F3940-08	
MC0AE0		1065	F3940-09	
MC0AE1		1067	F3940-10	
MC0AE2		1069	F3940-11	
MC0AE3		1071 ~~1071~~	F3940-12	
MC0AE4		~~1071~~ 1073	F3940-13	
MC0AE5		1075	F3940-14	
MC0AE6		1077	F3940-15	
MC0AE7		1079	F3940-16	
MC0AE8		1081	F3940-17	
MC0AE9		1083	F3940-18	
MC0AF0		1085	F3940-19	
MC0AG4		1113	F3940-20	
MC0AG5		1115	F3940-21	
MC0AG6	↓	1117	F3940-22	↓

Sample Transfer

Fraction	Fraction Metals
Area #	Area # B41
By	By Deepak
On	On 9/15/14

* Contact SMO and attach record of

Reviewed By Zhaleh

Date 09/18/2014

Logbook No.

Logbook Page

Sample Delivery Group (SDG) Cover Sheet

SDG Number	MC0AD4	Case Number	44664	Contract Number	EPW09038
Lab Code	CHEM	SDG Turnaround	21 days	Delivery CLIN(s)	—

First Sample Received in SDG	MC0AD4	Last Sample Received in SDG	MC0AG6
First Sample Receipt Date	9/13/2014 10:00:00 AM	Last Sample Receipt Date	9/13/2014 10:00:00 AM

USEPA Sample Numbers in SDG (Listed in Numerical Order)

CLP Sample ID	Sample Type	Requested Analytical CLIN(s)/SubCLIN(s)	Solicitation Number	MA Number(s)
MC0AD4	Field Sample	0025C	N/A	N/A
MC0AD5	Field Sample	0025C		
MC0AD6	Field Sample	0025C		
MC0AD7	Field Sample	0025C		
MC0AD7D	Field Sample	0025C		
MC0AD7S	Field Sample	0025C		
MC0AD8	Field Sample	0025C		
MC0AD9	Field Sample	0025C		
MC0AE0	Field Sample	0025C		
MC0AE1	Field Sample	0025C		
MC0AE2	Field Sample	0025C		
MC0AE3	Field Sample	0025C		
MC0AE4	Field Sample	0025C		
MC0AE5	Field Sample	0025C		
MC0AE6	Field Sample	0025C		
MC0AE7	Field Sample	0025C		
MC0AE8	Field Sample	0025C		
MC0AE9	Field Sample	0025C		
MC0AF0	Field Sample	0025C		
MC0AG4	Field Sample	0025C		
MC0AG5	Field Sample	0025C		
MC0AG6	Field Sample	0025C		

Note: *There are a maximum of 20* ***field*** *samples (excluding PE samples) in an SDG. Attach TR/COC Records to this form in alphanumeric order (the order listed above on this form).*

Signature Zh. Rohani Date 09/18/2014

MC0AD4

Page 1 of 1

USEPA CLP COC (LAB COPY)
DateShipped: 9/12/2014
CarrierName: FedEx
AirbillNo: 7711 3242 4708

CHAIN OF CUSTODY RECORD
Site #: TK
Case #: 44673
Cooler #: 1 of 5

No: 3-091114-200701-0006
Lab: Chemtech Consulting Group
Lab Contact: Sample Recieving
Lab Phone: 908-789-8900

Inorganic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Organic Sample #	For Lab Use Only
MC0AD4	Soil/ Matt Fisher	Grab	Metals(21)	1051 (4 C) (1)	NKWP-SS-02	09/10/2014 08:05	C0AD4	1
MC0AD5	Soil/ Matt Fisher	Grab	Metals(21)	1053 (4 C) (1)	NKWP-SS-01	09/10/2014 08:00	C0AD5	1
MC0AD6	Soil/ Matt Fisher	Grab	Metals(21)	1055 (4 C) (1)	NKWP-SS-03	09/10/2014 09:15	C0AD6	1
MC0AD7	Soil/ Matt Fisher	Grab	Metals(21)	1059 (4 C) (1)	NKWP-SS-03-01	09/10/2014 09:15	C0AD7	1
MC0AD8	Soil/ Matt Fisher	Grab	Metals(21)	1061 (4 C) (1)	NKWP-SS-04	09/10/2014 08:45	C0AD8	1
MC0AD9	Soil/ Matt Fisher	Grab	Metals(21)	1063 (4 C) (1)	NKWP-SS-05	09/10/2014 08:38	C0AD9	1
MC0AE0	Soil/ Matt Fisher	Grab	Metals(21)	1065 (4 C) (1)	NKWP-SS-06	09/10/2014 09:20	C0AE0	1
MC0AE1	Soil/ Matt Fisher	Grab	Metals(21)	1067 (4 C) (1)	NKWP-SS-07	09/10/2014 09:45	C0AE1	1
MC0AE2	Soil/ Matt Fisher	Grab	Metals(21)	1069 (4 C) (1)	NKWP-SS-08	09/10/2014 09:47	C0AE2	1
MC0AE3	Soil/ Matt Fisher	Grab	Metals(21)	1071 (4 C) (1)	NKWP-SS-09	09/10/2014 09:55	C0AE3	1
MC0AE4	Soil/ Matt Fisher	Grab	Metals(21)	1073 (4 C) (1)	NKWP-SS-13	09/10/2014 10:39	C0AE4	1
MC0AE5	Soil/ Matt Fisher	Grab	Metals(21)	1075 (4 C) (1)	NKWP-SS-11	09/10/2014 10:28	C0AE5	1
MC0AE6	Soil/ Matt Fisher	Grab	Metals(21)	1077 (4 C) (1)	NKWP-SS-10	09/10/2014 10:00	C0AE6	1
MC0AE7	Soil/ Matt Fisher	Grab	Metals(21)	1079 (4 C) (1)	NKWP-SS-12	09/10/2014 10:30	C0AE7	1
MC0AE8	Soil/ Matt Fisher	Grab	Metals(21)	1081 (4 C) (1)	NKWP-SS-14	09/10/2014 10:45	C0AE8	1
MC0AE9	Soil/ Matt Fisher	Grab	Metals(21)	1083 (4 C) (1)	NKWP-SS-15	09/10/2014 10:55	C0AE9	1
MC0AF0	Soil/ Matt Fisher	Grab	Metals(21)	1085 (4 C) (1)	NKWP-SS-16	09/10/2014 10:58	C0AF0	1

8

Sample(s) to be used for Lab QC: MC0AD7

Shipment for Case Complete? Y
Samples Transferred From Chain of Custody #

Analysis Key: Metals=ICP-AES 11+ Metals

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
EPA START Region 3	Matt Fisher	9/12/2014 1200							Deepak Dhiman	9/13/14 10:00	

Temp. 3°C

MC0AD4

USEPA CLP COC (LAB COPY)
DateShipped: 9/12/2014
CarrierName: FedEx
AirbillNo: 7711 3242 5152

CHAIN OF CUSTODY RECORD
Site #: TK
Case #: 44673
Cooler #: 2 of 5

No: 3-091114-201005-0007
Lab: Chemtech Consulting Group
Lab Contact: Sample Recieving
Lab Phone: 908-789-8900

Inorganic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Organic Sample #	For Lab Use Only
MC0AG4	Sediment/ Matt Fisher	Grab	Metals(21)	1113 (4 C) (1)	NKWP-WS-08	09/10/2014 15:50	C0AG4	
MC0AG5	Sediment/ Matt Fisher	Grab	Metals(21)	1115 (4 C) (1)	NKWP-WS-09	09/10/2014 16:00	C0AG5	
MC0AG6	Sediment/ Matt Fisher	Grab	Metals(21)	1117 (4 C) (1)	NKWP-WS-10	09/10/2014 16:10	C0AG6	

Special Instructions:

Shipment for Case Complete? Y
Samples Transferred From Chain of Custody #

Analysis Key: Metals=ICP-AES 11+ Metals

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
ERA Region 3 START	Matt Fisher	9/12/2014 1200							Deepak Parmar	9/15/14	10:00

Temp- 2°C

Page 1 of 1

USEPA CLP COC (LAB COPY)
DateShipped: 9/12/2014
CarrierName: FedEx
AirbillNo: 7711 3242 4708

CHAIN OF CUSTODY RECORD
Site #: TK
Case #: 44664
Cooler #: 1 of 5

No: 3-091114-200701-0006
Lab: Chemtech Consulting Group
Lab Contact: Sample Recieving
Lab Phone: 908-789-8900

Inorganic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Organic Sample #	For Lab Use Only
MC0AD4	Soil/ Matt Fisher	Grab	Metals(21)	1051 (4 C) (1)	NKWP-SS-02	09/10/2014 08:05	C0AD4	
MC0AD5	Soil/ Matt Fisher	Grab	Metals(21)	1053 (4 C) (1)	NKWP-SS-01	09/10/2014 08:00	C0AD5	
MC0AD6	Soil/ Matt Fisher	Grab	Metals(21)	1055 (4 C) (1)	NKWP-SS-03	09/10/2014 09:15	C0AD6	
MC0AD7	Soil/ Matt Fisher	Grab	Metals(21)	1059 (4 C) (1)	NKWP-SS-03-01	09/10/2014 09:15	C0AD7	
MC0AD8	Soil/ Matt Fisher	Grab	Metals(21)	1061 (4 C) (1)	NKWP-SS-04	09/10/2014 08:45	C0AD8	
MC0AD9	Soil/ Matt Fisher	Grab	Metals(21)	1063 (4 C) (1)	NKWP-SS-05	09/10/2014 08:38	C0AD9	
MC0AE0	Soil/ Matt Fisher	Grab	Metals(21)	1065 (4 C) (1)	NKWP-SS-06	09/10/2014 09:20	C0AE0	
MC0AE1	Soil/ Matt Fisher	Grab	Metals(21)	1067 (4 C) (1)	NKWP-SS-07	09/10/2014 09:45	C0AE1	
MC0AE2	Soil/ Matt Fisher	Grab	Metals(21)	1069 (4 C) (1)	NKWP-SS-08	09/10/2014 09:47	C0AE2	
MC0AE3	Soil/ Matt Fisher	Grab	Metals(21)	1071 (4 C) (1)	NKWP-SS-09	09/10/2014 09:55	C0AE3	
MC0AE4	Soil/ Matt Fisher	Grab	Metals(21)	1073 (4 C) (1)	NKWP-SS-13	09/10/2014 10:39	C0AE4	
MC0AE5	Soil/ Matt Fisher	Grab	Metals(21)	1075 (4 C) (1)	NKWP-SS-11	09/10/2014 10:28	C0AE5	
MC0AE6	Soil/ Matt Fisher	Grab	Metals(21)	1077 (4 C) (1)	NKWP-SS-10	09/10/2014 10:00	C0AE6	
MC0AE7	Soil/ Matt Fisher	Grab	Metals(21)	1079 (4 C) (1)	NKWP-SS-12	09/10/2014 10:30	C0AE7	
MC0AE8	Soil/ Matt Fisher	Grab	Metals(21)	1081 (4 C) (1)	NKWP-SS-14	09/10/2014 10:45	C0AE8	
MC0AE9	Soil/ Matt Fisher	Grab	Metals(21)	1083 (4 C) (1)	NKWP-SS-15	09/10/2014 10:55	C0AE9	
MC0AF0	Soil/ Matt Fisher	Grab	Metals(21)	1085 (4 C) (1)	NKWP-SS-16	09/10/2014 10:58	C0AF0	

Sample(s) to be used for Lab QC: MC0AD7

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #

Analysis Key: Metals=ICP-AES 11+ Metals

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time

MC0AD4

USEPA CLP COC (LAB COPY)
DateShipped: 9/12/2014
CarrierName: FedEx
AirbillNo: 7711 3242 5152

CHAIN OF CUSTODY RECORD
Site #: TK
Case #: 44664
Cooler #: 2 of 5

No: 3-091114-201005-0007
Lab: Chemtech Consulting Group
Lab Contact: Sample Recieving
Lab Phone: 908-789-8900

Inorganic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Organic Sample #	For Lab Use Only
MC0AG4	Sediment/ Matt Fisher	Grab	Metals(21)	1113 (4 C) (1)	NKWP-WS-08	09/10/2014 15:50	C0AG4	
MC0AG5	Sediment/ Matt Fisher	Grab	Metals(21)	1115 (4 C) (1)	NKWP-WS-09	09/10/2014 16:00	C0AG5	
MC0AG6	Sediment/ Matt Fisher	Grab	Metals(21)	1117 (4 C) (1)	NKWP-WS-10	09/10/2014 16:10	C0AG6	

Special Instructions:

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #

Analysis Key: Metals=ICP-AES 11+ Metals

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time

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COVER PAGE

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No: 44664 Mod. Ref. No.: SDG No: MC0AD4

SOW No.: ISM01.3

EPA Sample No.	Lab Sample ID
MC0AD4	F3940-01
MC0AD5	F3940-02
MC0AD6	F3940-03
MC0AD7	F3940-04
MC0AD7D	F3940-05
MC0AD7S	F3940-06
MC0AD8	F3940-07
MC0AD9	F3940-08
MC0AE0	F3940-09
MC0AE1	F3940-10
MC0AE2	F3940-11
MC0AE3	F3940-12
MC0AE4	F3940-13
MC0AE5	F3940-14
MC0AE6	F3940-15
MC0AE7	F3940-16
MC0AE8	F3940-17

		ICP-AES	ICP-MS
Were ICP-AES and ICP-MS interelement corrections applied?	(Yes/No)	YES	N/A
Were ICP-AES and ICP-MS background corrections applied?	(Yes/No)	YES	N/A
If yes, were raw data generated before application of background corrections?	(Yes/No)	NO	N/A

The laboratory did not receive any instructions with this SDG to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments: **Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".**

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy Data Package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Th. Rohen' for Name: MILDRED REYES

Date: 10/01/2014 Title: DOCUMENT CONTROL OFFICER

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COVER PAGE

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No: 44664 Mod. Ref. No.: SDG No: MC0AD4

SOW No.: ISM01.3

EPA Sample No.	Lab Sample ID
MC0AE9	F3940-18
MC0AF0	F3940-19
MC0AG4	F3940-20
MC0AG5	F3940-21
MC0AG6	F3940-22

		ICP-AES	ICP-MS
Were ICP-AES and ICP-MS interelement corrections applied?	(Yes/No)	YES	N/A
Were ICP-AES and ICP-MS background corrections applied?	(Yes/No)	YES	N/A
If yes, were raw data generated before application of background corrections?	(Yes/No)	NO	N/A

The laboratory did not receive any instructions with this SDG to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments: Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy Data Package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: [signature] Name: MILDRED REYES

Date: 10/01/2014 Title: DOCUMENT CONTROL OFFICER

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AD4

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-01

% Solids: 82.7 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8930			P
7440-36-0	Antimony	2.4	J	N	P
7440-38-2	Arsenic	309			P
7440-39-3	Barium	62.3			P
7440-41-7	Beryllium	0.59			P
7440-43-9	Cadmium	0.20	J	E	P
7440-70-2	Calcium	1650			P
7440-47-3	Chromium	235			P
7440-48-4	Cobalt	11.3			P
7440-50-8	Copper	133			P
7439-89-6	Iron	20600			P
7439-92-1	Lead	20.8			P
7439-95-4	Magnesium	478			P
7439-96-5	Manganese	321			P
7440-02-0	Nickel	7.4			P
7440-09-7	Potassium	228	J		P
7782-49-2	Selenium	3.5			P
7440-22-4	Silver	0.92	U		P
7440-23-5	Sodium	48.1	J		P
7440-28-0	Thallium	2.3	U		P
7440-62-2	Vanadium	27.9			P
7440-66-6	Zinc	36.4			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: **Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".**

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AD5

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-02

% Solids: 60.1 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	21200			P
7440-36-0	Antimony	4.6	J	N	P
7440-38-2	Arsenic	1140			P
7440-39-3	Barium	150			P
7440-41-7	Beryllium	1.5			P
7440-43-9	Cadmium	0.93		E	P
7440-70-2	Calcium	6240			P
7440-47-3	Chromium	1250			P
7440-48-4	Cobalt	31.3			P
7440-50-8	Copper	598			P
7439-89-6	Iron	53600			P
7439-92-1	Lead	68.5			P
7439-95-4	Magnesium	1400			P
7439-96-5	Manganese	716			P
7440-02-0	Nickel	22.1			P
7440-09-7	Potassium	1030			P
7782-49-2	Selenium	8.3			P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	150	J		P
7440-28-0	Thallium	2.9	U		P
7440-62-2	Vanadium	57.8			P
7440-66-6	Zinc	190			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: **Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".**

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AD6

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-03

% Solids: 75.8 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10200			P
7440-36-0	Antimony	2.3	J	N	P
7440-38-2	Arsenic	313			P
7440-39-3	Barium	76.4			P
7440-41-7	Beryllium	0.51			P
7440-43-9	Cadmium	0.30	J	E	P
7440-70-2	Calcium	2780			P
7440-47-3	Chromium	339			P
7440-48-4	Cobalt	8.2			P
7440-50-8	Copper	223			P
7439-89-6	Iron	15200			P
7439-92-1	Lead	21.0			P
7439-95-4	Magnesium	808			P
7439-96-5	Manganese	215			P
7440-02-0	Nickel	7.1			P
7440-09-7	Potassium	363	J		P
7782-49-2	Selenium	2.8	J		P
7440-22-4	Silver	0.94	U		P
7440-23-5	Sodium	61.9	J		P
7440-28-0	Thallium	2.4	U		P
7440-62-2	Vanadium	19.7			P
7440-66-6	Zinc	89.5			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AD7

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-04

% Solids: 71.2 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	17300			P
7440-36-0	Antimony	4.1	J	N	P
7440-38-2	Arsenic	876			P
7440-39-3	Barium	135			P
7440-41-7	Beryllium	1.1			P
7440-43-9	Cadmium	0.76		E	P
7440-70-2	Calcium	5300			P
7440-47-3	Chromium	1020			P
7440-48-4	Cobalt	26.6			P
7440-50-8	Copper	524			P
7439-89-6	Iron	38800			P
7439-92-1	Lead	58.8			P
7439-95-4	Magnesium	1380			P
7439-96-5	Manganese	726			P
7440-02-0	Nickel	17.0			P
7440-09-7	Potassium	920			P
7782-49-2	Selenium	6.2			P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	139	J		P
7440-28-0	Thallium	2.7	U		P
7440-62-2	Vanadium	45.1			P
7440-66-6	Zinc	174			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: **Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".**

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AD8

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-07

% Solids: 89.7 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3100			P
7440-36-0	Antimony	0.19	J	N	P
7440-38-2	Arsenic	9.3			P
7440-39-3	Barium	21.9			P
7440-41-7	Beryllium	0.16	J		P
7440-43-9	Cadmium	0.039	J	E	P
7440-70-2	Calcium	453			P
7440-47-3	Chromium	11.5			P
7440-48-4	Cobalt	0.56	J		P
7440-50-8	Copper	7.2			P
7439-89-6	Iron	2830			P
7439-92-1	Lead	3.8			P
7439-95-4	Magnesium	255	J		P
7439-96-5	Manganese	49.2			P
7440-02-0	Nickel	1.6	J		P
7440-09-7	Potassium	23.4	J		P
7782-49-2	Selenium	0.68	J		P
7440-22-4	Silver	0.81	U		P
7440-23-5	Sodium	407	U		P
7440-28-0	Thallium	2.0	U		P
7440-62-2	Vanadium	5.4			P
7440-66-6	Zinc	23.3			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: **Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".**

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AD9

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-08

% Solids: 90.5 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3640			P
7440-36-0	Antimony	0.16	J	N	P
7440-38-2	Arsenic	15.0			P
7440-39-3	Barium	28.9			P
7440-41-7	Beryllium	0.23	J		P
7440-43-9	Cadmium	0.053	J	E	P
7440-70-2	Calcium	617			P
7440-47-3	Chromium	17.7			P
7440-48-4	Cobalt	0.84	J		P
7440-50-8	Copper	13.6			P
7439-89-6	Iron	3770			P
7439-92-1	Lead	5.3			P
7439-95-4	Magnesium	342	J		P
7439-96-5	Manganese	61.9			P
7440-02-0	Nickel	3.6			P
7440-09-7	Potassium	45.9	J		P
7782-49-2	Selenium	0.52	J		P
7440-22-4	Silver	0.79	U		P
7440-23-5	Sodium	23.7	J		P
7440-28-0	Thallium	2.0	U		P
7440-62-2	Vanadium	7.0			P
7440-66-6	Zinc	27.2			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: **Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".**

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AE0

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-09

% Solids: 87.9 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5060			P
7440-36-0	Antimony	0.50	J	N	P
7440-38-2	Arsenic	80.8			P
7440-39-3	Barium	49.9			P
7440-41-7	Beryllium	0.32	J		P
7440-43-9	Cadmium	0.25	J	E	P
7440-70-2	Calcium	1490			P
7440-47-3	Chromium	108			P
7440-48-4	Cobalt	3.8	J		P
7440-50-8	Copper	73.7			P
7439-89-6	Iron	9120			P
7439-92-1	Lead	16.8			P
7439-95-4	Magnesium	534			P
7439-96-5	Manganese	170			P
7440-02-0	Nickel	4.4			P
7440-09-7	Potassium	184	J		P
7782-49-2	Selenium	1.6	J		P
7440-22-4	Silver	0.86	U		P
7440-23-5	Sodium	36.0	J		P
7440-28-0	Thallium	2.1	U		P
7440-62-2	Vanadium	12.8			P
7440-66-6	Zinc	92.5			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: **Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".**

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AE1

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-10

% Solids: 87.8 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3660			P
7440-36-0	Antimony	0.29	J	N	P
7440-38-2	Arsenic	20.3			P
7440-39-3	Barium	23.1			P
7440-41-7	Beryllium	0.20	J		P
7440-43-9	Cadmium	0.064	J	E	P
7440-70-2	Calcium	1310			P
7440-47-3	Chromium	22.2			P
7440-48-4	Cobalt	0.58	J		P
7440-50-8	Copper	14.3			P
7439-89-6	Iron	3890			P
7439-92-1	Lead	9.1			P
7439-95-4	Magnesium	285	J		P
7439-96-5	Manganese	67.1			P
7440-02-0	Nickel	2.0	J		P
7440-09-7	Potassium	24.4	J		P
7782-49-2	Selenium	0.81	J		P
7440-22-4	Silver	0.90	U		P
7440-23-5	Sodium	448	U		P
7440-28-0	Thallium	2.2	U		P
7440-62-2	Vanadium	7.2			P
7440-66-6	Zinc	17.2			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: **Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".**

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AE2

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-11

% Solids: 76.2 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3970			P
7440-36-0	Antimony	0.46	J	N	P
7440-38-2	Arsenic	82.2			P
7440-39-3	Barium	31.9			P
7440-41-7	Beryllium	0.23	J		P
7440-43-9	Cadmium	0.095	J	E	P
7440-70-2	Calcium	1790			P
7440-47-3	Chromium	108			P
7440-48-4	Cobalt	1.9	J		P
7440-50-8	Copper	77.9			P
7439-89-6	Iron	6270			P
7439-92-1	Lead	11.4			P
7439-95-4	Magnesium	470			P
7439-96-5	Manganese	84.4			P
7440-02-0	Nickel	3.1	J		P
7440-09-7	Potassium	77.6	J		P
7782-49-2	Selenium	1.2	J		P
7440-22-4	Silver	0.92	U		P
7440-23-5	Sodium	31.1	J		P
7440-28-0	Thallium	2.3	U		P
7440-62-2	Vanadium	9.6			P
7440-66-6	Zinc	26.9			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: **Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".**

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AE3

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-12

% Solids: 40.0 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8980			P
7440-36-0	Antimony	1.0	J	N	P
7440-38-2	Arsenic	57.9			P
7440-39-3	Barium	188			P
7440-41-7	Beryllium	0.48	J		P
7440-43-9	Cadmium	0.53	J	E	P
7440-70-2	Calcium	16500			P
7440-47-3	Chromium	91.9			P
7440-48-4	Cobalt	8.3	J		P
7440-50-8	Copper	81.1			P
7439-89-6	Iron	19800			P
7439-92-1	Lead	39.4			P
7439-95-4	Magnesium	2440			P
7439-96-5	Manganese	375			P
7440-02-0	Nickel	11.0			P
7440-09-7	Potassium	1850			P
7782-49-2	Selenium	3.1	J		P
7440-22-4	Silver	1.7	U		P
7440-23-5	Sodium	111	J		P
7440-28-0	Thallium	4.3	U		P
7440-62-2	Vanadium	28.1			P
7440-66-6	Zinc	165			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: **Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".**

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AE4

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-13

% Solids: 85.6 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2370			P
7440-36-0	Antimony	0.33	J	N	P
7440-38-2	Arsenic	25.2			P
7440-39-3	Barium	30.7			P
7440-41-7	Beryllium	0.27	J		P
7440-43-9	Cadmium	0.086	J	E	P
7440-70-2	Calcium	1600			P
7440-47-3	Chromium	72.0			P
7440-48-4	Cobalt	4.1			P
7440-50-8	Copper	34.8			P
7439-89-6	Iron	8060			P
7439-92-1	Lead	10.8			P
7439-95-4	Magnesium	556			P
7439-96-5	Manganese	159			P
7440-02-0	Nickel	3.6			P
7440-09-7	Potassium	111	J		P
7782-49-2	Selenium	1.5	J		P
7440-22-4	Silver	0.82	U		P
7440-23-5	Sodium	408	U		P
7440-28-0	Thallium	2.0	U		P
7440-62-2	Vanadium	8.2			P
7440-66-6	Zinc	19.3			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AE5

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-14

% Solids: 89.4 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4190			P
7440-36-0	Antimony	1.1	J	N	P
7440-38-2	Arsenic	36.2			P
7440-39-3	Barium	126			P
7440-41-7	Beryllium	0.84			P
7440-43-9	Cadmium	0.30	J	E	P
7440-70-2	Calcium	3750			P
7440-47-3	Chromium	64.2			P
7440-48-4	Cobalt	4.0	J		P
7440-50-8	Copper	16.4			P
7439-89-6	Iron	36200			P
7439-92-1	Lead	17.6			P
7439-95-4	Magnesium	689			P
7439-96-5	Manganese	158			P
7440-02-0	Nickel	4.8			P
7440-09-7	Potassium	242	J		P
7782-49-2	Selenium	5.8			P
7440-22-4	Silver	0.82	U		P
7440-23-5	Sodium	60.0	J		P
7440-28-0	Thallium	2.0	U		P
7440-62-2	Vanadium	24.4			P
7440-66-6	Zinc	30.7			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AE6

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-15

% Solids: 30.2 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8280			P
7440-36-0	Antimony	0.88	J	N	P
7440-38-2	Arsenic	48.0			P
7440-39-3	Barium	171			P
7440-41-7	Beryllium	0.48	J		P
7440-43-9	Cadmium	0.47	J	E	P
7440-70-2	Calcium	7170			P
7440-47-3	Chromium	94.9			P
7440-48-4	Cobalt	6.9	J		P
7440-50-8	Copper	85.7			P
7439-89-6	Iron	17000			P
7439-92-1	Lead	38.5			P
7439-95-4	Magnesium	1940			P
7439-96-5	Manganese	264			P
7440-02-0	Nickel	9.3	J		P
7440-09-7	Potassium	1410			P
7782-49-2	Selenium	2.9	J		P
7440-22-4	Silver	2.3	U		P
7440-23-5	Sodium	108	J		P
7440-28-0	Thallium	5.9	U		P
7440-62-2	Vanadium	25.9			P
7440-66-6	Zinc	171			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: **Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".**

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AE7

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-16

% Solids: 88.2 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4770			P
7440-36-0	Antimony	0.29	J	N	P
7440-38-2	Arsenic	10.6			P
7440-39-3	Barium	20.0			P
7440-41-7	Beryllium	0.39	J		P
7440-43-9	Cadmium	0.090	J	E	P
7440-70-2	Calcium	5100			P
7440-47-3	Chromium	21.8			P
7440-48-4	Cobalt	2.8	J		P
7440-50-8	Copper	10.6			P
7439-89-6	Iron	9300			P
7439-92-1	Lead	10.5			P
7439-95-4	Magnesium	1240			P
7439-96-5	Manganese	112			P
7440-02-0	Nickel	4.3			P
7440-09-7	Potassium	123	J		P
7782-49-2	Selenium	1.6	J		P
7440-22-4	Silver	0.89	U		P
7440-23-5	Sodium	35.1	J		P
7440-28-0	Thallium	2.2	U		P
7440-62-2	Vanadium	15.8			P
7440-66-6	Zinc	22.8			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: **Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".**

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AE8

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-17

% Solids: 88.7 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3310			P
7440-36-0	Antimony	0.35	J	N	P
7440-38-2	Arsenic	28.5			P
7440-39-3	Barium	23.6			P
7440-41-7	Beryllium	0.36	J		P
7440-43-9	Cadmium	0.10	J	E	P
7440-70-2	Calcium	1530			P
7440-47-3	Chromium	43.6			P
7440-48-4	Cobalt	3.9			P
7440-50-8	Copper	22.9			P
7439-89-6	Iron	11200			P
7439-92-1	Lead	8.1			P
7439-95-4	Magnesium	313	J		P
7439-96-5	Manganese	126			P
7440-02-0	Nickel	4.1			P
7440-09-7	Potassium	212	J		P
7782-49-2	Selenium	1.8	J		P
7440-22-4	Silver	0.78	U		P
7440-23-5	Sodium	30.9	J		P
7440-28-0	Thallium	1.9	U		P
7440-62-2	Vanadium	10.9			P
7440-66-6	Zinc	16.6			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: **Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".**

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AE9

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-18

% Solids: 85.5 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2610			P
7440-36-0	Antimony	0.22	J	N	P
7440-38-2	Arsenic	21.5			P
7440-39-3	Barium	20.0			P
7440-41-7	Beryllium	0.31	J		P
7440-43-9	Cadmium	0.067	J	E	P
7440-70-2	Calcium	1090			P
7440-47-3	Chromium	31.1			P
7440-48-4	Cobalt	2.9	J		P
7440-50-8	Copper	21.5			P
7439-89-6	Iron	7400			P
7439-92-1	Lead	8.7			P
7439-95-4	Magnesium	323	J		P
7439-96-5	Manganese	93.0			P
7440-02-0	Nickel	2.6	J		P
7440-09-7	Potassium	69.7	J		P
7782-49-2	Selenium	1.3	J		P
7440-22-4	Silver	0.82	U		P
7440-23-5	Sodium	25.1	J		P
7440-28-0	Thallium	2.0	U		P
7440-62-2	Vanadium	8.2			P
7440-66-6	Zinc	18.0			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AF0

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-19

% Solids: 88.9 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4410			P
7440-36-0	Antimony	0.42	J	N	P
7440-38-2	Arsenic	9.5			P
7440-39-3	Barium	34.7			P
7440-41-7	Beryllium	0.59			P
7440-43-9	Cadmium	0.24	J	E	P
7440-70-2	Calcium	35600			P
7440-47-3	Chromium	19.1			P
7440-48-4	Cobalt	9.0			P
7440-50-8	Copper	13.0			P
7439-89-6	Iron	13800			P
7439-92-1	Lead	13.5			P
7439-95-4	Magnesium	1690			P
7439-96-5	Manganese	252			P
7440-02-0	Nickel	5.3			P
7440-09-7	Potassium	276	J		P
7782-49-2	Selenium	2.3	J		P
7440-22-4	Silver	0.86	U		P
7440-23-5	Sodium	119	J		P
7440-28-0	Thallium	2.1	U		P
7440-62-2	Vanadium	13.0			P
7440-66-6	Zinc	28.5			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AG4

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-20

% Solids: 70.3 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4330			P
7440-36-0	Antimony	6.4	U	N	P
7440-38-2	Arsenic	12.5			P
7440-39-3	Barium	40.5			P
7440-41-7	Beryllium	0.22	J		P
7440-43-9	Cadmium	0.15	J	E	P
7440-70-2	Calcium	1400			P
7440-47-3	Chromium	19.6			P
7440-48-4	Cobalt	1.4	J		P
7440-50-8	Copper	11.9			P
7439-89-6	Iron	5730			P
7439-92-1	Lead	15.7			P
7439-95-4	Magnesium	394	J		P
7439-96-5	Manganese	281			P
7440-02-0	Nickel	2.6	J		P
7440-09-7	Potassium	17.4	J		P
7782-49-2	Selenium	1.0	J		P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	535	U		P
7440-28-0	Thallium	2.7	U		P
7440-62-2	Vanadium	12.1			P
7440-66-6	Zinc	39.5			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: **Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".**

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AG5

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-21

% Solids: 70.3 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6660			P
7440-36-0	Antimony	0.29	J	N	P
7440-38-2	Arsenic	4.1			P
7440-39-3	Barium	52.5			P
7440-41-7	Beryllium	0.23	J		P
7440-43-9	Cadmium	0.19	J	E	P
7440-70-2	Calcium	2160			P
7440-47-3	Chromium	10.6			P
7440-48-4	Cobalt	2.1	J		P
7440-50-8	Copper	7.8			P
7439-89-6	Iron	8550			P
7439-92-1	Lead	17.2			P
7439-95-4	Magnesium	738			P
7439-96-5	Manganese	323			P
7440-02-0	Nickel	3.4	J		P
7440-09-7	Potassium	240	J		P
7782-49-2	Selenium	1.5	J		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	30.1	J		P
7440-28-0	Thallium	2.6	U		P
7440-62-2	Vanadium	19.2			P
7440-66-6	Zinc	35.7			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AG6

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Matrix: SOIL Lab Sample ID: F3940-22

% Solids: 76.0 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4600			P
7440-36-0	Antimony	0.52	J	N	P
7440-38-2	Arsenic	59.2			P
7440-39-3	Barium	34.3			P
7440-41-7	Beryllium	0.30	J		P
7440-43-9	Cadmium	0.50		E	P
7440-70-2	Calcium	809			P
7440-47-3	Chromium	32.7			P
7440-48-4	Cobalt	1.5	J		P
7440-50-8	Copper	35.5			P
7439-89-6	Iron	9390			P
7439-92-1	Lead	30.9			P
7439-95-4	Magnesium	366	J		P
7439-96-5	Manganese	175			P
7440-02-0	Nickel	3.1	J		P
7440-09-7	Potassium	50.4	J		P
7782-49-2	Selenium	1.6	J		P
7440-22-4	Silver	0.89	U		P
7440-23-5	Sodium	44.1	J		P
7440-28-0	Thallium	2.2	U		P
7440-62-2	Vanadium	12.1			P
7440-66-6	Zinc	93.2			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments: **Chemical or physical interference effect was suspected and the data for all affected analytes in the sample received and associated with this serial dilution were flagged with "E".**

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AD4

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	2521.0	2456.52	97	400000.0	417480.00	104	418039.40	105	P
Antimony	994.0	970.27	98	5000.0	5078.14	102	4955.89	99	P
Arsenic	999.0	972.03	97	5000.0	5058.31	101	4933.99	99	P
Barium	497.0	524.50	106	10000.0	10515.55	105	10667.15	107	P
Beryllium	495.0	502.10	101	500.0	518.07	104	512.54	103	P
Cadmium	496.0	499.46	101	2500.0	2554.71	102	2515.86	101	P
Calcium	10026.0	10720.74	107	400000.0	422458.20	106	422446.40	106	P
Chromium	490.0	508.85	104	15500.0	15707.60	101	15711.88	101	P
Cobalt	499.0	498.89	100	2500.0	2580.75	103	2561.52	102	P
Copper	492.0	518.50	105	15000.0	15696.40	105	15607.47	104	P
Iron	5082.0	5573.78	110	400000.0	417032.30	104	410598.30	103	P
Lead	1002.0	1006.51	100	25000.0	25799.20	103	25778.18	103	P
Magnesium	6074.0	6207.19	102	400000.0	412984.80	103	408352.00	102	P
Manganese	499.0	543.05	109	15000.0	15721.66	105	15761.42	105	P
Nickel	503.0	509.95	101	2500.0	2534.67	101	2489.36	100	P
Potassium	10021.0	9490.33	95	150000.0	159185.70	106	159387.90	106	P
Selenium	1029.0	990.20	96	5000.0	5012.30	100	4832.73	97	P
Silver	501.0	498.48	99	1250.0	1333.49	107	1349.38	108	P
Sodium	10097.0	9958.84	99	400000.0	412848.30	103	413954.60	103	P
Thallium	1028.0	1105.17	108	5000.0	5061.76	101	5015.48	100	P
Vanadium	501.0	536.13	107	2500.0	2614.91	105	2617.05	105	P
Zinc	1025.0	985.50	96	15000.0	14873.72	99	14526.65	97	P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AD4

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum				400000.0	397545.10	99			P
Antimony				5000.0	4869.88	97			P
Arsenic				5000.0	4843.70	97			P
Barium				10000.0	10429.58	104			P
Beryllium				500.0	501.90	100			P
Cadmium				2500.0	2501.85	100			P
Calcium				400000.0	410768.60	103			P
Chromium				15500.0	15880.01	102			P
Cobalt				2500.0	2550.27	102			P
Copper				15000.0	15561.51	104			P
Iron				400000.0	388725.20	97			P
Lead				25000.0	25833.92	103			P
Magnesium				400000.0	393704.00	98			P
Manganese				15000.0	15620.12	104			P
Nickel				2500.0	2465.20	99			P
Potassium				150000.0	158915.70	106			P
Selenium				5000.0	4729.81	95			P
Silver				1250.0	1359.67	109			P
Sodium				400000.0	394801.30	99			P
Thallium				5000.0	4993.68	100			P
Vanadium				2500.0	2580.24	103			P
Zinc				15000.0	14002.95	93			P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AD4

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony	994.0	910.76	92	5000.0	4774.10	95	4775.61	96	P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AD4

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony				5000.0	4998.13	100	4881.63	98	P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

3-IN
BLANKS

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AD4

Preparation Blank Matrix (soil/water/wipe/filter): SOIL

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): MG/KG

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum	200.000	U	200.000	U	200.000	U	200.000	U	20.000	U	P
Antimony	60.000	U	60.000	U	60.000	U	60.000	U	6.000	U	P
Arsenic	-2.811	J	10.000	U	10.000	U	10.000	U	1.000	U	P
Barium	200.000	U	200.000	U	200.000	U	200.000	U	20.000	U	P
Beryllium	5.000	U	5.000	U	5.000	U	5.000	U	0.500	U	P
Cadmium	5.000	U	5.000	U	5.000	U	5.000	U	0.5000	U	P
Calcium	5000.000	U	5000.000	U	5000.000	U	5000.000	U	500.000	U	P
Chromium	10.000	U	10.000	U	10.000	U	10.000	U	1.000	U	P
Cobalt	50.000	U	50.000	U	50.000	U	50.000	U	5.000	U	P
Copper	25.000	U	25.000	U	25.000	U	25.000	U	2.500	U	P
Iron	100.000	U	24.699	J	12.665	J	100.000	U	10.000	U	P
Lead	10.000	U	10.000	U	10.000	U	10.000	U	1.000	U	P
Magnesium	5000.000	U	5000.000	U	5000.000	U	5000.000	U	500.000	U	P
Manganese	15.000	U	0.790	J	15.000	U	15.000	U	1.500	U	P
Nickel	40.000	U	40.000	U	40.000	U	40.000	U	4.000	U	P
Potassium	-147.200	J	5000.000	U	187.184	J	181.686	J	500.000	U	P
Selenium	35.000	U	35.000	U	35.000	U	35.000	U	3.500	U	P
Silver	10.000	U	10.000	U	10.000	U	0.498	J	1.000	U	P
Sodium	5000.000	U	5000.000	U	5000.000	U	5000.000	U	500.000	U	P
Thallium	25.000	U	25.000	U	25.000	U	25.000	U	2.500	U	P
Vanadium	50.000	U	50.000	U	50.000	U	50.000	U	5.000	U	P
Zinc	60.000	U	60.000	U	60.000	U	3.693	J	6.000	U	P

3-IN
BLANKS

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AD4

Preparation Blank Matrix (soil/water/wipe/filter):

Preparation Blank Concentration Units (ug/L, ug, or mg/kg):

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony	60.000	U	60.000	U	60.000	U	60.000	U			P

3-IN
BLANKS

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AD4

Preparation Blank Matrix (soil/water/wipe/filter):

Preparation Blank Concentration Units (ug/L, ug, or mg/kg):

	Initial Calibration Blank(ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		
Analyte		C	1	C	2	C	3	C		C	M
Antimony			60.000	U							P

US EPA-CLP

4A-IN

ICP-AES INTERFERENCE CHECK SAMPLE

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AD4

ICP-AES Instrument ID: P5 ICS Source: EPA-1211/0710

Concentration Units: ug/L

Analyte	True		Found			
	Sol.A	Sol.AB	Sol.A	%R	Sol. AB	%R
Aluminum	254900.0	246800.0	252000	99	255000	103
Antimony	0.0	618.0	3.6	0	603	98
Arsenic	0.0	104.0	1.9	0	101	97
Barium	6.0	537.0	7.3	122	547	102
Beryllium	0.0	495.0	0.90	0	530	107
Cadmium	1.0	972.0	0.80	80	1050	108
Calcium	244500.0	234900.0	256000	105	259000	110
Chromium	52.0	542.0	56.8	109	571	105
Cobalt	0.0	476.0	-0.28	0	524	110
Copper	2.0	511.0	0.26	13	525	103
Iron	100700.0	99320.0	105000	104	107000	108
Lead	0.0	49.0	-0.46	0	51.1	104
Magnesium	255400.0	248000.0	264000	103	268000	108
Manganese	7.0	507.0	13.9	199	561	111
Nickel	2.0	954.0	1.0	50	1040	109
Potassium	0.0	0.0	-134	0	-581	
Selenium	0.0	46.0	16.2	0	63.6	138
Silver	0.0	201.0	-2.4	0	211	105
Sodium	0.0	0.0	185	0	197	
Thallium	0.0	108.0	-1.6	0	102	94
Vanadium	0.0	491.0	2.0	0	540	110
Zinc	0.0	952.0	17.8	0	1020	107

US EPA-CLP

4A-IN

ICP-AES INTERFERENCE CHECK SAMPLE

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AD4

ICP-AES Instrument ID: P5 ICS Source: EPA-1211/0710

Concentration Units: ug/L

Analyte	True		Found			
	Sol.A	Sol.AB	Sol.A	%R	Sol. AB	%R
Aluminum	254900.0	246800.0	242000	95	246000	100
Antimony	0.0	618.0	3.8	0	570	92
Arsenic	0.0	104.0	1.6	0	94.9	91
Barium	6.0	537.0	7.2	120	551	103
Beryllium	0.0	495.0	0.39	0	512	103
Cadmium	1.0	972.0	1.6	160	997	103
Calcium	244500.0	234900.0	240000	98	245000	104
Chromium	52.0	542.0	59.2	114	589	109
Cobalt	0.0	476.0	-0.31	0	507	107
Copper	2.0	511.0	-0.69	-34	525	103
Iron	100700.0	99320.0	99000	98	101000	102
Lead	0.0	49.0	-3.6	0	48.5	99
Magnesium	255400.0	248000.0	249000	97	254000	102
Manganese	7.0	507.0	14.9	213	551	109
Nickel	2.0	954.0	0.70	35	997	105
Potassium	0.0	0.0	25.2	0	-706	
Selenium	0.0	46.0	3.5	0	52.8	115
Silver	0.0	201.0	-0.60	0	214	106
Sodium	0.0	0.0	3.3	0	86.5	
Thallium	0.0	108.0	-0.91	0	98.9	92
Vanadium	0.0	491.0	1.4	0	524	107
Zinc	0.0	952.0	16.8	0	989	104

US EPA-CLP

5A-IN

MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MC0AD7S

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AD4

Matrix: SOIL

% Solids for Sample: 71.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony	75 - 125	18.4888		4.1217	J	26.50	54	N	P
Arsenic		557.2214		875.5630		10.60	-3003		P
Barium	75 - 125	708.6871		135.0437		530.00	108		P
Beryllium	75 - 125	14.1779		1.1276		13.25	98		P
Cadmium	75 - 125	13.7314		0.7648		13.25	98		P
Chromium		781.8953		1020.2300		53.00	-450		P
Cobalt	75 - 125	152.6311		26.5621		132.50	95		P
Copper		466.2067		524.0781		66.25	-87		P
Lead		55.0905		58.8175		5.30	-70		P
Manganese		732.5934		725.7194		132.50	5		P
Nickel	75 - 125	147.4494		17.0389		132.50	98		P
Selenium	75 - 125	16.8461		6.1552		13.25	81		P
Silver	75 - 125	12.4271		1.0804	U	13.25	94		P
Thallium	75 - 125	11.1656		2.7010	U	13.25	84		P
Vanadium	75 - 125	179.1202		45.0556		132.50	101		P
Zinc	75 - 125	308.5598		173.5567		132.50	102		P

Comments:

5B-IN

POST-DIGESTION SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MC0AD7A

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AD4

Matrix: SOIL

Concentration Units: (ug/L or mg/Kg dry weight): mg/kg

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony		20.78		4.12	J	13.0	128.2		P

Comments:

6-IN

DUPLICATES

EPA SAMPLE NO.

MC0AD7D

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AD4

Matrix: SOIL

% Solids for Sample: 71.2

Concentration Units:(ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		17274.9400		17472.3300		1		P
Antimony		4.1217	J	3.8054	J	8		P
Arsenic		875.5630		883.5833		1		P
Barium		135.0437		136.9648		1		P
Beryllium	0.5486	1.1276		1.1597		3		P
Cadmium	0.5486	0.7648		0.7411		3		P
Calcium		5299.0470		5373.6450		1		P
Chromium		1020.2300		1059.1610		4		P
Cobalt	5.4863	26.5621		26.8739		1		P
Copper		524.0781		536.6029		2		P
Iron		38829.5400		39373.4000		1		P
Lead		58.8175		59.1269		1		P
Magnesium	548.6307	1376.1400		1390.7930		1		P
Manganese		725.7194		740.7504		2		P
Nickel	4.3890	17.0389		17.1780		1		P
Potassium	548.6307	920.2510		953.2967		4		P
Selenium	3.8404	6.1552		6.3083		2		P
Silver		1.0804	U	1.0973	U			P
Sodium		138.9399	J	119.7563	J	15		P
Thallium		2.7010	U	2.7432	U			P
Vanadium		45.0556		45.5680		1		P
Zinc		173.5567		175.4512		1		P

7 - IN

LABORATORY CONTROL SAMPLE

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AD4

Analyte	Aqueous/Water (ug/L), Soil Sediment (mg/Kg), Wipe/Filter (ug)		
	True	Found	%R
Aluminum	40.0	36.5	91
Antimony	12.0	11.18	93
Arsenic	2.0	1.68	84
Barium	40.0	42.06	105
Beryllium	1.0	1.036	104
Cadmium	1.0	0.9757	98
Calcium	1000.0	1058.9	106
Chromium	2.0	1.951	98
Cobalt	10.0	9.687	97
Copper	5.0	4.83	97
Iron	20.0	21.9	110
Lead	2.0	2.01	100
Magnesium	1000.0	1010.2	101
Manganese	3.0	3.31	110
Nickel	8.0	7.74	97
Potassium	1000.0	995.2	100
Selenium	7.0	6.37	91
Silver	2.0	1.975	99
Sodium	1000.0	1019.4	102
Thallium	5.0	5.11	102
Vanadium	10.0	10.78	108
Zinc	12.0	11.4	95

8-IN

ICP-AES and ICP-MS SERIAL DILUTIONS

EPA SAMPLE NO.

MC0AD7L

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref.No.: SDG No.: MC0AD4

Matrix: SOIL

Concentration Units (ug/L or mg/kg dry weight): mg/kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	17274.94		18229.08		6		P
Antimony	4.12	J	4.87	J	18		P
Arsenic	875.56		911.23		4		P
Barium	135.04		142.46		5		P
Beryllium	1.13		1.08	J	4		P
Cadmium	0.76		0.52	J	31.58	E	P
Calcium	5299.05		5725.13		8		P
Chromium	1020.23		1072.16		5		P
Cobalt	26.56		25.64	J	3		P
Copper	524.08		559.97		7		P
Iron	38829.54		42578.58		10		P
Lead	58.82		59.25		1		P
Magnesium	1376.14		1507.09	J	10		P
Manganese	725.72		788.11		9		P
Nickel	17.04		16.60	J	3		P
Potassium	920.25		907.57	J	1		P
Selenium	6.16		7.23	J	17		P
Silver	1.08	U	5.40	U			P
Sodium	138.94	J	183.41	J	32		P
Thallium	2.70	U	13.50	U			P
Vanadium	45.06		47.90		6		P
Zinc	173.56		188.22		8		P

US EPA-CLP

9-IN

METHOD DETECTION LIMITS (MDL) (ANNUALLY)

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AD4

Instrument Type: P Instrument ID: P5 Date: 01/09/2014

Preparation Method: 200.7

Concentration Units (ug/L, mg/kg, or ug): UG/L

Analyte	Wavelength/Mass	MDL
Aluminum	396.10	15.4
Antimony	206.83	2.7
Arsenic	189.04	2.1
Barium	493.41	2.8
Beryllium	234.80	0.64
Cadmium	214.40	0.18
Calcium	373.60	59.9
Chromium	267.72	0.51
Cobalt	228.62	0.86
Copper	324.75	3.4
Iron	259.80	10.7
Lead	220.35	1.6
Magnesium	279.08	63.2
Manganese	257.61	0.75
Nickel	231.60	1.3
Potassium	769.80	105
Selenium	196.02	2.8
Silver	328.07	0.38
Sodium	818.30	252
Thallium	190.86	2.0
Vanadium	292.40	3.7
Zinc	213.80	3.5

Comments:

9-IN

METHOD DETECTION LIMITS (MDL) (ANNUALLY)

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AD4

Instrument Type: P Instrument ID: P5 Date: 01/09/2014

Preparation Method: 3050B

Concentration Units (ug/L, mg/kg, or ug): MG/KG

Analyte	Wavelength/Mass	MDL
Aluminum	396.10	1.8
Antimony	206.83	0.16
Arsenic	189.04	0.24
Barium	493.41	0.37
Beryllium	234.80	0.074
Cadmium	214.40	0.0078
Calcium	373.60	8.6
Chromium	267.72	0.069
Cobalt	228.62	0.097
Copper	324.75	0.29
Iron	259.80	1.7
Lead	220.35	0.16
Magnesium	279.08	3.7
Manganese	257.61	0.13
Nickel	231.60	0.12
Potassium	769.80	10.8
Selenium	196.02	0.16
Silver	328.07	0.050
Sodium	818.30	24.2
Thallium	190.86	0.25
Vanadium	292.40	0.59
Zinc	213.80	1.1

Comments:

US EPA-CLP

10A-IN

ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref.No.: SDG No.: MC0AD4

ICP-AES Instrument ID: P5 Date: 01/22/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	Co
Aluminum	396.152	0.000000	0.003712	0.000000	0.000000	0.000000
Antimony	206.833	0.000000	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000000	-0.000095	0.000000	0.000000
Barium	493.409	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	234.861	0.000000	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	0.000000	0.000000	0.000032	0.000000	0.000000
Calcium	373.690	0.000000	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000000
Cobalt	228.616	0.000000	0.000000	0.000000	0.000000	0.000000
Copper	324.754	0.000000	0.000000	-0.000123	0.000000	-0.000740
Iron	259.837	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.353	-0.000072	0.000000	0.000030	0.000000	0.000000
Magnesium	279.079	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.610	0.000000	0.000000	0.000000	0.000000	0.000000
Nickel	231.604	0.000000	0.000000	0.000000	0.000000	-0.000294
Potassium	769.896	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.090	0.000000	0.000000	-0.000268	0.000000	-0.000478
Silver	328.068	0.000000	0.000000	-0.000054	0.000000	0.000000
Sodium	818.326	0.000000	0.000000	0.000000	0.000000	0.000000
Thallium	190.856	0.000000	0.000000	-0.000049	0.000000	0.002115
Vanadium	292.402	0.000000	0.000000	0.000000	0.000000	0.000000
Zinc	213.856	0.000000	0.000000	0.000063	0.000000	0.000000

Comments:

US EPA-CLP

10B-IN

ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

ICP-AES Instrument ID: P5 Date: 01/22/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Cr	Cu	Mn	Mo	Ni
Aluminum	396.152	0.000000	0.000000	0.000000	0.038320	0.001814
Antimony	206.833	0.009638	0.000000	0.000000	-0.003330	-0.000475
Arsenic	189.042	0.000283	0.000000	0.000000	0.000345	0.000000
Barium	493.409	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	234.861	0.000000	0.000000	0.000000	-0.000170	0.000000
Cadmium	214.438	0.000000	0.000000	0.000000	0.000000	0.000000
Calcium	373.690	0.000000	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000276	0.000000	0.000000
Cobalt	228.616	0.000000	0.000000	0.000000	-0.001000	0.000000
Copper	324.754	0.000000	0.000000	0.000000	0.000374	0.000000
Iron	259.837	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.353	0.000000	0.000385	0.000087	-0.001220	0.000149
Magnesium	279.079	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.610	0.000000	0.000000	0.000000	0.000000	0.000000
Nickel	231.604	0.000000	0.000000	0.000000	0.000000	0.000000
Potassium	769.896	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.090	0.000000	0.000000	0.000550	0.000223	0.000000
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.000000
Sodium	818.326	0.000000	0.000000	0.000000	0.000000	0.000000
Thallium	190.856	0.000220	0.000000	0.000849	-0.002166	0.000000
Vanadium	292.402	-0.002627	0.000000	-0.000280	-0.008872	0.000000
Zinc	213.856	0.000000	0.000240	0.000000	0.000000	0.004587

Comments:

US EPA-CLP

10B-IN

ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No: SDG No.: MC0AD4

ICP-AES Instrument ID: P5 Date: 01/22/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Pb	Ti	V	Zn
Aluminum	396.152	0.000000	0.000000	0.000000	0.000000
Antimony	206.833	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000000	0.000000	0.000000
Barium	493.409	0.000000	0.000000	0.000000	0.000000
Beryllium	234.861	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	0.000000	0.000000	0.000000	0.000000
Calcium	373.690	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000
Cobalt	228.616	0.000000	0.001813	0.000000	0.000000
Copper	324.754	0.000000	-0.000282	-0.000234	0.000000
Iron	259.837	0.000000	0.000000	0.000000	0.000000
Lead	220.353	0.000000	0.000000	-0.001249	0.000000
Magnesium	279.079	0.000000	0.000000	0.000000	0.000000
Manganese	257.610	0.000000	0.000000	0.000000	0.000000
Nickel	231.604	0.000000	0.000000	0.000000	0.000000
Potassium	769.896	0.000000	0.000000	0.000000	0.000000
Selenium	196.090	0.000000	0.000000	0.000000	0.000000
Silver	328.068	0.000000	0.000000	-0.001258	0.000000
Sodium	818.326	0.000000	0.000000	0.000000	0.000000
Thallium	190.856	0.000000	-0.000580	-0.001321	0.000000
Vanadium	292.402	0.000000	0.000568	0.000000	0.000000
Zinc	213.856	0.000000	0.000000	0.000000	0.000000

Comments:

US EPA-CLP

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PREPARATION LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AD4

Preparation Method: 3050B

EPA Sample No.	Preparation Date	Initial Weight/Volume (g) or (mL)	Final Volume (mL)
PBS01	09/17/2014	1.00	100
LCS01	09/17/2014	1.00	100
MC0AD4	09/17/2014	1.32	100
MC0AD5	09/17/2014	1.44	100
MC0AD6	09/17/2014	1.40	100
MC0AD7	09/17/2014	1.30	100
MC0AD7D	09/17/2014	1.28	100
MC0AD7S	09/17/2014	1.06	100
MC0AD8	09/17/2014	1.37	100
MC0AD9	09/17/2014	1.40	100
MC0AE0	09/17/2014	1.33	100
MC0AE1	09/17/2014	1.27	100
MC0AE2	09/17/2014	1.43	100
MC0AE3	09/17/2014	1.44	100
MC0AE4	09/17/2014	1.43	100
MC0AE5	09/17/2014	1.37	100
MC0AE6	09/17/2014	1.41	100
MC0AE7	09/17/2014	1.28	100
MC0AE8	09/17/2014	1.45	100
MC0AE9	09/17/2014	1.43	100
MC0AF0	09/17/2014	1.31	100
MC0AG4	09/17/2014	1.33	100
MC0AG5	09/17/2014	1.38	100
MC0AG6	09/17/2014	1.48	100

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ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Instrument ID: P5 Analysis Method: P

Start Date: 09/22/2014 End Date: 09/22/2014

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
S0	1.0	1641	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1645	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1649	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1653	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1657	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1701	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1705	X						X				X		X							X							
ICV55	1.0	1729	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICB55	1.0	1733	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSA55	1.0	1737	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSAB55	1.0	1741	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV67	1.0	1745	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB67	1.0	1749	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	1.0	1753																											
ZZZZZZ	1.0	1757																											
ZZZZZZ	1.0	1801																											
ZZZZZZ	1.0	1804																											
ZZZZZZ	10	1808																											
ZZZZZZ	10	1812																											
ZZZZZZ	10	1816																											
ZZZZZZ	10	1820																											
ZZZZZZ	10	1824																											
ZZZZZZ	1.0	1828																											
ZZZZZZ	1.0	1832																											
ZZZZZZ	1.0	1836																											
PBS01	1.0	1840	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
LCS01	1.0	1844	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AD4	1.0	1848	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AD5	1.0	1852	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AD6	1.0	1856	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AD7	1.0	1900	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AD7D	1.0	1904	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AD7S	1.0	1908		X	X	X	X	X		X	X	X		X		X		X		X	X		X	X	X				
MC0AD7L	5.0	1912	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV68	1.0	1916	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB68	1.0	1920	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AD8	1.0	1924	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				

US EPA-CLP

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ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Instrument ID: P5 Analysis Method: P

Start Date: 09/22/2014 End Date: 09/22/2014

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
MC0AD9	1.0	1928	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AE0	1.0	1932	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AE1	1.0	1936	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AE2	1.0	1940	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AE3	1.0	1944	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AE4	1.0	1948	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AE5	1.0	1952	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AE6	1.0	1956	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AE7	1.0	2000	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AE8	1.0	2004	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AE9	1.0	2008	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AF0	1.0	2012	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AG4	1.0	2016	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AG5	1.0	2020	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AG6	1.0	2024	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	1.0	2028																											
ZZZZZZ	1.0	2032																											
ZZZZZZ	1.0	2036																											
ZZZZZZ	1.0	2040																											
CCV69	1.0	2044	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB69	1.0	2048	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				

US EPA-CLP

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ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AD4

Instrument ID: P5 Analysis Method: P

Start Date: 09/23/2014 End Date: 09/23/2014

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
S0	1.0	1028		X																									
S	1.0	1032		X																									
S	1.0	1036		X																									
S	1.0	1040		X																									
S	1.0	1043		X																									
S	1.0	1048		X																									
S	1.0	1052																											
ICV56	1.0	1114		X																									
ICB56	1.0	1118		X																									
ICSA56	1.0	1122	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSAB56	1.0	1126	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV73	1.0	1157		X																									
CCB73	1.0	1201		X																									
ZZZZZZ	10	1206																											
ZZZZZZ	1.0	1210																											
ZZZZZZ	1.0	1214																											
ZZZZZZ	1.0	1218																											
ZZZZZZ	5.0	1222																											
ZZZZZZ	1.0	1226																											
ZZZZZZ	1.0	1230																											
ZZZZZZ	1.0	1234																											
ZZZZZZ	1.0	1238																											
ZZZZZZ	1.0	1242																											
ZZZZZZ	1.0	1246																											
ZZZZZZ	1.0	1250																											
ZZZZZZ	1.0	1254																											
ZZZZZZ	1.0	1258																											
ZZZZZZ	1.0	1302																											
ZZZZZZ	1.0	1307																											
ZZZZZZ	1.0	1311																											
ZZZZZZ	1.0	1315																											
ZZZZZZ	5.0	1319																											
ZZZZZZ	1.0	1323																											
CCV74	1.0	1327		X																									
CCB74	1.0	1331		X																									
ZZZZZZ	1.0	1335																											
ZZZZZZ	1.0	1339																											

US EPA-CLP

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ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No _____ SDG No.: MC0AD4

Instrument ID: P5 Analysis Method: P

Start Date: 09/23/2014 End Date: 09/23/2014

EPA Sample NO.	D/F	Time	Analytes																												
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN					
ZZZZZZ	1.0	1343																													
ZZZZZZ	1.0	1347																													
ZZZZZZ	1.0	1351																													
ZZZZZZ	1.0	1355																													
ZZZZZZ	1.0	1359																													
ZZZZZZ	1.0	1403																													
ZZZZZZ	1.0	1407																													
ZZZZZZ	1.0	1411																													
ZZZZZZ	1.0	1415																													
ZZZZZZ	1.0	1419																													
ZZZZZZ	5.0	1423																													
ZZZZZZ	1.0	1428																													
ZZZZZZ	1.0	1431																													
ZZZZZZ	1.0	1435																													
ZZZZZZ	1.0	1440																													
ZZZZZZ	1.0	1444																													
ZZZZZZ	1.0	1448																													
ZZZZZZ	1.0	1452																													
ZZZZZZ	1.0	1456																													
CCV75	1.0	1504		X																											
CCB75	1.0	1514		X																											
ZZZZZZ	1.0	1518																													
ZZZZZZ	1.0	1522																													
ZZZZZZ	1.0	1526																													
ZZZZZZ	5.0	1530																													
ZZZZZZ	1.0	1534																													
ZZZZZZ	1.0	1538																													
ZZZZZZ	1.0	1542																													
ZZZZZZ	1.0	1546																													
ZZZZZZ	1.0	1550																													
ZZZZZZ	1.0	1554																													
ZZZZZZ	1.0	1558																													
ZZZZZZ	5.0	1602																													
ZZZZZZ	1.0	1606																													
MC0AD7A	1.0	1614		X																											
ZZZZZZ	1.0	1618																													
ZZZZZZ	1.0	1622																													
ZZZZZZ	1.0	1639																													

US EPA-CLP

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ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No _____ SDG No.: MC0AD4

Instrument ID: P5 Analysis Method: P

Start Date: 09/23/2014 End Date: 09/23/2014

EPA Sample NO.	D/F	Time	Analytes																												
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
ZZZZZZ	1.0	1643																													
ZZZZZZ	1.0	1647																													
CCV76	1.0	1655		X																											
CCB76	1.0	1706		X																											

US EPA-CLP

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INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AD4

Instrument ID: P5 **Start Date:** 09/22/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	0.00	0.030	0	200	167	16	38750	38957	-1
Antimony	0.00	0.0100	0	60.0	54	10	1250	1209	3
Arsenic	0.00	0.00000	0	10.0	7.4	26	1250	1215	3
Barium	0.00	-0.0100	0	200	198	1	2500	2578	-3
Beryllium	0.00	0.00000	0	5.00	5.0	-1	125	128	-2
Cadmium	0.00	0.00000	0	5.00	4.6	7	625	639	-2
Calcium	0.00	-0.86	0	5000	5036	-1	62500	67587	-8
Chromium	0.00	0.00000	0	10.0	9.1	9	3875	3834	1
Cobalt	0.00	0.00000	0	50.0	46	8	625	631	-1
Copper	0.00	0.00000	0	25.0	24	3	3750	3837	-2
Iron	0.00	-0.020	0	100	103	-3	37500	41315	-10
Lead	0.00	0.00000	0	10.0	9.4	6	6250	6332	-1
Magnesium	0.00	-0.19	0	5000	4922	2	62500	64166	-3
Manganese	0.00	0.00000	0	15.0	15	-1	3750	4021	-7
Nickel	0.00	0.00000	0	40.0	38	6	625	637	-2
Potassium	0.00	0.48	0	5000	4488	10	37500	37406	0
Selenium	0.00	0.00000	0	35.0	32	8	1250	1237	1
Silver	0.00	0.00000	0	10.0	9.3	7	313	304	3
Sodium	0.00	0.29	0	5000	4814	4	37500	37565	0
Thallium	0.00	0.00000	0	25.0	24	2	1250	1319	-5
Vanadium	0.00	-0.0100	0	50.0	53	-5	625	656	-5
Zinc	0.00	0.00000	0	60.0	56	7	3750	3768	0

Control Limits ± 30

US EPA-CLP

16-IN

INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AD4

Instrument ID: P5 **Start Date:** 09/23/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Antimony	0.00	0.0100	0	60.0	57	5	1250	1236	1

Control Limits ± 30

US EPA-CLP

16-IN

INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AD4

Instrument ID: P5 **Start Date:** 09/22/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	77500	77649	0	155000	156750	-1	310000	308830	0
Antimony	2500	2455	2	5000	5000	0	10000	10092	-1
Arsenic	2500	2465	1	5000	5005	0	10000	10069	-1
Barium	5000	5133	-3	10000	10107	-1	20000	19685	2
Beryllium	250	255	-2	500	511	-2	1000	981	2
Cadmium	1250	1286	-3	2500	2550	-2	5000	4900	2
Calcium	125000	133140	-7	250000	262000	-5	500000	501740	0
Chromium	7750	7716	0	15500	15634	-1	31000	30940	0
Cobalt	1250	1273	-2	2500	2533	-1	5000	4941	1
Copper	7500	7655	-2	15000	15220	-1	30000	29540	2
Iron	75000	80979	-8	150000	157890	-5	300000	298920	0
Lead	12500	12714	-2	25000	25330	-1	50000	49374	1
Magnesium	125000	128040	-2	250000	255040	-2	500000	493780	1
Manganese	7500	7848	-5	15000	15331	-2	30000	29051	3
Nickel	1250	1281	-3	2500	2540	-2	5000	4919	2
Potassium	75000	75083	0	150000	151910	-1	300000	298610	0
Selenium	2500	2489	0	5000	5029	-1	10000	10003	0
Silver	625	614	2	1250	1255	0	2500	2516	-1
Sodium	75000	74910	0	150000	149270	0	300000	291840	3
Thallium	2500	2607	-4	5000	5083	-2	10000	9743	3
Vanadium	1250	1290	-3	2500	2538	-2	5000	4888	2
Zinc	7500	7539	-1	15000	15380	-3	30000	29566	1

US EPA-CLP

16-IN

INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AD4

Instrument ID: P5 **Start Date:** 09/23/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Antimony	2500	2377	5	5000	4917	2	10000	10222	-2

Control Limits ± 30

US EPA-CLP

16-IN

INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AD4

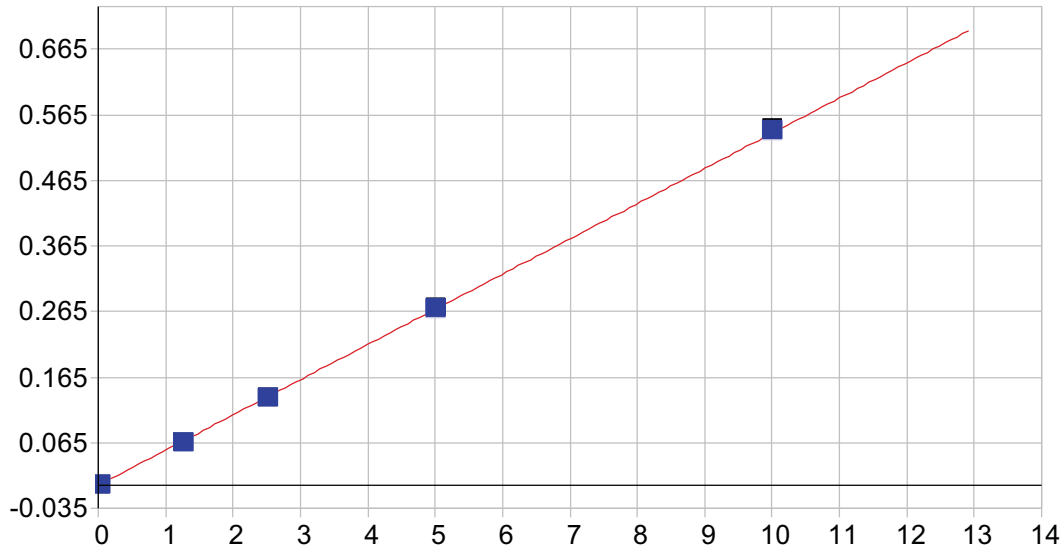
Instrument ID: P5 **Start Date:** 09/22/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	800000	789990	1			0			0
Antimony			0			0			0
Arsenic			0			0			0
Barium			0			0			0
Beryllium			0			0			0
Cadmium			0			0			0
Calcium	800000	773000	3			0			0
Chromium			0			0			0
Cobalt			0			0			0
Copper			0			0			0
Iron	800000	783390	2			0			0
Lead			0			0			0
Magnesium	800000	796550	0			0			0
Manganese			0			0			0
Nickel			0			0			0
Potassium			0			0			0
Selenium			0			0			0
Silver			0			0			0
Sodium	800000	809100	-1			0			0
Thallium			0			0			0
Vanadium			0			0			0
Zinc			0			0			0

Control Limits ± 30

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



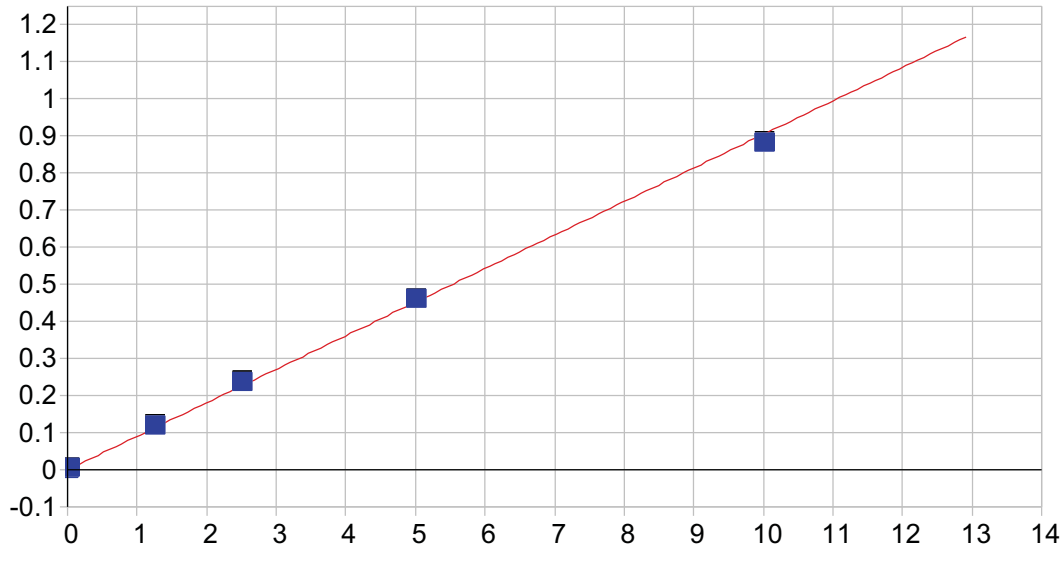
As 189.042 {479}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000068	Re-Slope:	1.000000
A1 (Gain):	0.053689	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999929	Status:	OK.
Std Error of Est:	0.000011		
Predicted MDL:	0.001806		
Predicted MQL:	0.006021		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00007	.000	1
S1	.01000	.00745	-.003	-25.5	.00033	.000	1
S2	1.2500	1.2145	-.035	-2.84	.06503	.000	1
S3	2.5000	2.4646	-.035	-1.42	.13204	.001	1
S4	5.0000	5.0041	.004	.083	.26816	.001	1
S5	10.000	10.069	.069	.693	.53967	.002	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

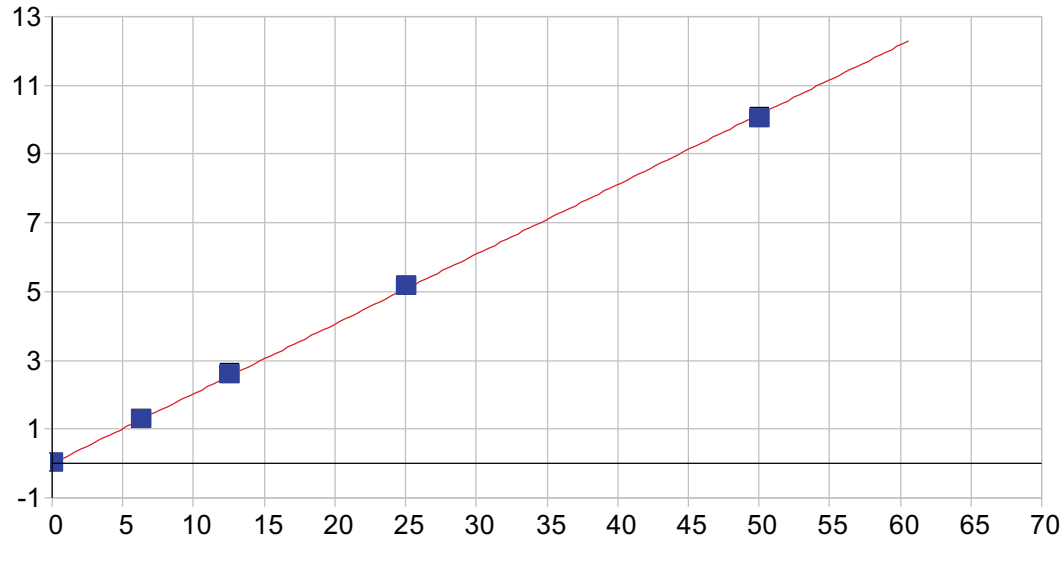


Tl 190.856 {477}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	-0.000076			Re-Slope:	1.000000	
A1 (Gain):	0.090462			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.999564		Status:	OK.		
Std Error of Est:	0.000071					
Predicted MDL:	0.001158					
Predicted MQL:	0.003860					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00008	.000	1
S1	.02500	.02447	-.001	-2.12	.00213	.000	1
S2	1.2500	1.3185	.068	5.48	.11913	.000	1
S3	2.5000	2.6070	.107	4.28	.23562	.002	1
S4	5.0000	5.0827	.083	1.65	.45945	.000	1
S5	10.000	9.7424	-.258	-2.58	.88070	.002	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



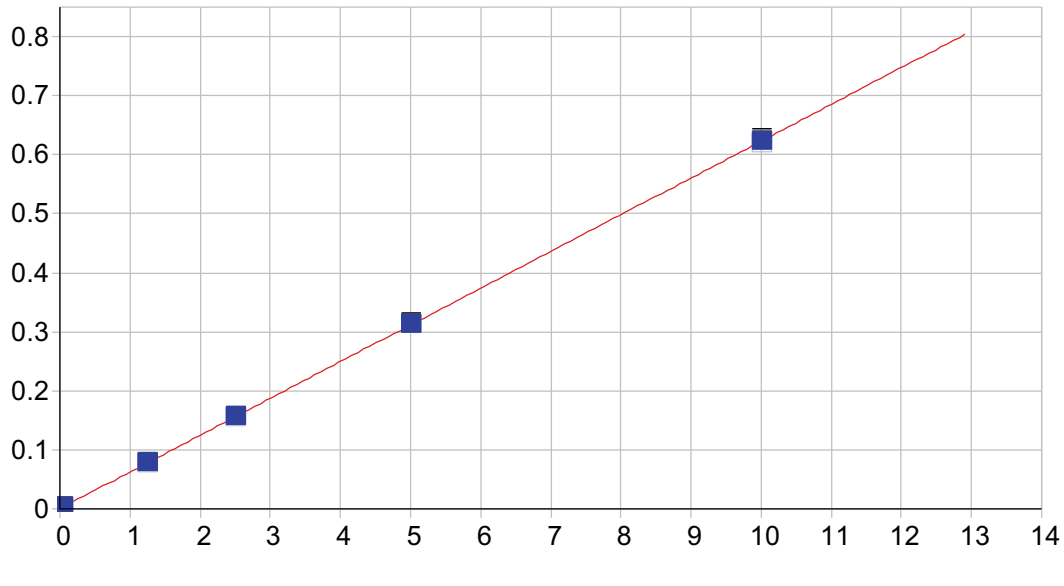
Pb 220.353 {453}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000193	Re-Slope:	1.000000
A1 (Gain):	0.202871	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999909	Status:	OK.
Std Error of Est:	0.000102		
Predicted MDL:	0.001159		
Predicted MQL:	0.003862		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00019	.000	1
S1	.01000	.00934	-.001	-6.56	.00169	.000	1
S2	6.2500	6.3323	.082	1.32	1.2840	.003	1
S3	12.500	12.714	.214	1.71	2.5782	.015	1
S4	25.000	25.330	.330	1.32	5.1369	.003	1
S5	50.000	49.374	-.626	-1.25	10.013	.027	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



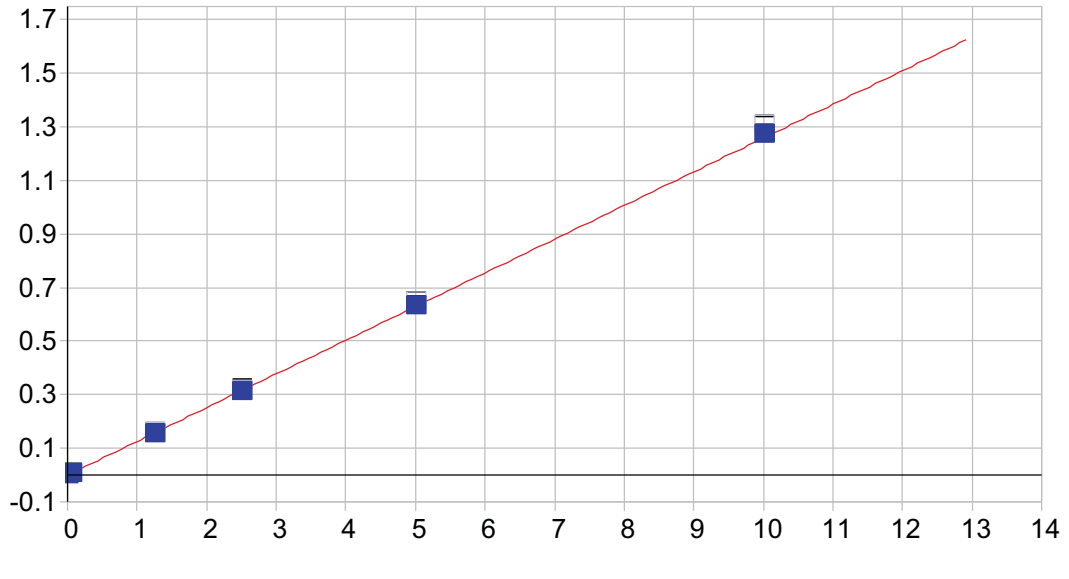
Se 196.090 {472}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000216	Re-Slope:	1.000000
A1 (Gain):	0.062266	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999984	Status:	OK.
Std Error of Est:	0.000011		
Predicted MDL:	0.002181		
Predicted MQL:	0.007270		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00022	.000	1
S1	.03500	.03219	-.003	-8.04	.00222	.000	1
S2	1.2500	1.2356	-.014	-1.15	.07665	.000	1
S3	2.5000	2.4877	-.012	-.491	.15412	.001	1
S4	5.0000	5.0272	.027	.544	.31125	.001	1
S5	10.000	10.002	.002	.023	.61903	.003	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



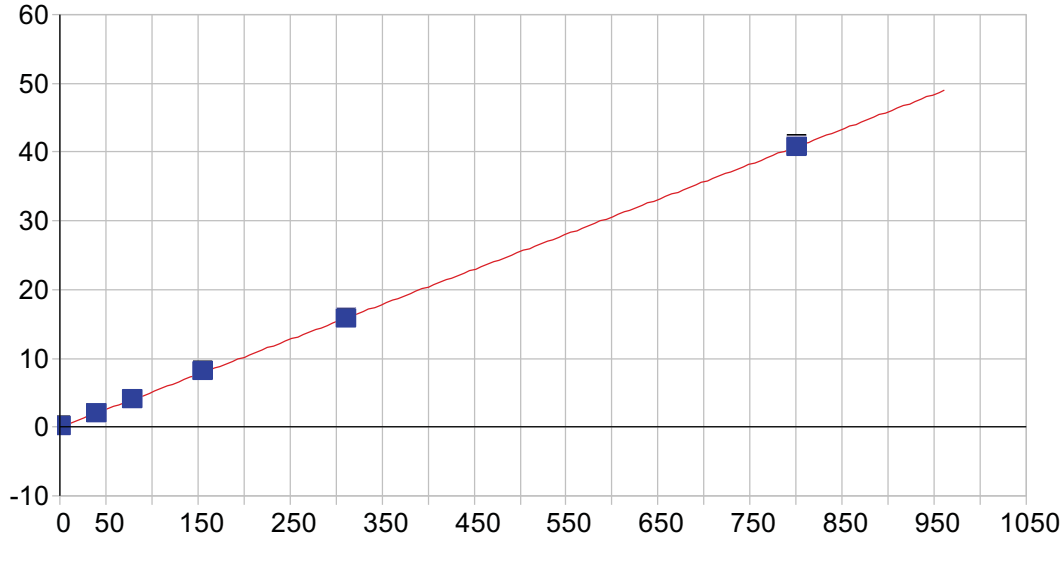
Sb 206.833 {463}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000077	Re-Slope:	1.000000
A1 (Gain):	0.125834	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999908	Status:	OK.
Std Error of Est:	0.000072		
Predicted MDL:	0.001316		
Predicted MQL:	0.004388		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00008	.000	1
S1	.06000	.05403	-.006	-9.95	.00688	.000	1
S2	1.2500	1.2085	-.042	-3.32	.15628	.000	1
S3	2.5000	2.4546	-.045	-1.82	.31723	.002	1
S4	5.0000	5.0008	.001	.015	.64590	.001	1
S5	10.000	10.092	.092	.920	1.3031	.004	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



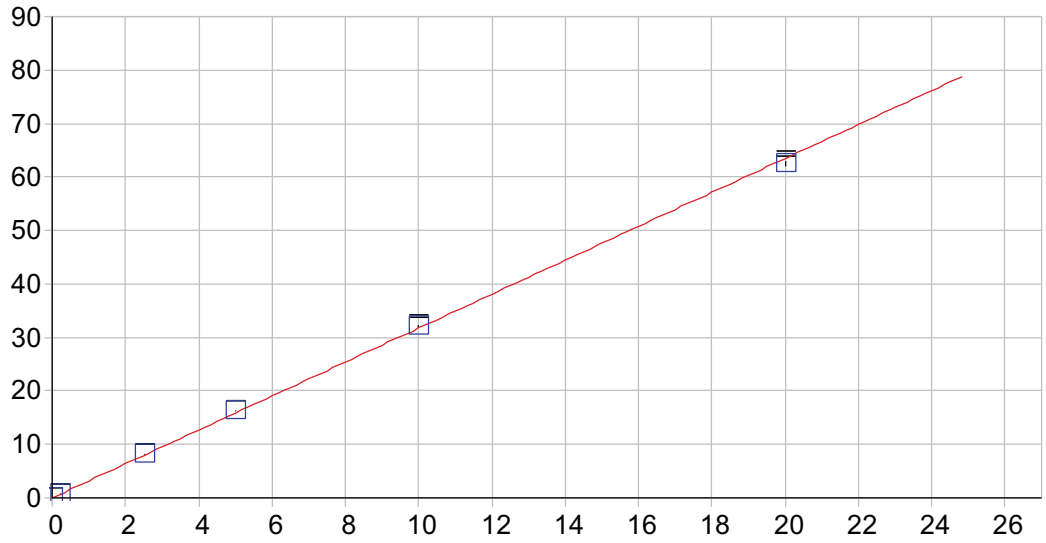
Al 396.152 { 85}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000176	Re-Slope:	1.000000
A1 (Gain):	0.050977	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999988	Status:	OK.
Std Error of Est:	0.000156		
Predicted MDL:	0.010465		
Predicted MQL:	0.034882		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00003	.000	.000	.00018	.000	1
S1	.20000	.16716	-.033	-16.4	.00967	.000	1
S2	38.750	38.977	.227	.587	2.0015	.004	1
S3	77.500	77.681	.181	.234	3.9888	.012	1
S4	155.00	156.79	1.79	1.16	8.0504	.016	1
S5	310.00	308.84	-1.16	-.376	15.858	.037	1
S6	800.00	798.99	-1.01	-.126	40.882	.199	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



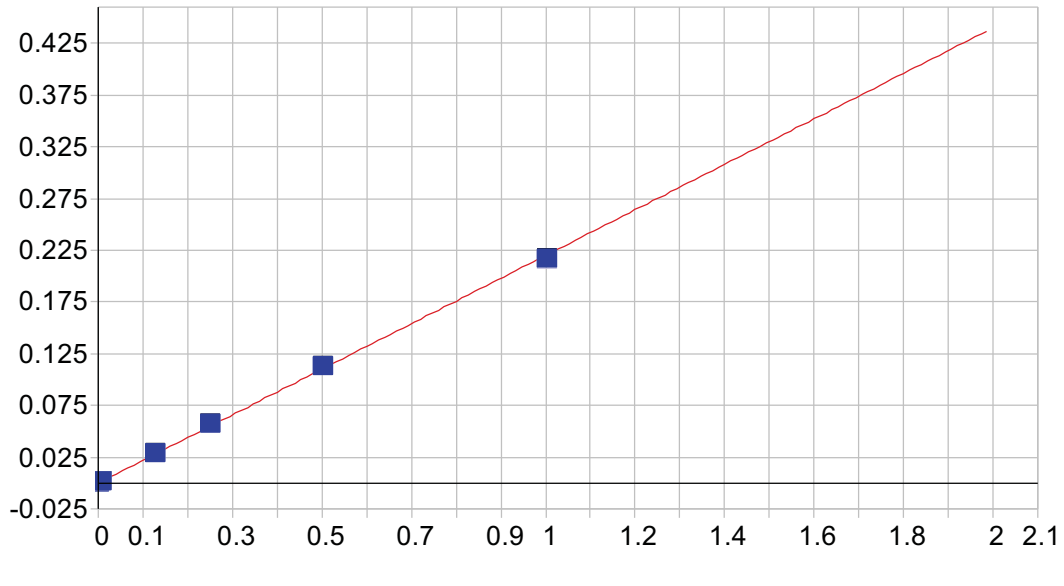
Ba 493.409 { 68}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.009137	Re-Slope:	1.000000
A1 (Gain):	3.173006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999840	Status:	OK.
Std Error of Est:	0.006034		
Predicted MDL:	0.000417		
Predicted MQL:	0.001391		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	.00911	.001	1
S1	.20000	.19756	-.002	-1.22	.63600	.004	1
S2	2.5000	2.5779	.078	3.12	8.1890	.014	1
S3	5.0000	5.1325	.132	2.65	16.294	.064	1
S4	10.000	10.107	.107	1.07	32.078	.152	1
S5	20.000	19.685	-.315	-1.57	62.470	.385	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



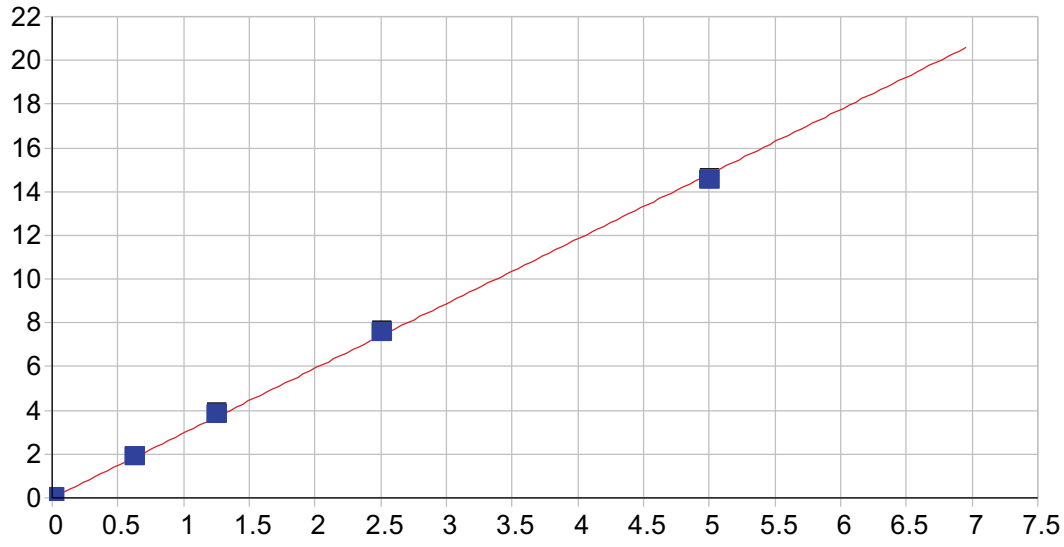
Be 234.861 {144}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000017	Re-Slope:	1.000000
A1 (Gain):	0.220009	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999791	Status:	OK.
Std Error of Est:	0.000017		
Predicted MDL:	0.000568		
Predicted MQL:	0.001895		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00002	.000	1
S1	.00500	.00503	.000	.690	.00109	.000	1
S2	.12500	.12784	.003	2.27	.02806	.000	1
S3	.25000	.25547	.005	2.19	.05610	.000	1
S4	.50000	.51077	.011	2.15	.11217	.001	1
S5	1.0000	.98089	-.019	-1.91	.21541	.000	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

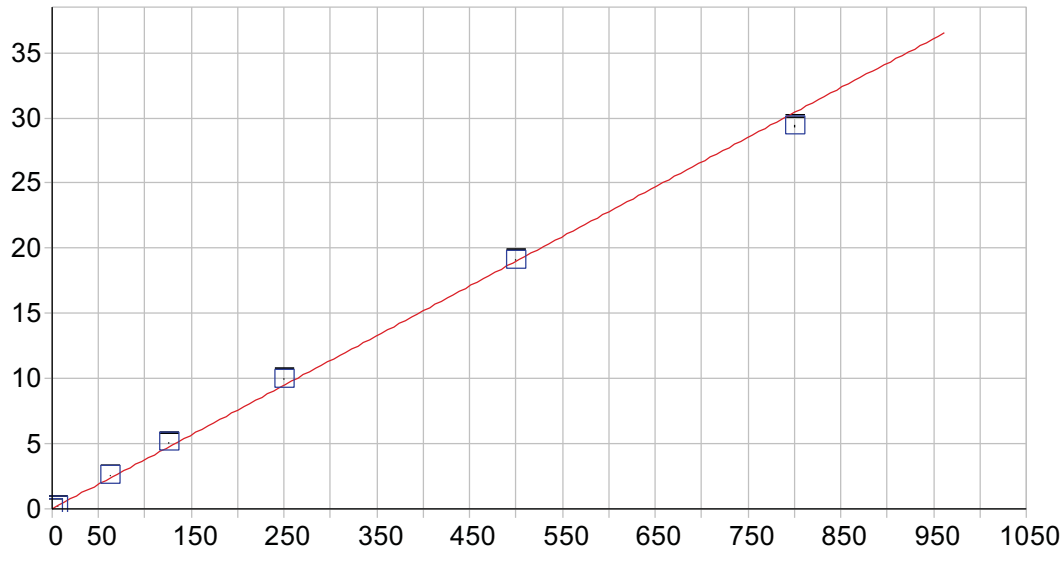


Cd 214.438 {457}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000258			Re-Slope:	1.000000	
A1 (Gain):	2.959463			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.999768		Status:	OK.		
Std Error of Est:	0.000535					
Predicted MDL:	0.000054					
Predicted MQL:	0.000179					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00026	.000	1
S1	.00500	.00464	.000	-7.16	.01401	.000	1
S2	.62500	.63882	.014	2.21	1.8944	.006	1
S3	1.2500	1.2858	.036	2.86	3.8126	.020	1
S4	2.5000	2.5505	.050	2.02	7.5625	.021	1
S5	5.0000	4.9003	-.100	-1.99	14.531	.027	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



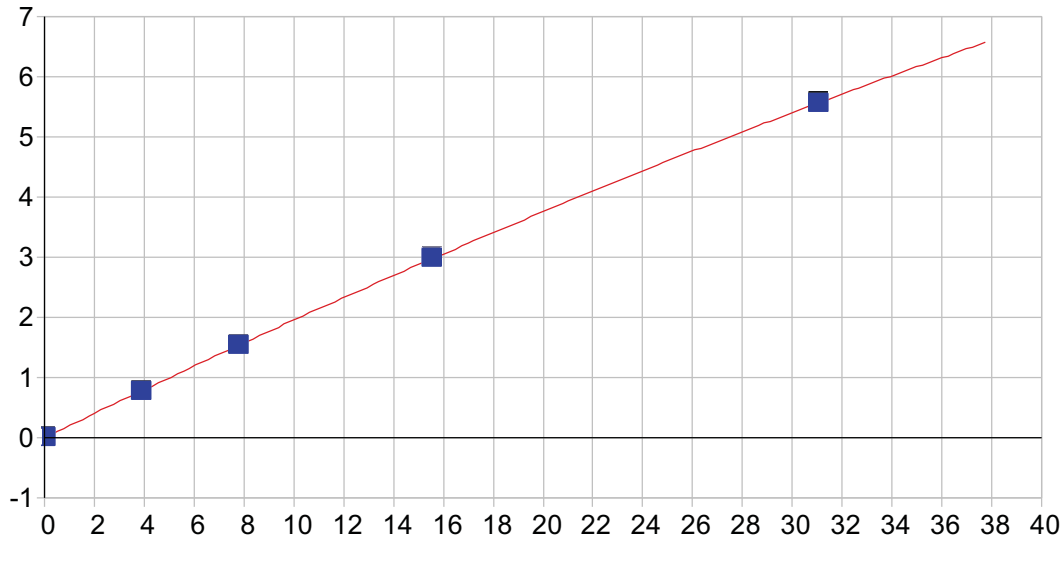
Ca 373.690 { 90}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002177	Re-Slope:	1.000000
A1 (Gain):	0.037990	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999301	Status:	OK.
Std Error of Est:	0.004959		
Predicted MDL:	0.011107		
Predicted MQL:	0.037023		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00086	-.001	.000	.00214	.000	1
S1	5.0000	5.0359	.036	.717	.19349	.001	1
S2	62.500	67.587	5.09	8.14	2.5698	.003	1
S3	125.00	133.14	8.14	6.51	5.0600	.007	1
S4	250.00	262.00	12.0	4.80	9.9554	.023	1
S5	500.00	501.74	1.74	.348	19.063	.048	1
S6	800.00	773.00	-27.0	-3.37	29.369	.129	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



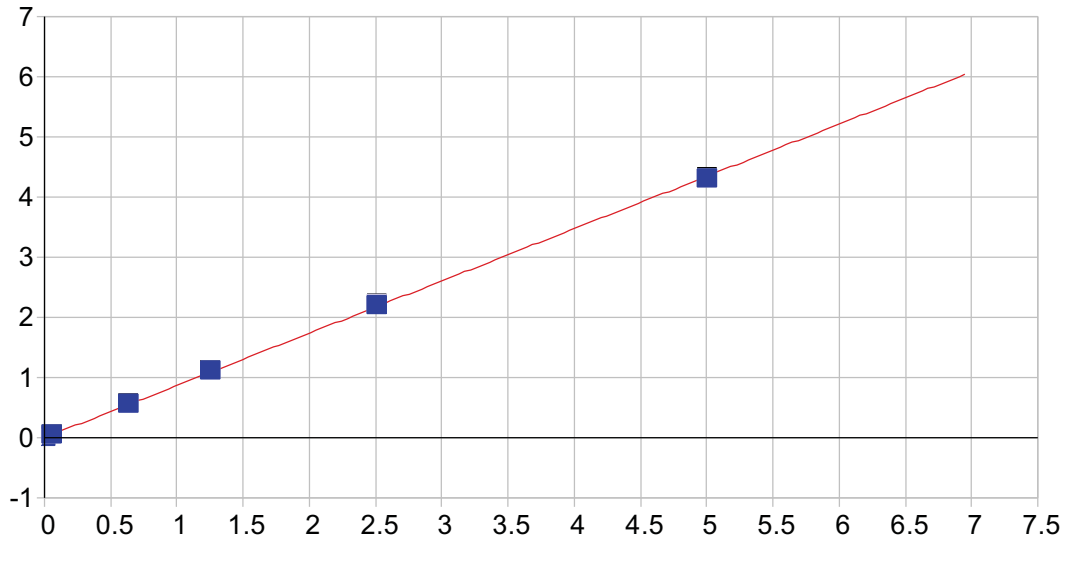
Cr 267.716 {126}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	-0.000039	Re-Slope:	1.000000
A1 (Gain):	0.203220	Y-int:	0.000000
A2 (Curvature):	-0.000772		
n (Exponent):	1.000000		
Correlation:	0.999984	Status:	OK.
Std Error of Est:	0.000036		
Predicted MDL:	0.000309		
Predicted MQL:	0.001031		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00004	.000	1
S1	.01000	.00913	-.001	-8.71	.00182	.000	1
S2	3.8750	3.8343	-.041	-1.05	.76803	.002	1
S3	7.7500	7.7165	-.034	-.433	1.5226	.005	1
S4	15.500	15.634	.134	.866	2.9894	.017	1
S5	31.000	30.939	-.061	-.195	5.5507	.023	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



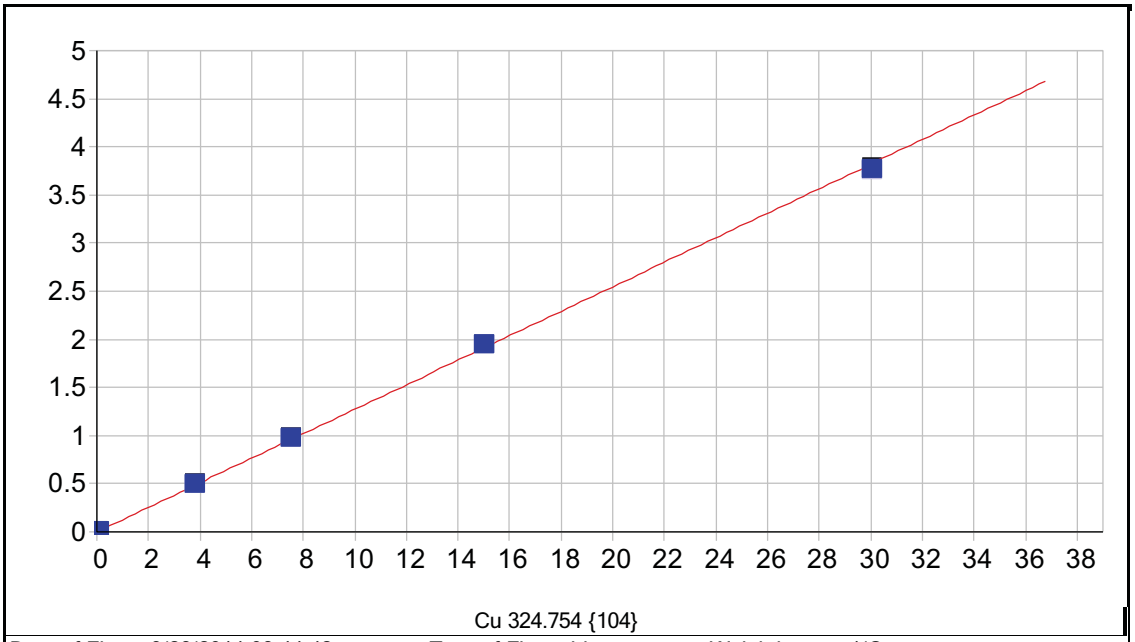
Co 228.616 {448}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000080	Re-Slope:	1.000000
A1 (Gain):	0.868845	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999895	Status:	OK.
Std Error of Est:	0.000335		
Predicted MDL:	0.000186		
Predicted MQL:	0.000620		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00008	.000	1
S1	.05000	.04591	-.004	-8.18	.03996	.000	1
S2	.62500	.63153	.007	1.05	.54951	.002	1
S3	1.2500	1.2733	.023	1.87	1.1080	.006	1
S4	2.5000	2.5335	.033	1.34	2.2047	.004	1
S5	5.0000	4.9407	-.059	-1.19	4.2997	.010	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



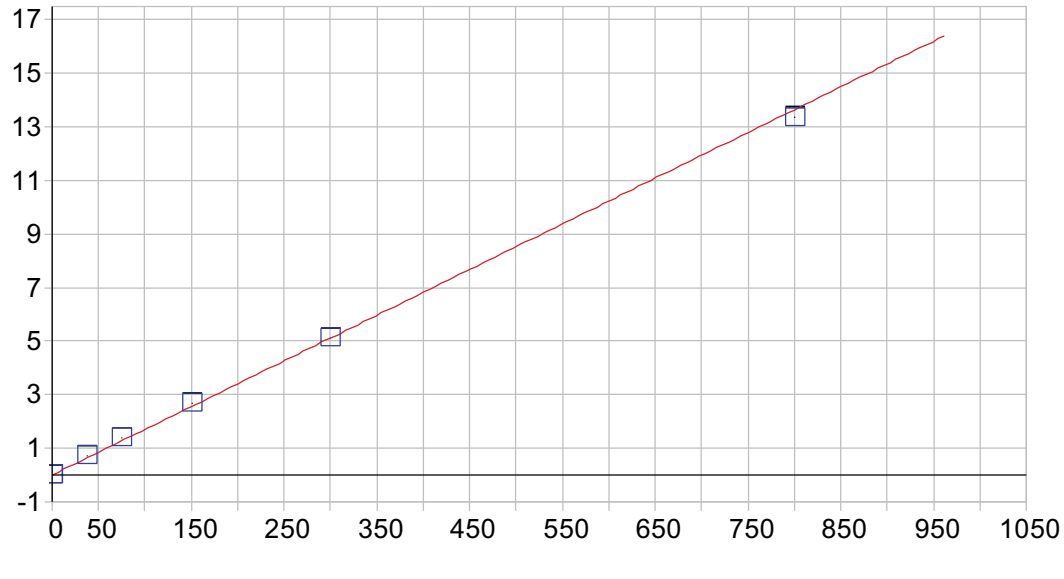
Cu 324.754 {104}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000587	Re-Slope:	1.000000
A1 (Gain):	0.127323	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999862	Status:	OK.
Std Error of Est:	0.000097		
Predicted MDL:	0.002568		
Predicted MQL:	0.008560		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00059	.000	1
S1	.02500	.02427	-.001	-2.94	.00367	.000	1
S2	3.7500	3.8366	.087	2.31	.48843	.000	1
S3	7.5000	7.6544	.154	2.06	.97387	.002	1
S4	15.000	15.219	.219	1.46	1.9358	.005	1
S5	30.000	29.540	-.460	-1.53	3.7565	.009	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



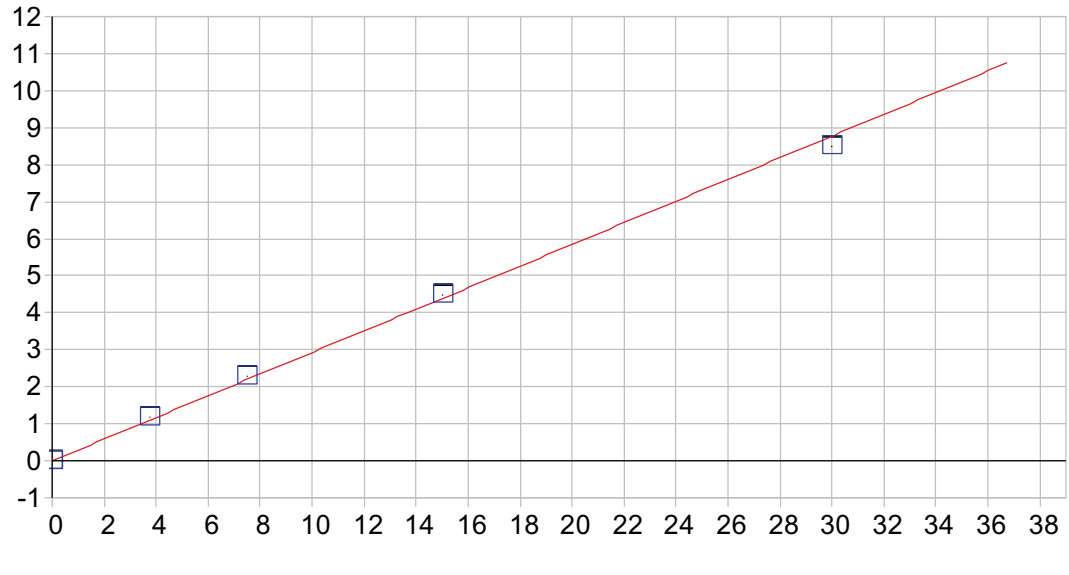
Fe 259.837 {130}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000026	Re-Slope:	1.000000
A1 (Gain):	0.017059	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999403	Status:	OK.
Std Error of Est:	0.000257		
Predicted MDL:	0.009441		
Predicted MQL:	0.031470		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00002	.000	.000	-.00003	.000	1
S1	.10000	.10269	.003	2.69	.00173	.000	1
S2	37.500	41.315	3.81	10.2	.70476	.002	1
S3	75.000	80.979	5.98	7.97	1.3814	.003	1
S4	150.00	157.89	7.89	5.26	2.6934	.004	1
S5	300.00	298.92	-1.08	-.360	5.0992	.004	1
S6	800.00	783.39	-16.6	-2.08	13.364	.033	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



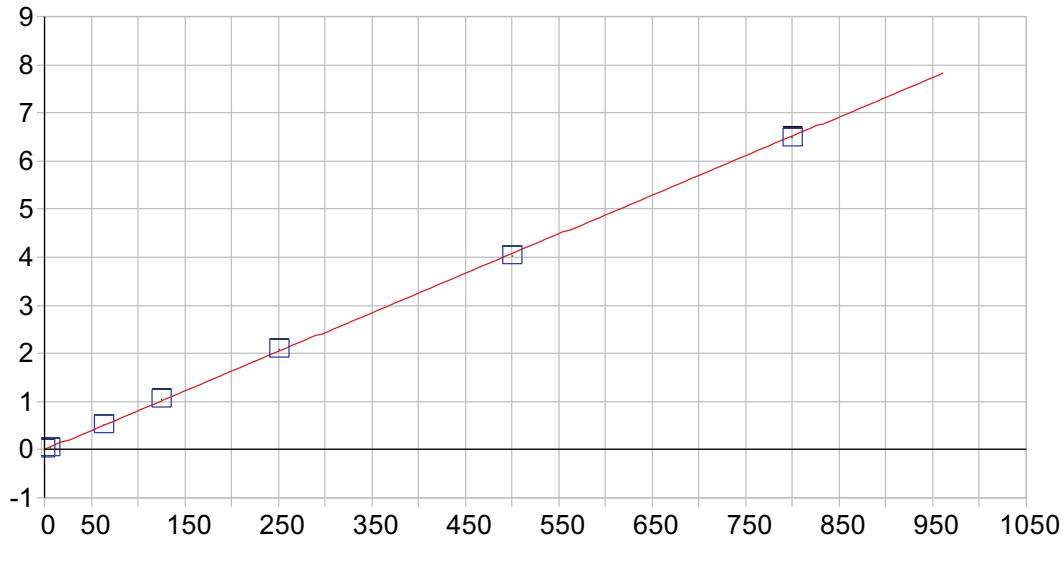
Mn 257.610 {131}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000044	Re-Slope:	1.000000
A1 (Gain):	0.292427	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999352	Status:	OK.
Std Error of Est:	0.000375		
Predicted MDL:	0.000546		
Predicted MQL:	0.001821		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00004	.000	1
S1	.01500	.01516	.000	1.07	.00439	.000	1
S2	3.7500	4.0206	.271	7.22	1.1757	.004	1
S3	7.5000	7.8476	.348	4.63	2.2948	.006	1
S4	15.000	15.331	.331	2.21	4.4832	.015	1
S5	30.000	29.051	-.949	-3.16	8.4951	.025	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



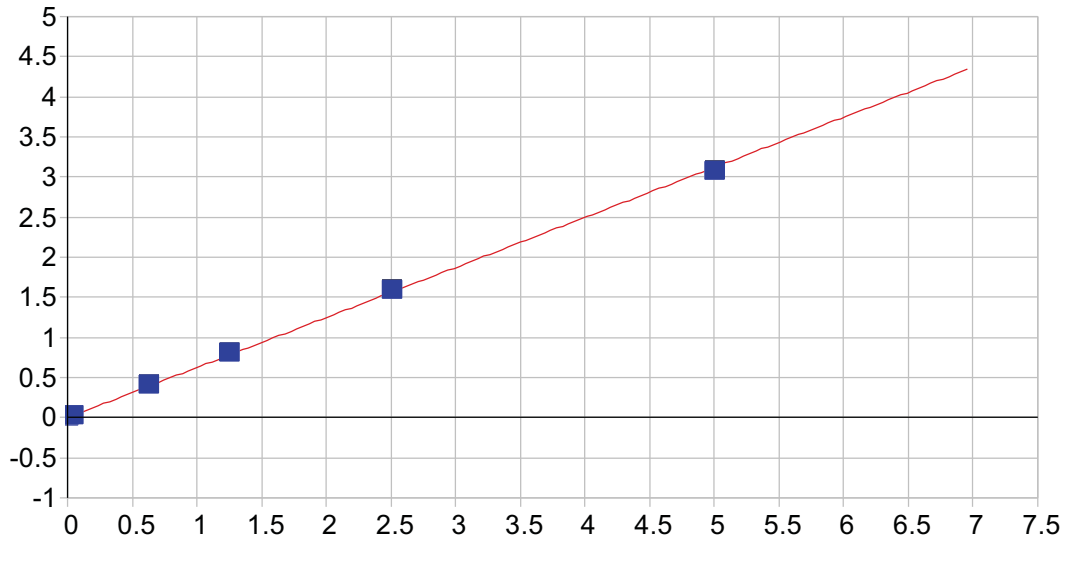
Mg 279.079 {121}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000127	Re-Slope:	1.000000
A1 (Gain):	0.008143	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999910	Status:	OK.
Std Error of Est:	0.000381		
Predicted MDL:	0.024995		
Predicted MQL:	0.083316		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00019	.000	.000	-.00013	.000	1
S1	5.0000	4.9221	-.078	-1.56	.03995	.000	1
S2	62.500	64.166	1.67	2.67	.52239	.003	1
S3	125.00	128.04	3.04	2.43	1.0425	.000	1
S4	250.00	255.04	5.04	2.02	2.0767	.002	1
S5	500.00	493.78	-6.22	-1.24	4.0208	.007	1
S6	800.00	796.55	-3.45	-.431	6.4863	.024	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



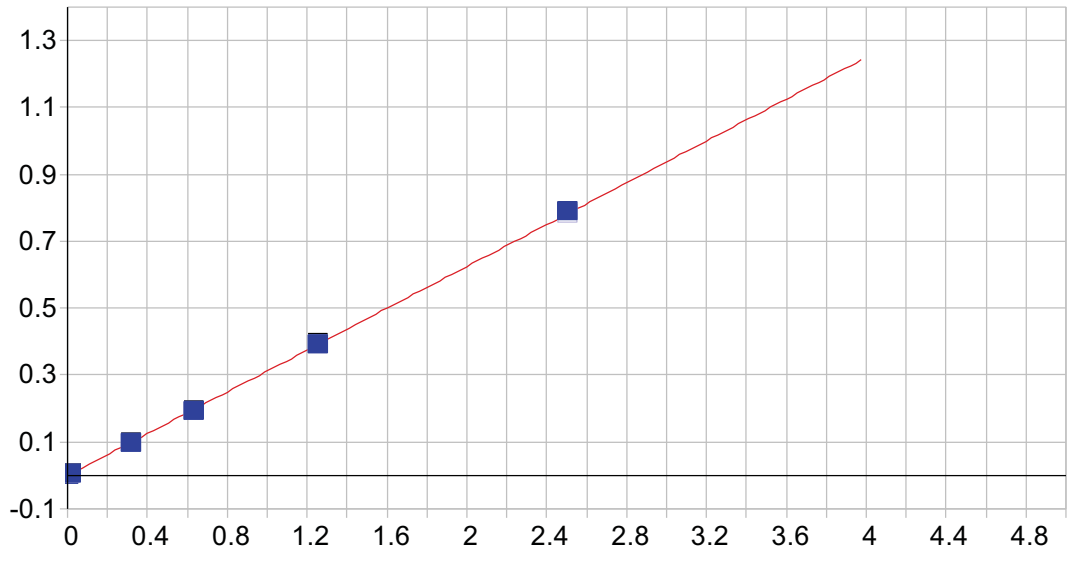
Ni 231.604 {446}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000232	Re-Slope:	1.000000
A1 (Gain):	0.624302	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999834	Status:	OK.
Std Error of Est:	0.000270		
Predicted MDL:	0.000294		
Predicted MQL:	0.000979		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00023	.000	1
S1	.04000	.03757	-.002	-6.07	.02322	.000	1
S2	.62500	.63738	.012	1.98	.39757	.001	1
S3	1.2500	1.2814	.031	2.51	.79954	.005	1
S4	2.5000	2.5397	.040	1.59	1.5848	.003	1
S5	5.0000	4.9189	-.081	-1.62	3.0698	.006	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



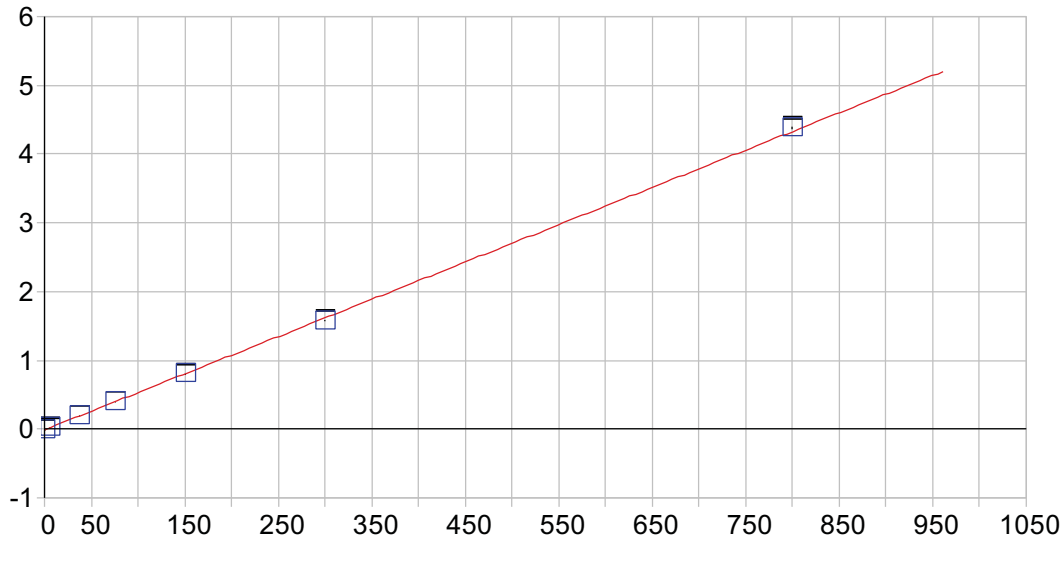
Ag 328.068 {103}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000711	Re-Slope:	1.000000
A1 (Gain):	0.312718	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999932	Status:	OK.
Std Error of Est:	0.000030		
Predicted MDL:	0.000340		
Predicted MQL:	0.001134		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00071	.000	1
S1	.01000	.00927	-.001	-7.29	.00217	.000	1
S2	.31250	.30347	-.009	-2.89	.09331	.000	1
S3	.62500	.61411	-.011	-1.74	.18957	.000	1
S4	1.2500	1.2545	.004	.358	.38807	.001	1
S5	2.5000	2.5162	.016	.647	.77911	.000	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



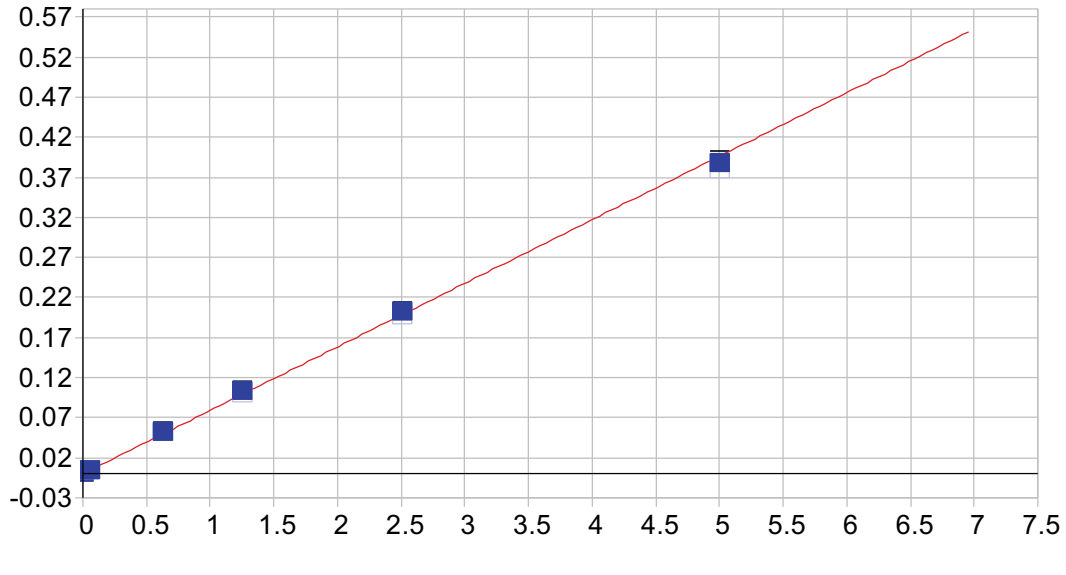
Na 818.326 { 41}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.011032	Re-Slope:	1.000000
A1 (Gain):	0.005426	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999877	Status:	OK.
Std Error of Est:	0.000263		
Predicted MDL:	0.212168		
Predicted MQL:	0.707228		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00029	.000	.000	-.01103	.001	1
S1	5.0000	4.8135	-.186	-3.73	.01509	.001	1
S2	37.500	37.565	.065	.173	.19279	.001	1
S3	75.000	74.910	-.090	-.120	.39543	.001	1
S4	150.00	149.27	-.733	-.489	.79889	.003	1
S5	300.00	291.84	-8.16	-2.72	1.5725	.006	1
S6	800.00	809.10	9.10	1.14	4.3791	.011	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

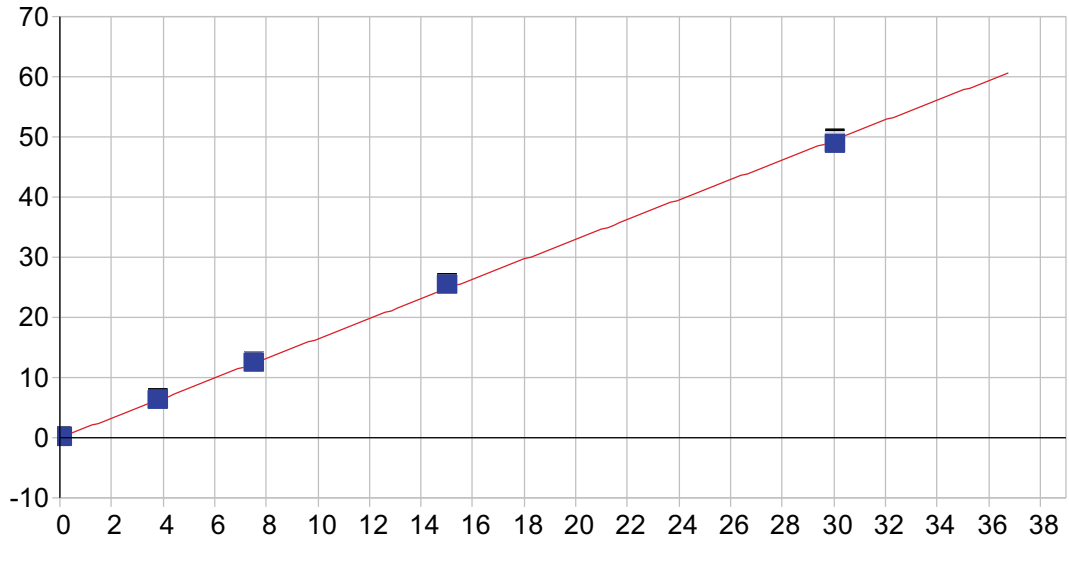


Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000118	Re-Slope:	1.000000
A1 (Gain):	0.079265	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999671	Status:	OK.
Std Error of Est:	0.000053		
Predicted MDL:	0.002921		
Predicted MQL:	0.009736		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	-.00012	.000	1
S1	.05000	.05261	.003	5.21	.00405	.000	1
S2	.62500	.65607	.031	4.97	.05090	.000	1
S3	1.2500	1.2897	.040	3.18	.10014	.000	1
S4	2.5000	2.5375	.038	1.50	.19707	.001	1
S5	5.0000	4.8890	-.111	-2.22	.37952	.002	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



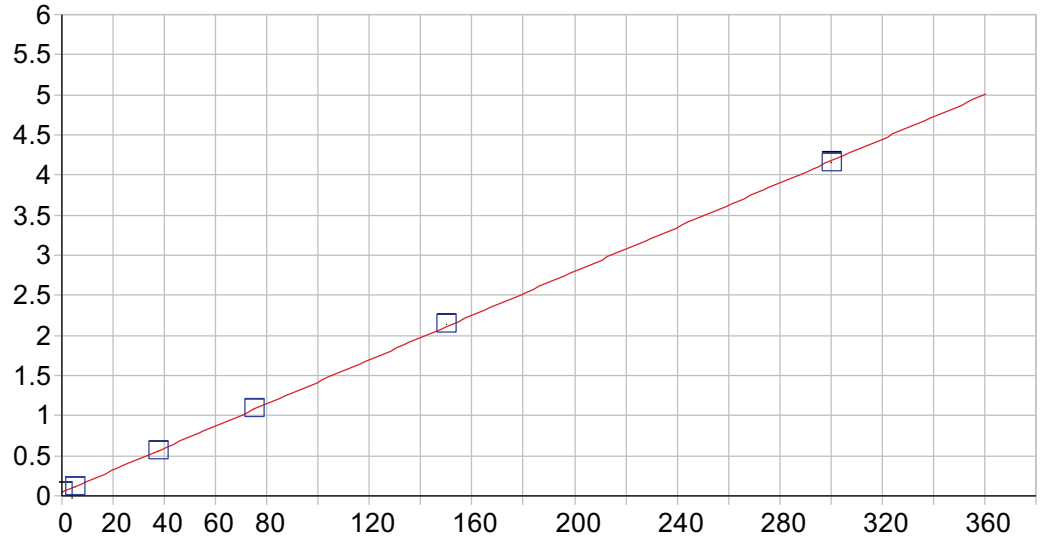
Zn 213.856 {158}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001470	Re-Slope:	1.000000
A1 (Gain):	1.649306	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999854	Status:	OK.
Std Error of Est:	0.002010		
Predicted MDL:	0.006327		
Predicted MQL:	0.021089		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00147	.014	1
S1	.06000	.05589	-.004	-6.85	.09103	.006	1
S2	3.7500	3.7682	.018	.486	6.2236	.125	1
S3	7.5000	7.5393	.039	.524	12.453	.104	1
S4	15.000	15.381	.381	2.54	25.406	.115	1
S5	30.000	29.566	-.434	-1.45	48.843	.652	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



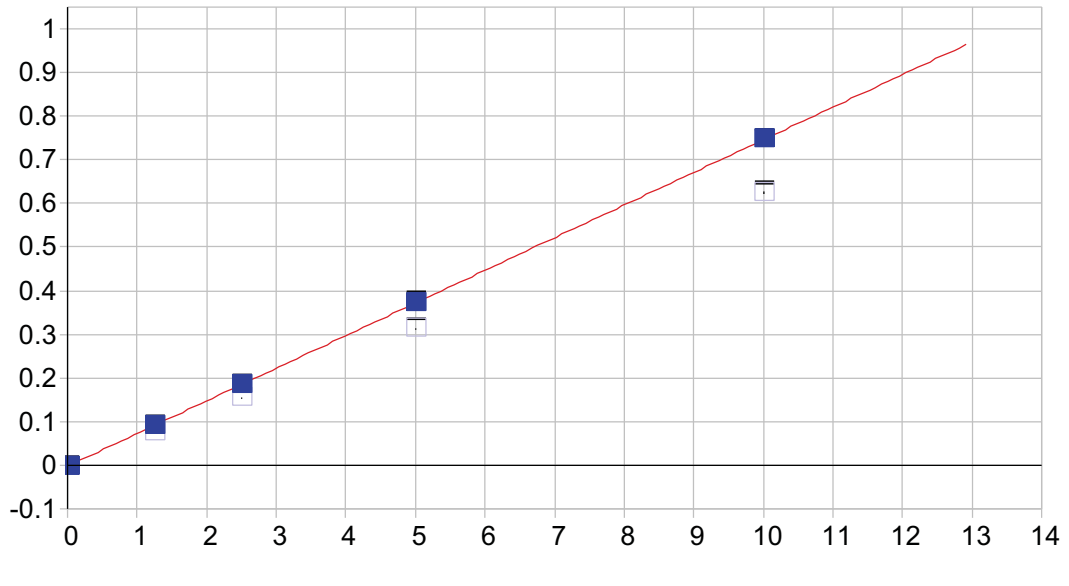
K 769.896 { 44}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.045588	Re-Slope:	1.000000
A1 (Gain):	0.013763	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999926	Status:	OK.
Std Error of Est:	0.000344		
Predicted MDL:	0.067143		
Predicted MQL:	0.223808		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00048	.000	.000	.04559	.000	1
S1	5.0000	4.4883	-.512	-10.2	.10736	.001	1
S2	37.500	37.406	-.094	-.252	.56038	.003	1
S3	75.000	75.083	.083	.111	1.0789	.001	1
S4	150.00	151.91	1.91	1.28	2.1363	.006	1
S5	300.00	298.61	-1.39	-.464	4.1552	.007	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



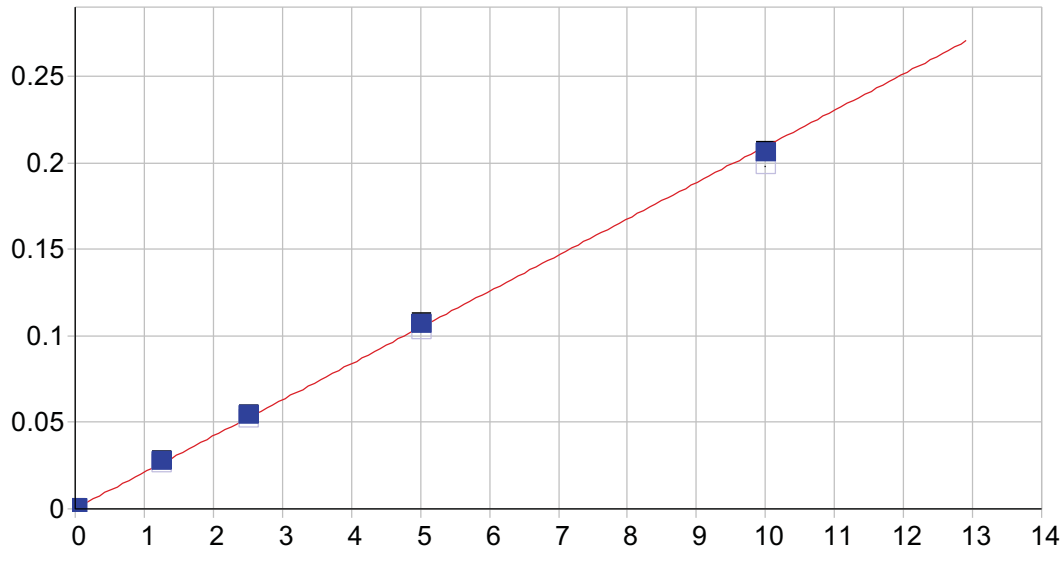
P 177.495 {490}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.002179	Re-Slope:	1.000000
A1 (Gain):	0.074813	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999551	Status:	OK.
Std Error of Est:	0.000039		
Predicted MDL:	0.001384		
Predicted MQL:	0.004613		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	-.00218	.000	1
S1	.01500	.00187	-.013	-87.5	-.00213	.000	1
S2	1.2500	1.2348	-.015	-1.22	.07499	.000	1
S3	2.5000	2.4934	-.007	-.262	.15394	.001	1
S4	5.0000	5.0227	.023	.453	.31274	.001	1
S5	10.000	10.013	.013	.134	.62527	.002	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



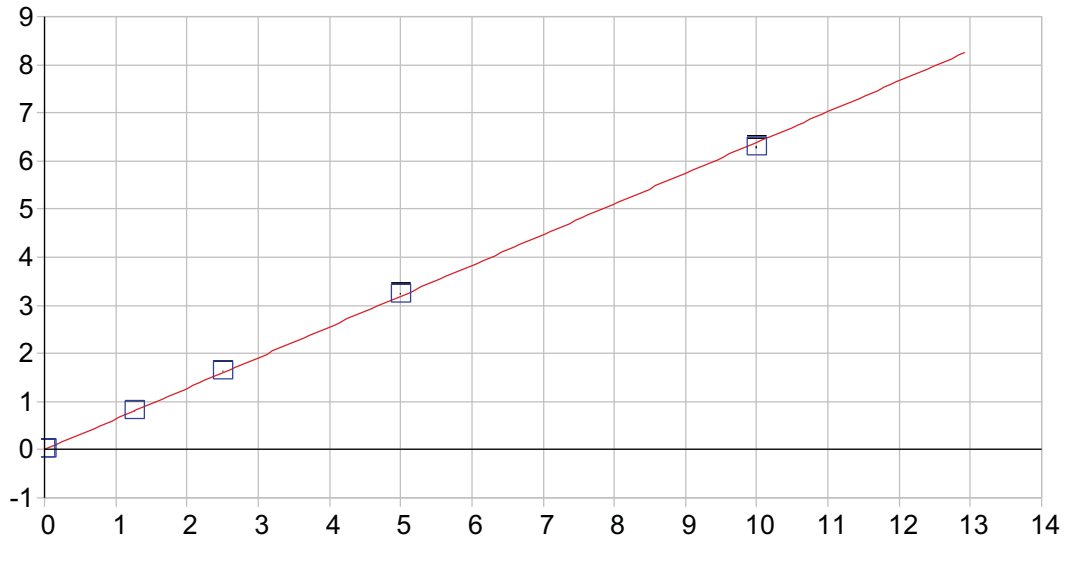
B 249.678 {135}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000195	Re-Slope:	1.000000
A1 (Gain):	0.020929	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999669	Status:	OK.
Std Error of Est:	0.000009		
Predicted MDL:	0.007211		
Predicted MQL:	0.024038		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00020	.000	1
S1	.01000	.00356	-.006	-64.4	.00027	.000	1
S2	1.2500	1.2855	.036	2.84	.02613	.000	1
S3	2.5000	2.5622	.062	2.49	.05189	.000	1
S4	5.0000	5.0890	.089	1.78	.10283	.001	1
S5	10.000	9.8199	-.180	-1.80	.19798	.000	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



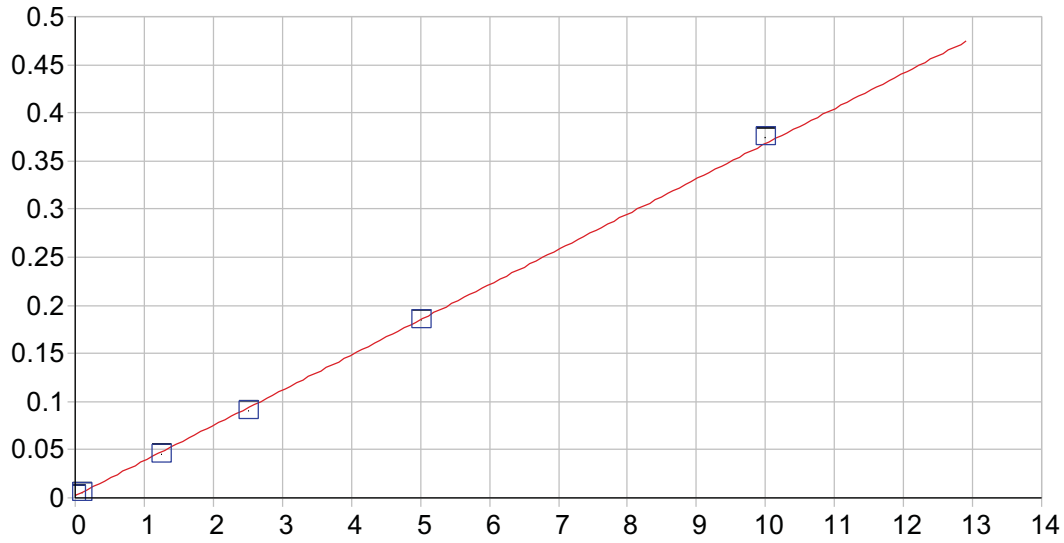
Mo 202.030 {467}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000031	Re-Slope:	1.000000
A1 (Gain):	0.638440	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999866	Status:	OK.
Std Error of Est:	0.000175		
Predicted MDL:	0.000234		
Predicted MQL:	0.000782		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00003	.000	1
S1	.01000	.00978	.000	-2.19	.00621	.000	1
S2	1.2500	1.2813	.031	2.50	.81799	.003	1
S3	2.5000	2.5513	.051	2.05	1.6288	.008	1
S4	5.0000	5.0680	.068	1.36	3.2356	.013	1
S5	10.000	9.8496	-.150	-1.50	6.2884	.022	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



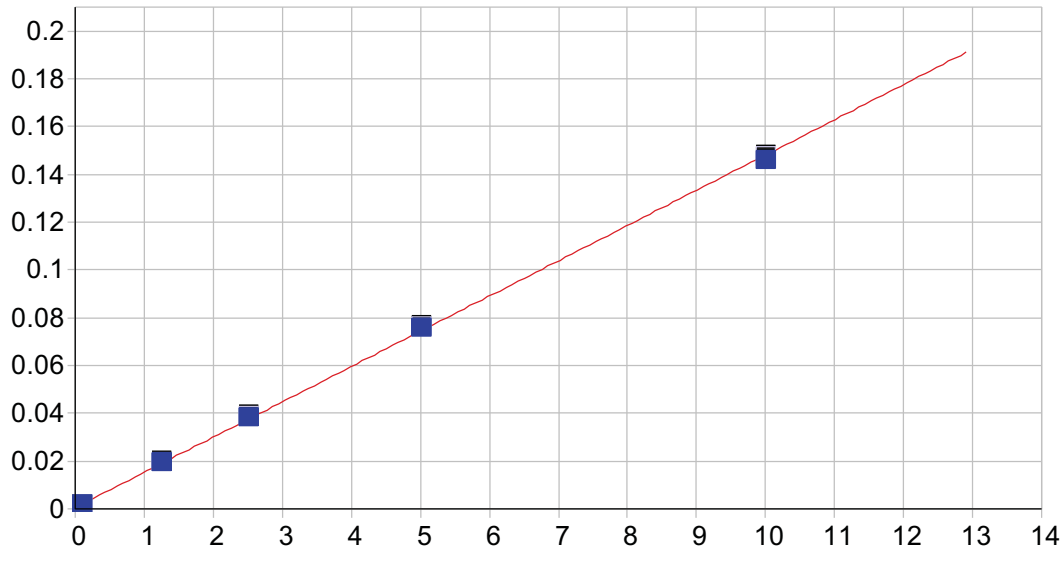
S 182.034 {485}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002077	Re-Slope:	1.000000
A1 (Gain):	0.036588	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999602	Status:	OK.
Std Error of Est:	0.000055		
Predicted MDL:	0.002371		
Predicted MQL:	0.007905		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00003	.000	.000	.00208	.000	1
S1	.10000	.08188	-.018	-18.1	.00507	.000	1
S2	1.2500	1.1653	-.085	-6.77	.04471	.000	1
S3	2.5000	2.4168	-.083	-3.33	.09050	.000	1
S4	5.0000	5.0065	.007	.130	.18525	.000	1
S5	10.000	10.179	.179	1.79	.37452	.001	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



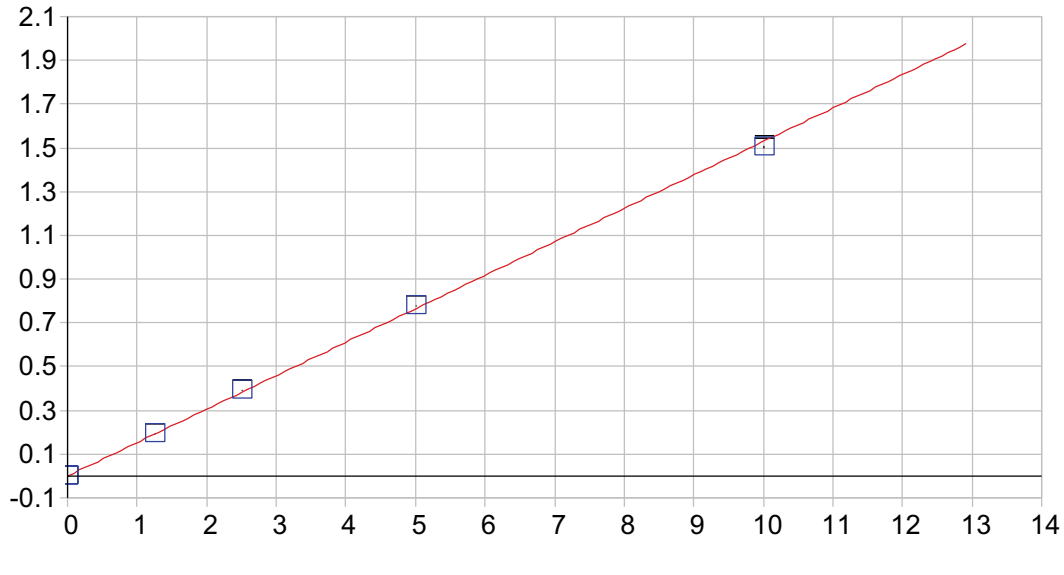
Si 251.611 {134}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000513	Re-Slope:	1.000000
A1 (Gain):	0.014760	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999791	Status:	OK.
Std Error of Est:	0.000016		
Predicted MDL:	0.009976		
Predicted MQL:	0.033253		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00051	.000	1
S1	.10000	.08300	-.017	-17.0	.00174	.000	1
S2	1.2500	1.2733	.023	1.86	.01949	.000	1
S3	2.5000	2.5555	.055	2.22	.03861	.000	1
S4	5.0000	5.0831	.083	1.66	.07629	.000	1
S5	10.000	9.8550	-.145	-1.45	.14748	.000	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



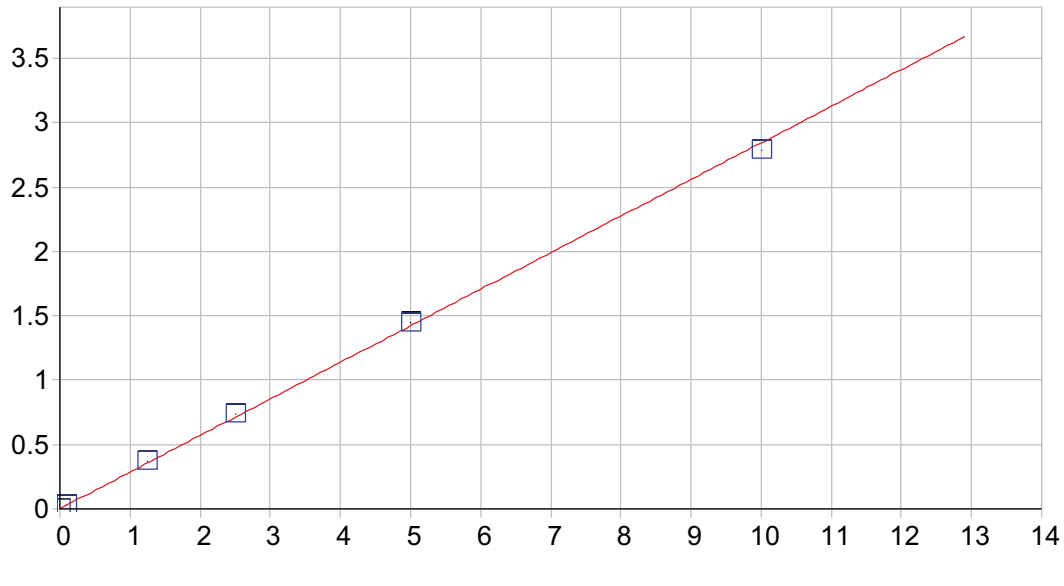
Sn 189.989 {478}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000065	Re-Slope:	1.000000
A1 (Gain):	0.152903	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999840	Status:	OK.
Std Error of Est:	0.000038		
Predicted MDL:	0.000589		
Predicted MQL:	0.001962		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00006	.000	1
S1	.00700	.00658	.000	-5.95	.00094	.000	1
S2	1.2500	1.2681	.018	1.45	.19383	.001	1
S3	2.5000	2.5599	.060	2.39	.39135	.002	1
S4	5.0000	5.0878	.088	1.76	.77788	.001	1
S5	10.000	9.8346	-.165	-1.65	1.5037	.004	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



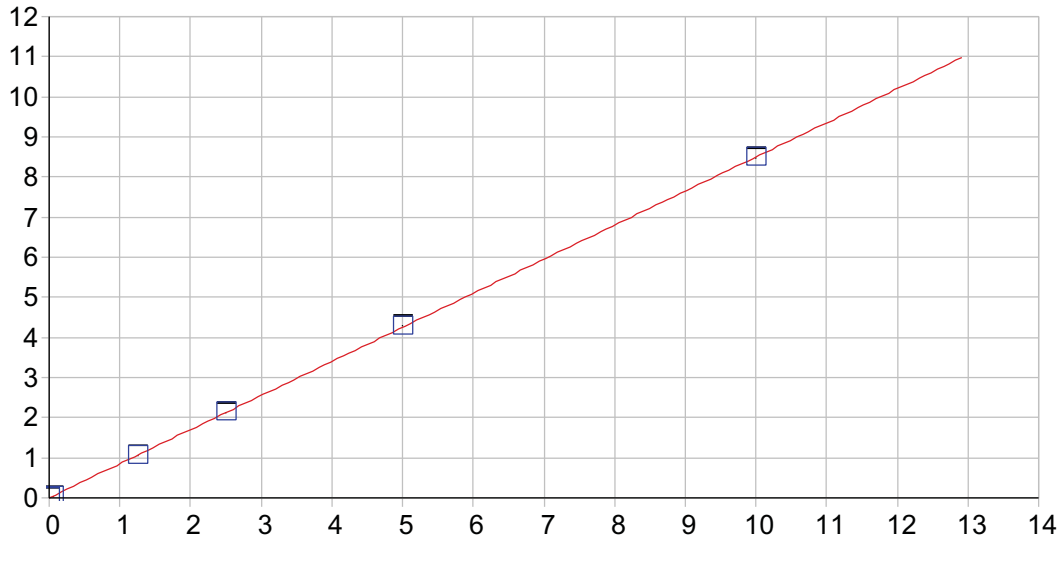
Ti 336.121 {100}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001073	Re-Slope:	1.000000
A1 (Gain):	0.284408	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999741	Status:	OK.
Std Error of Est:	0.000344		
Predicted MDL:	0.001225		
Predicted MQL:	0.004083		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00107	.000	1
S1	.10000	.09782	-.002	-2.18	.02889	.000	1
S2	1.2500	1.2969	.047	3.75	.36991	.002	1
S3	2.5000	2.5752	.075	3.01	.73349	.002	1
S4	5.0000	5.0855	.086	1.71	1.4474	.001	1
S5	10.000	9.7945	-.205	-2.05	2.7867	.001	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



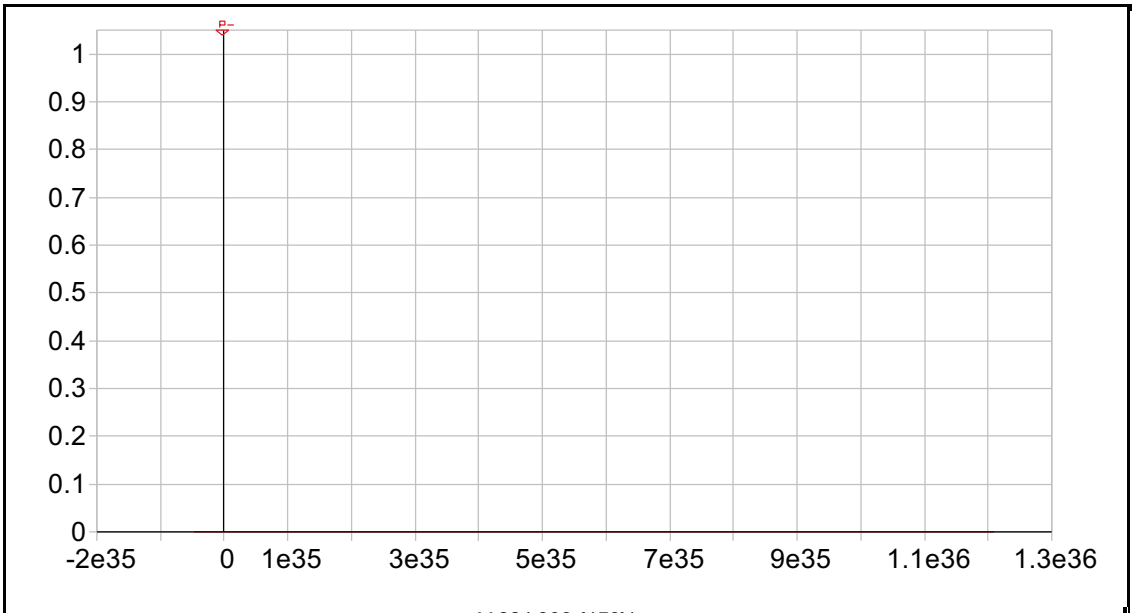
Li 670.784 { 50}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002640	Re-Slope:	1.000000
A1 (Gain):	0.849735	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999982	Status:	OK.
Std Error of Est:	0.000191		
Predicted MDL:	0.001432		
Predicted MQL:	0.004773		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00264	.001	1
S5	10.000	9.9787	-.021	-.213	8.4819	.022	1
S4	5.0000	5.0394	.039	.787	4.2848	.009	1
S3	2.5000	2.4950	-.005	-.201	2.1227	.006	1
S2	1.2500	1.2404	-.010	-.767	1.0567	.002	1
S1	.05000	.04657	-.003	-6.86	.04221	.001	1

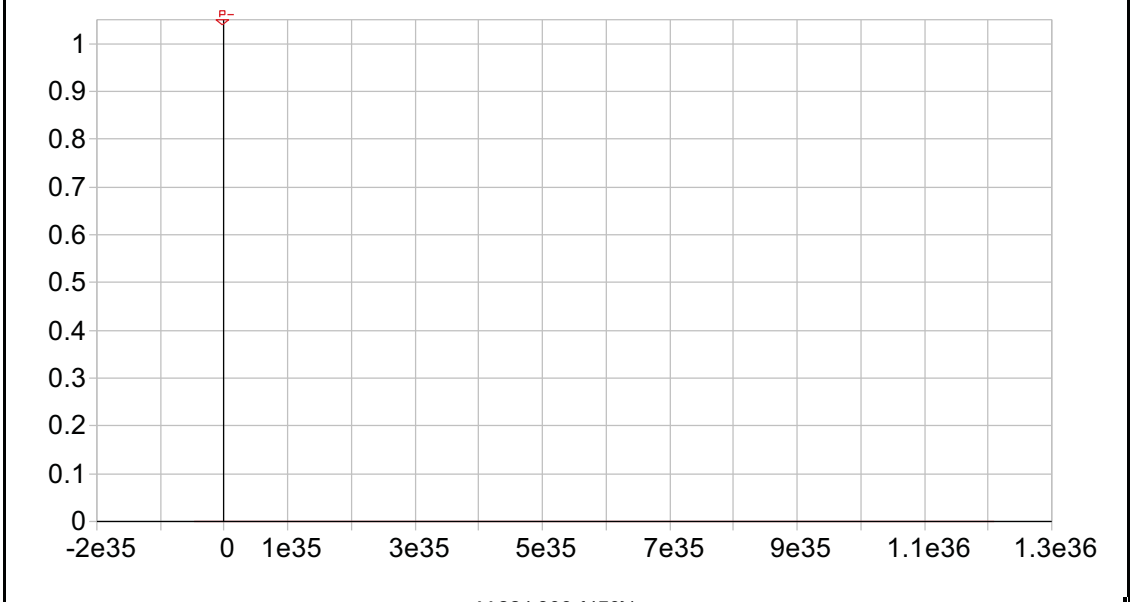
Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



Y 224.306 {150}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000			Status:	Warning	Zero Gain
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



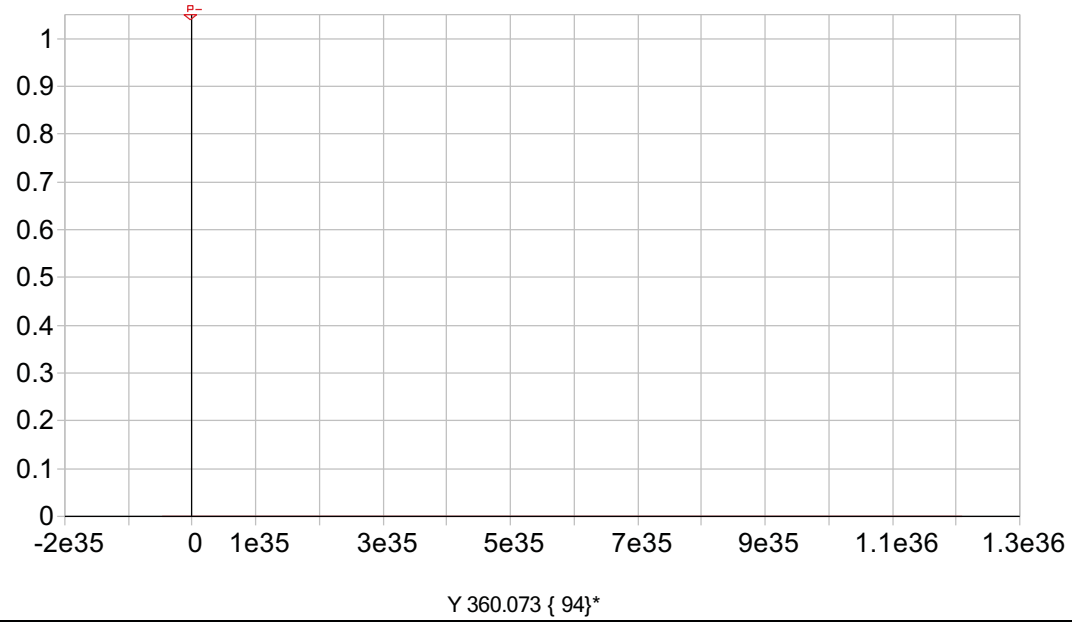
Y 224.306 {450}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

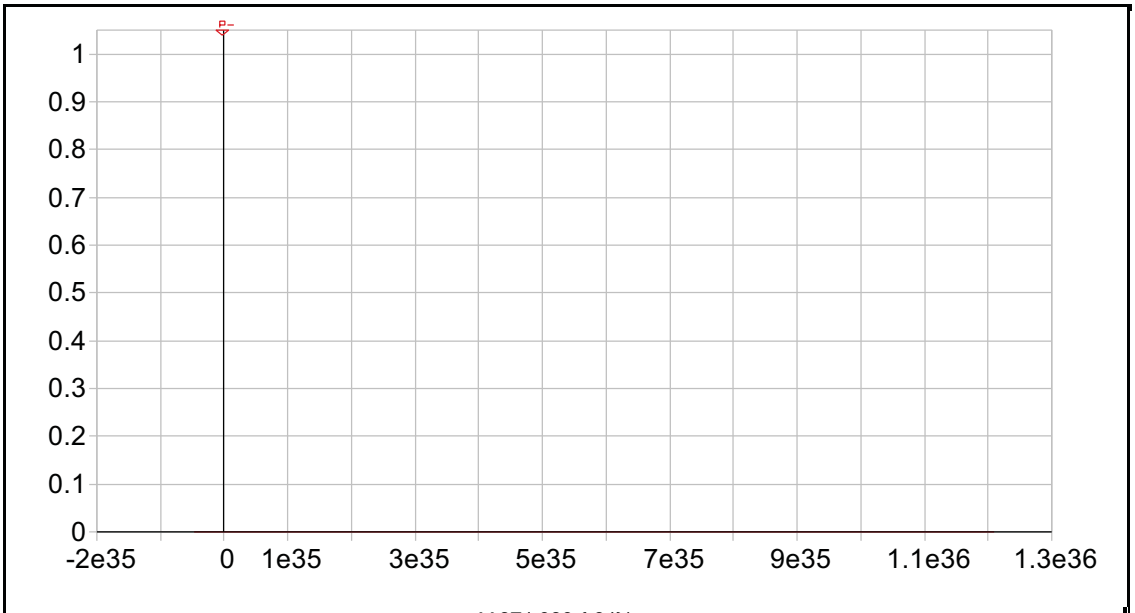


Y 360.073 { 94}*

Date of Fit:	<not fit>		Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):		0.000000		Re-Slope:	1.000000	
A1 (Gain):		0.000000		Y-int:	0.000000	
A2 (Curvature):		0.000000				
n (Exponent):		1.000000				
Correlation:		0.000000		Status:	Warning	Zero Gain
Std Error of Est:		0.000000				
Predicted MDL:		n/a				
Predicted MQL:		n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

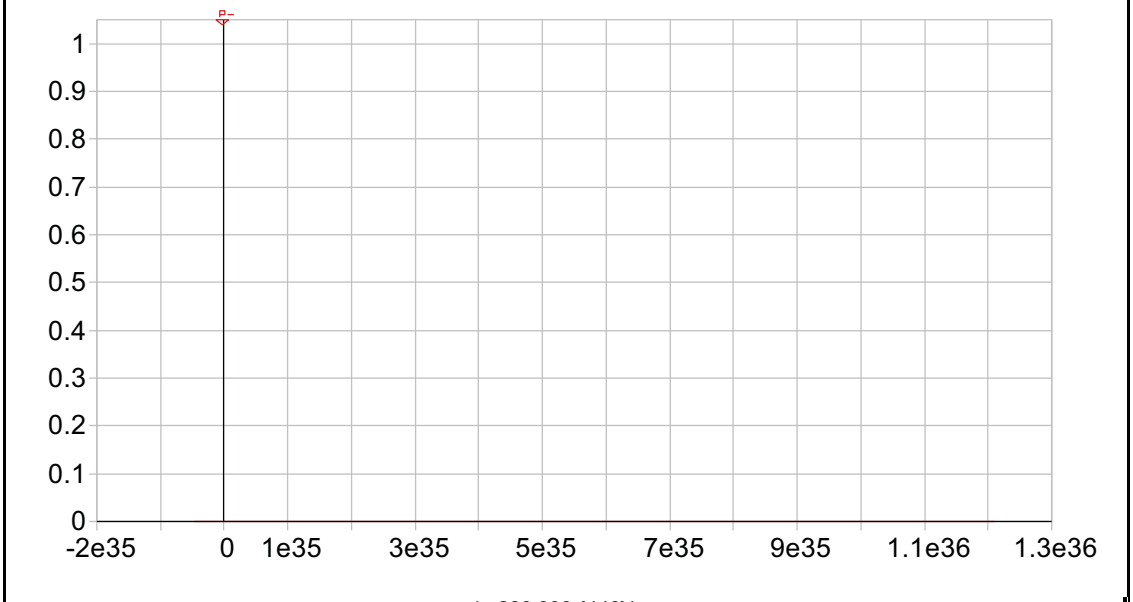
Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



Y 371.030 { 91}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000			Status:	Warning	Zero Gain
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



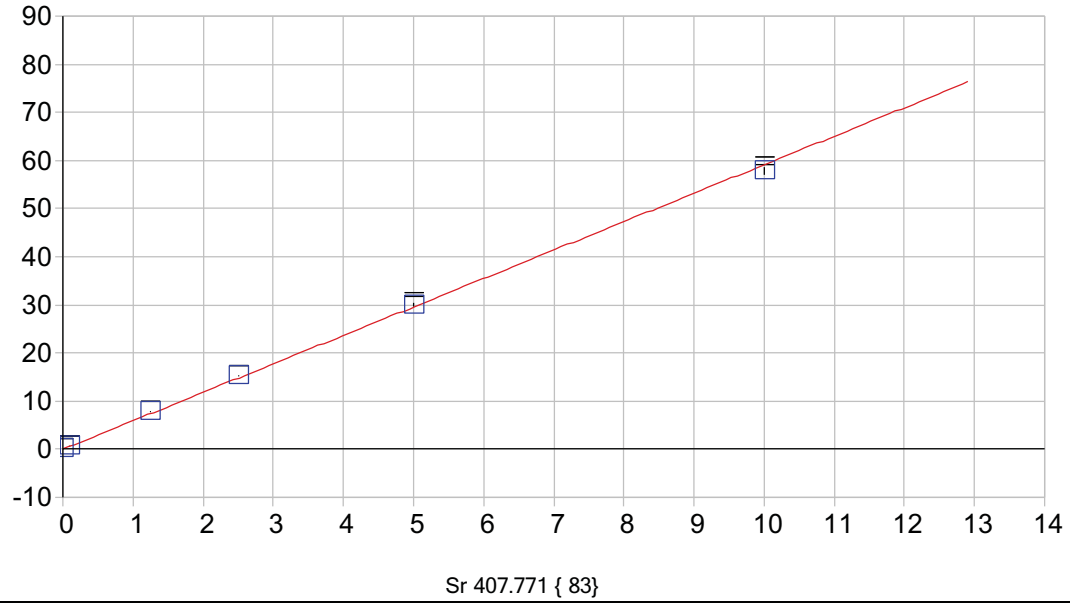
ln 230.606 {446}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000811	Re-Slope:	1.000000
A1 (Gain):	5.912577	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999701	Status:	OK.
Std Error of Est:	0.007688		
Predicted MDL:	0.000086		
Predicted MQL:	0.000285		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	-.00086	.001	1
S1	.10000	.10164	.002	1.64	.60014	.003	1
S2	1.2500	1.3038	.054	4.31	7.7083	.021	1
S3	2.5000	2.5942	.094	3.77	15.337	.028	1
S4	5.0000	5.0641	.064	1.28	29.941	.362	1
S5	10.000	9.7863	-.214	-2.14	57.861	.710	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S0 Acquired: 9/22/2014 16:41:18 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00007	-.00008	-.00019	.00022	.00008	.00018	.00911	-.00002
Stddev	.00013	.00004	.00010	.00008	.00015	.00021	.00074	.00004
%RSD	186.92	45.974	53.414	37.812	191.22	118.80	8.1301	243.18
#1	-.00011	-.00011	-.00027	.00031	-.00004	.00033	.00983	-.00001
#2	.00007	-.00008	-.00024	.00016	.00025	.00026	.00835	-.00006
#3	-.00017	-.00004	-.00007	.00018	.00003	-.00006	.00914	.00002

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00026	.00214	-.00004	-.00008	.00059	-.00003	-.00004	-.00013
Stddev	.00004	.00047	.00003	.00014	.00008	.00007	.00012	.00017
%RSD	16.813	22.062	83.736	174.93	14.128	274.31	270.90	128.53
#1	.00021	.00164	-.00001	.00001	.00068	.00005	-.00007	-.00031
#2	.00029	.00258	-.00007	-.00023	.00057	-.00004	-.00015	.00002
#3	.00027	.00221	-.00004	-.00001	.00051	-.00009	.00009	-.00010

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00023	-.00071	-.01103	-.00012	-.00147	.04559	-.00218	.00020
Stddev	.00009	.00012	.00117	.00022	.01422	.00020	.00003	.00011
%RSD	40.278	16.413	10.616	188.41	970.35	.43900	1.2538	57.158
#1	-.00017	-.00074	-.01237	.00009	-.00654	.04552	-.00215	.00007
#2	-.00018	-.00081	-.01051	-.00010	-.01245	.04544	-.00220	.00024
#3	-.00034	-.00058	-.01021	-.00035	.01459	.04582	-.00218	.00028

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00003	.00208	.00051	-.00006	.00107	.00264	-.00086
Stddev	.00013	.00006	.00003	.00008	.00019	.00086	.00052
%RSD	435.01	2.9522	6.3093	129.02	18.077	32.530	59.990
#1	-.00008	.00205	.00051	.00002	.00086	.00167	-.00113
#2	.00012	.00204	.00048	-.00014	.00124	.00329	-.00027
#3	-.00013	.00215	.00055	-.00008	.00112	.00297	-.00120

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S0 Acquired: 9/22/2014 16:41:18 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	78.661	5359.9	79476.	9941.4	6204.2
Stddev	.715	12.5	139.	54.3	18.1
%RSD	.90876	.23288	.17431	.54656	.29159
#1	79.446	5350.5	79318.	9893.6	6203.8
#2	78.490	5355.0	79534.	10000.	6186.4
#3	78.047	5374.0	79576.	9930.2	6222.6

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S1 Acquired: 9/22/2014 16:45:20 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00033	.00213	.00169	.00222	.00688	.00967	.63600	.00109
Stddev	.00002	.00006	.00014	.00012	.00006	.00016	.00375	.00001
%RSD	7.4374	2.7574	8.4227	5.2147	.92040	1.6469	.58965	1.3391
#1	.00035	.00209	.00159	.00226	.00681	.00952	.63167	.00110
#2	.00035	.00220	.00185	.00209	.00694	.00984	.63803	.00107
#3	.00030	.00211	.00163	.00230	.00689	.00964	.63829	.00109

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01401	.19349	.00182	.03996	.00367	.00173	.00439	.03995
Stddev	.00006	.00055	.00005	.00026	.00025	.00005	.00014	.00036
%RSD	.43217	.28239	2.6236	.66249	6.8037	2.8855	3.1558	.91092
#1	.01394	.19286	.00187	.03972	.00339	.00176	.00431	.03953
#2	.01401	.19376	.00180	.03991	.00388	.00167	.00431	.04017
#3	.01407	.19385	.00178	.04024	.00373	.00175	.00455	.04016

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02322	.00217	.01509	.00405	.09103	.10736	-.00213	.00027
Stddev	.00007	.00001	.00119	.00010	.00585	.00102	.00002	.00007
%RSD	.30195	.59215	7.8707	2.4125	6.4294	.95411	.83198	26.174
#1	.02314	.00216	.01478	.00404	.08470	.10621	-.00214	.00032
#2	.02328	.00218	.01408	.00396	.09215	.10818	-.00215	.00019
#3	.02323	.00216	.01640	.00415	.09625	.10768	-.00211	.00029

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00621	.00507	.00174	.00094	.02889	.04221	.60014
Stddev	.00002	.00006	.00011	.00005	.00034	.00066	.00258
%RSD	.28098	1.2193	6.2625	5.2910	1.1704	1.5741	.43006
#1	.00621	.00501	.00179	.00090	.02850	.04215	.59772
#2	.00623	.00508	.00161	.00099	.02910	.04290	.60286
#3	.00620	.00513	.00181	.00093	.02908	.04158	.59983

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S1 Acquired: 9/22/2014 16:45:20 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	81.835	5446.9	80519.	10140.	6175.7
Stddev	1.247	3.2	196.	90.	7.0
%RSD	1.5234	.05863	.24355	.88999	.11336
#1	82.508	5447.9	80433.	10243.	6173.2
#2	80.396	5449.5	80743.	10081.	6183.6
#3	82.600	5443.3	80381.	10094.	6170.3

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S2 Acquired: 9/22/2014 16:49:26 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.06503	.11913	1.2840	.07665	.15628	2.0015	8.1890	.02806	1.8944
Stddev	.00025	.00016	.0029	.00032	.00046	.0036	.0142	.00010	.0063
%RSD	.38500	.13388	.22809	.41417	.29513	.18003	.17370	.33887	.33332
#1	.06477	.11899	1.2811	.07639	.15612	2.0031	8.1744	.02800	1.8883
#2	.06506	.11910	1.2839	.07657	.15592	2.0039	8.2028	.02817	1.8939
#3	.06527	.11930	1.2870	.07701	.15680	1.9973	8.1897	.02802	1.9009

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.5698	.76803	.54951	.48843	.70476	1.1757	.52239	.39757	.09331
Stddev	.0031	.00207	.00184	.00007	.00201	.0038	.00251	.00109	.00029
%RSD	.12229	.26911	.33443	.01486	.28584	.32034	.48079	.27420	.31258
#1	2.5709	.76844	.54832	.48851	.70663	1.1762	.52302	.39637	.09311
#2	2.5723	.76985	.54858	.48840	.70502	1.1792	.52452	.39785	.09365
#3	2.5663	.76578	.55162	.48837	.70262	1.1717	.51962	.39849	.09318

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.19279	.05090	6.2236	.56038	.07499	.02613	.81799	.04471	.01949
Stddev	.00104	.00015	.1246	.00274	.00023	.00008	.00308	.00004	.00020
%RSD	.53975	.28831	2.0023	.48811	.30223	.29444	.37708	.08095	1.0262
#1	.19160	.05097	6.1008	.55834	.07478	.02606	.81571	.04470	.01942
#2	.19351	.05100	6.3500	.55932	.07496	.02613	.81676	.04469	.01934
#3	.19328	.05073	6.2200	.56349	.07523	.02621	.82150	.04475	.01972

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.19383	.36991	1.0567	7.7083
Stddev	.00076	.00182	.0017	.0210
%RSD	.39411	.49194	.15694	.27279
#1	.19296	.37037	1.0548	7.6886
#2	.19413	.37146	1.0575	7.7305
#3	.19440	.36791	1.0577	7.7057

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S2 Acquired: 9/22/2014 16:49:26 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	75.647	5072.5	74909.	9794.3	5356.4
Stddev	1.647	11.0	212.	17.9	9.0
%RSD	2.1771	.21644	.28239	.18282	.16779
#1	76.783	5080.1	74838.	9780.7	5362.8
#2	73.758	5077.4	74743.	9787.7	5360.3
#3	76.400	5059.9	75147.	9814.6	5346.1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S3 Acquired: 9/22/2014 16:53:19 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.13204	.23562	2.5782	.15412	.31723	3.9888	16.294	.05610	3.8126
Stddev	.00075	.00155	.0148	.00082	.00174	.0125	.064	.00028	.0201
%RSD	.56449	.65697	.57378	.52992	.54881	.31285	.39148	.49388	.52781
#1	.13219	.23613	2.5812	.15425	.31765	3.9813	16.223	.05606	3.8189
#2	.13123	.23388	2.5622	.15325	.31531	3.9818	16.317	.05584	3.7901
#3	.13269	.23685	2.5913	.15486	.31872	4.0032	16.344	.05639	3.8288

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5.0600	1.5226	1.1080	.97387	1.3814	2.2948	1.0425	.79954	.18957
Stddev	.0067	.0052	.0059	.00192	.0025	.0065	.0004	.00468	.00030
%RSD	.13277	.34127	.53116	.19727	.18215	.28210	.03892	.58568	.15729
#1	5.0530	1.5186	1.1097	.97165	1.3833	2.2899	1.0426	.80113	.18927
#2	5.0607	1.5285	1.1015	.97493	1.3785	2.2924	1.0429	.79427	.18986
#3	5.0664	1.5207	1.1129	.97503	1.3823	2.3021	1.0421	.80321	.18959

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.39543	.10014	12.453	1.0789	.15394	.05189	1.6288	.09050	.03861
Stddev	.00091	.00036	.104	.0009	.00081	.00028	.0076	.00047	.00031
%RSD	.22918	.35562	.83812	.08155	.52583	.54680	.46761	.51454	.79334
#1	.39506	.09976	12.572	1.0791	.15422	.05179	1.6315	.09061	.03828
#2	.39476	.10017	12.377	1.0780	.15303	.05220	1.6203	.08999	.03866
#3	.39646	.10047	12.411	1.0797	.15458	.05166	1.6348	.09090	.03888

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.39135	.73349	2.1227	15.337
Stddev	.00211	.00223	.0063	.028
%RSD	.53877	.30357	.29658	.18087
#1	.39208	.73123	2.1155	15.317
#2	.38897	.73356	2.1266	15.326
#3	.39299	.73568	2.1261	15.369

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S3 Acquired: 9/22/2014 16:53:19 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	75.329	4906.3	73114.	9826.6	5072.5
Stddev	.673	21.9	105.	30.7	22.8
%RSD	.89286	.44547	.14349	.31263	.44982
#1	74.610	4896.7	73145.	9791.2	5065.1
#2	75.943	4931.3	72996.	9842.7	5098.1
#3	75.435	4890.9	73199.	9845.9	5054.3

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S4 Acquired: 9/22/2014 16:57:09 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.26816	.45945	5.1369	.31125	.64590	8.0504	32.078	.11217	7.5625
Stddev	.00054	.00026	.0034	.00089	.00120	.0158	.152	.00054	.0208
%RSD	.20214	.05626	.06554	.28526	.18643	.19654	.47359	.47758	.27511
#1	.26762	.45923	5.1330	.31024	.64461	8.0645	32.019	.11279	7.5388
#2	.26870	.45974	5.1386	.31161	.64700	8.0533	32.251	.11188	7.5709
#3	.26818	.45938	5.1391	.31190	.64608	8.0333	31.965	.11185	7.5777

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	9.9554	2.9894	2.2047	1.9358	2.6934	4.4832	2.0767	1.5848	.38807
Stddev	.0234	.0174	.0039	.0054	.0038	.0154	.0017	.0029	.00136
%RSD	.23503	.58317	.17473	.27939	.14019	.34330	.08165	.18528	.34931
#1	9.9778	2.9847	2.2003	1.9411	2.6977	4.4991	2.0783	1.5817	.38816
#2	9.9574	2.9748	2.2074	1.9359	2.6919	4.4821	2.0768	1.5852	.38667
#3	9.9311	3.0087	2.2063	1.9303	2.6906	4.4683	2.0750	1.5876	.38938

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.79889	.19707	25.406	2.1363	.31274	.10283	3.2356	.18525	.07629
Stddev	.00324	.00053	.115	.0058	.00081	.00055	.0127	.00020	.00038
%RSD	.40524	.26838	.45384	.26966	.26020	.53222	.39118	.10797	.50115
#1	.80248	.19761	25.420	2.1423	.31215	.10225	3.2215	.18516	.07598
#2	.79797	.19655	25.285	2.1357	.31367	.10292	3.2393	.18548	.07617
#3	.79621	.19707	25.514	2.1308	.31240	.10333	3.2459	.18512	.07672

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.77788	1.4474	4.2848	29.941
Stddev	.00132	.0014	.0093	.362
%RSD	.17028	.09509	.21664	1.2096
#1	.77644	1.4489	4.2955	30.231
#2	.77814	1.4474	4.2792	29.535
#3	.77905	1.4461	4.2796	30.057

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S4 Acquired: 9/22/2014 16:57:09 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	70.674	4696.7	70877.	9723.2	4788.3
Stddev	.463	5.5	534.	39.2	6.1
%RSD	.65526	.11784	.75273	.40295	.12837
#1	70.225	4702.1	70893.	9682.3	4782.4
#2	71.150	4696.9	71403.	9726.9	4794.6
#3	70.647	4691.1	70336.	9760.4	4787.8

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S5 Acquired: 9/22/2014 17:01:16 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.53967	.88070	10.013	.61903	1.3031	15.858	62.470	.21541	14.531
Stddev	.00218	.00246	.027	.00308	.0041	.037	.385	.00041	.027
%RSD	.40334	.27981	.26850	.49788	.31616	.23512	.61575	.19214	.18572
#1	.53719	.87793	9.9828	.61572	1.2987	15.824	62.139	.21497	14.500
#2	.54123	.88264	10.022	.62181	1.3069	15.898	62.380	.21547	14.548
#3	.54060	.88154	10.034	.61957	1.3037	15.853	62.892	.21580	14.545

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	19.063	5.5507	4.2997	3.7565	5.0992	8.4951	4.0208	3.0698	.77911
Stddev	.048	.0229	.0100	.0092	.0038	.0251	.0069	.0064	.00044
%RSD	.25203	.41248	.23289	.24373	.07403	.29582	.17243	.20747	.05647
#1	19.008	5.5298	4.2882	3.7461	5.0977	8.4663	4.0153	3.0624	.77961
#2	19.090	5.5470	4.3062	3.7633	5.0965	8.5126	4.0186	3.0738	.77892
#3	19.092	5.5752	4.3048	3.7602	5.1035	8.5064	4.0286	3.0730	.77880

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.5725	.37952	48.843	4.1552	.62527	.19798	6.2884	.37452	.14748
Stddev	.0063	.00181	.652	.0075	.00214	.00040	.0219	.00112	.00043
%RSD	.40019	.47591	1.3355	.17950	.34223	.19983	.34895	.29780	.29294
#1	1.5709	.37775	49.154	4.1466	.62283	.19767	6.2658	.37329	.14700
#2	1.5794	.38136	48.093	4.1600	.62681	.19842	6.3097	.37546	.14758
#3	1.5672	.37945	49.280	4.1590	.62619	.19783	6.2896	.37482	.14785

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.5037	2.7867	8.4819	57.861
Stddev	.0041	.0007	.0225	.710
%RSD	.27525	.02468	.26468	1.2270
#1	1.4992	2.7863	8.4560	57.103
#2	1.5074	2.7864	8.4959	57.969
#3	1.5044	2.7875	8.4937	58.511

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S5 Acquired: 9/22/2014 17:01:16 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	68.671	4438.2	69003.	9695.7	4466.4
Stddev	1.126	10.8	134.	55.7	6.7
%RSD	1.6394	.24233	.19368	.57454	.14966
#1	68.528	4446.1	69015.	9749.4	4471.8
#2	69.861	4426.0	68864.	9699.6	4458.9
#3	67.623	4442.6	69131.	9638.1	4468.6

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S6 Acquired: 9/22/2014 17:05:31 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	Al3961	Ca3736	Fe2598	Mg2790	Na8183
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	40.882	29.369	13.364	6.4863	4.3791
Stddev	.199	.129	.033	.0243	.0108
%RSD	.48592	.43908	.24394	.37408	.24622
#1	40.652	29.287	13.345	6.4754	4.3700
#2	41.002	29.517	13.401	6.5141	4.3910
#3	40.990	29.302	13.345	6.4694	4.3764

Int. Std.	Y_3710
Units	Cts/S
Avg	9544.1
Stddev	31.2
%RSD	.32739
#1	9572.7
#2	9510.7
#3	9548.8

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICV55 Acquired: 9/22/2014 17:29:04 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICV55 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9720290	1.105172	1.006509	.9901982	.9702696	2.456521
Stddev	.0022271	.001251	.001854	.0026556	.0006179	.014186
%RSD	.2291221	.1131602	.1842356	.2681933	.0636789	.5774922
#1	.9723044	1.104123	1.005704	.9889687	.9699063	2.467757
#2	.9696770	1.104838	1.005193	.9932458	.9709830	2.440580
#3	.9741056	1.106556	1.008630	.9883801	.9699195	2.461225

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5245040	.5020962	.4994629	10.72074	.5088536	.4988941
Stddev	.0009298	.0040605	.0012860	.00514	.0015940	.0012174
%RSD	.1772738	.8087204	.2574775	.0479317	.3132442	.2440109
#1	.5240509	.4979002	.4984908	10.72608	.5101174	.4982667
#2	.5238877	.5023820	.4989767	10.71583	.5093805	.4981185
#3	.5255735	.5060062	.5009211	10.72031	.5070630	.5002972

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5184979	5.573783	.5430529	6.207189	.5099509	.4984833
Stddev	.0032609	.011500	.0036837	.032943	.0007386	.0008275
%RSD	.6289102	.2063311	.6783347	.5307256	.1448472	.1659990
#1	.5180140	5.571950	.5393753	6.199195	.5094735	.4993916
#2	.5155060	5.586091	.5467427	6.178978	.5095774	.4977724
#3	.5219737	5.563310	.5430407	6.243393	.5108017	.4982859

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.958837	.5361304	.9855031	9.490327	F .0292794	F .000201
Stddev	.207319	.0007832	.0115053	.093200	.0016257	.003755
%RSD	2.081756	.1460794	1.167451	.9820551	5.552225	1864.163
#1	10.13449	.5353180	.9753527	9.386406	.0288799	-.002538
#2	9.73015	.5361928	.9831556	9.566507	.0278908	.004130
#3	10.01187	.5368806	.9980011	9.518069	.0310676	-.002196

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICV55 Acquired: 9/22/2014 17:29:04 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICV55 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .000269	.0033418	-.016152	F .000021	.0003725	-.001390
Stddev	.000148	.0038883	.010180	.000208	.0004090	.001577
%RSD	55.05844	116.3537	63.02760	985.2427	109.7879	113.5094
#1	-.000168	-.001027	-.013350	-.000202	.0000037	-.001193
#2	-.000200	.006422	-.027440	.000206	.0008124	-.003057
#3	-.000439	.004631	-.007666	-.000067	.0003016	.000080

Elem	Sr4077
Units	ppm
Avg	.0123800
Stddev	.0000684
%RSD	.5523092
#1	.0123010
#2	.0124175
#3	.0124213

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	78.01087	5285.371	77684.78	9997.917	5919.510
Stddev	1.18953	3.964	240.90	40.938	7.025
%RSD	1.524820	.0750001	.3101007	.4094619	.1186777
#1	79.34132	5288.855	77461.30	10032.78	5927.341
#2	77.64130	5281.058	77653.08	9952.84	5917.427
#3	77.05000	5286.198	77939.96	10008.13	5913.762

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICB55 Acquired: 9/22/2014 17:33:00 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICB55 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002811	-.000363	.0006873	.0005630	.0003299	-.004470	.0002334
Stddev	.000284	.000334	.0007259	.0010915	.0013377	.002612	.0003431
%RSD	10.09920	91.79534	105.6107	193.8712	405.4583	58.43739	147.0226
#1	-.002717	.000013	.0008866	-.000021	.0014160	-.002264	-.000156
#2	-.002586	-.000622	-.000117	-.000112	-.001164	-.007355	.000366
#3	-.003130	-.000482	.001293	.001822	.000738	-.003791	.000491

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000205	-.000019	.0039340	.0000260	-.000117	-.002187	.0047714
Stddev	.000353	.000044	.0077008	.0001365	.000167	.001113	.0046632
%RSD	172.3176	233.8571	195.7495	525.7094	142.2715	50.89993	97.73243
#1	-.000312	-.000023	.0128205	.0001826	-.000078	-.002130	.0090237
#2	-.000491	-.000060	-.000234	-.000037	.000026	-.001104	-.000216
#3	.000189	.000027	-.000784	-.000068	-.000300	-.003328	.005506

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000378	-.022270	.0000799	.0000868	.0376204	.0021898	.0008567
Stddev	.000267	.000772	.0000869	.0001491	.0956403	.0021816	.0028436
%RSD	70.71921	3.467428	108.7419	171.7030	254.2245	99.62491	331.9306
#1	-.000236	-.023133	.0001802	.0002285	.0132451	.0019633	-.000991
#2	-.000686	-.022032	.0000306	-.000069	.1430896	.0044758	-.000570
#3	-.000211	-.021644	.0000289	.000101	-.043473	.0001303	.004131

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.147200	-.000279	-.002123	-.000069	-.004203	-.005878	.0004016
Stddev	.064407	.001197	.004525	.000084	.001561	.002994	.0003835
%RSD	43.75467	429.3009	213.1390	120.5248	37.13152	50.92792	95.48834
#1	-.140273	.001079	-.007165	-.000118	-.002768	-.005399	.0000127
#2	-.086537	-.000733	-.000789	-.000117	-.003977	-.009083	.0004127
#3	-.214790	-.001182	.001585	.000027	-.005865	-.003153	.0007794

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICB55 Acquired: 9/22/2014 17:33:00 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICB55 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0001333	-.001279	-.000082
Stddev	.0003600	.000682	.000037
%RSD	270.0452	53.33085	45.30820
#1	-.000234	-.001430	-.000086
#2	.000485	-.001872	-.000117
#3	.000149	-.000534	-.000043

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	79.74090	5429.910	79644.80	9968.084	6251.620
Stddev	1.03968	7.176	332.00	24.654	11.222
%RSD	1.303817	.1321582	.4168563	.2473264	.1795041
#1	80.39812	5434.887	79272.90	9962.058	6261.500
#2	78.54225	5421.684	79750.18	9995.192	6253.942
#3	80.28232	5433.159	79911.33	9947.002	6239.419

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICSA55 Acquired: 9/22/2014 17:37:06 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSA55 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0018942	-.001643	-.000456	.0161523	.0036172	251.8529
Stddev	.0010451	.000660	.001704	.0019183	.0016852	.6129
%RSD	55.17285	40.17205	373.4773	11.87600	46.58851	.2433704
#1	.0015091	-.002140	.001479	.0163961	.0042249	251.8230
#2	.0010964	-.000894	-.001116	.0141238	.0049141	251.2554
#3	.0030772	-.001896	-.001732	.0179370	.0017124	252.4802

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0072577	.0008985	.0008047	255.9514	.0567574	-.000284
Stddev	.0003394	.0001675	.0000265	.4697	.0004538	.000298
%RSD	4.676791	18.63965	3.292510	.1835198	.7995889	105.0462
#1	.0070991	.0010798	.0007770	255.6560	.0564086	-.000434
#2	.0070266	.0007496	.0008073	255.7052	.0572705	-.000477
#3	.0076474	.0008660	.0008298	256.4931	.0565932	.000060

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002622	105.4989	.0139116	264.3732	.0009975	-.002414
Stddev	.0014457	.2389	.0006375	.6720	.0001747	.000172
%RSD	551.3952	.2264049	4.582807	.2541765	17.51940	7.139835
#1	-.000467	105.6912	.0142280	264.5258	.0011885	-.002512
#2	-.000673	105.2315	.0143291	263.6380	.0009582	-.002215
#3	.001927	105.5738	.0131777	264.9557	.0008457	-.002515

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1851007	.0019998	.0178012	-.133929	.0056336	-.009678
Stddev	.1571482	.0018219	.0044773	.006893	.0018002	.003729
%RSD	84.89878	91.10436	25.15171	5.146461	31.95487	38.52600
#1	.1050502	.0036675	.0128951	-.141827	.0035749	-.008647
#2	.3661562	.0000553	.0216664	-.129134	.0069123	-.006574
#3	.0840958	.0022766	.0188421	-.130825	.0064135	-.013814

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICSA55 Acquired: 9/22/2014 17:37:06 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSA55 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0150540	-.006043	-.005839	F .0257193	.0201211	.0031274
Stddev	.0001340	.003678	.009705	.0002572	.0011228	.0009263
%RSD	.8898071	60.86056	166.2245	1.000125	5.579979	29.61797
#1	.0149381	-.007435	-.010933	.0256813	.0206534	.0032590
#2	.0150233	-.008822	-.011937	.0254832	.0208787	.0039808
#3	.0152006	-.001872	.005353	.0259934	.0188312	.0021423

Elem	Sr4077
Units	ppm
Avg	.1090916
Stddev	.0004231
%RSD	.3878784
#1	.1089664
#2	.1087452
#3	.1095632

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	76.19790	4951.325	71078.28	9775.105	4990.610
Stddev	1.11542	15.633	368.51	41.629	14.963
%RSD	1.463845	.3157277	.5184602	.4258661	.2998208
#1	77.43915	4949.671	71186.63	9728.676	4990.112
#2	75.87500	4967.719	70667.74	9809.100	5005.816
#3	75.27955	4936.585	71380.47	9787.540	4975.903

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICSAB55 Acquired: 9/22/2014 17:41:08 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSAB55 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1007299	.1017008	.0510780	.0635511	.6034477	255.2984	.5471983
Stddev	.0003172	.0016854	.0021023	.0014593	.0072102	1.0922	.0027599
%RSD	.3149028	1.657195	4.115813	2.296204	1.194825	.4278124	.5043651
#1	.1005873	.1036463	.0513580	.0635853	.6117571	256.2496	.5491801
#2	.1010934	.1006871	.0530262	.0620750	.5988433	255.5400	.5483687
#3	.1005090	.1007689	.0488497	.0649929	.5997428	254.1057	.5440461

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5304807	1.047883	259.3678	.5714081	.5242940	.5249983	106.8924
Stddev	.0012982	.013159	.8117	.0012100	.0059995	.0039511	.3664
%RSD	.2447264	1.255761	.3129385	.2117553	1.144303	.7525966	.3427371
#1	.5293038	1.063054	259.8111	.5700334	.5312208	.5284908	106.8559
#2	.5318733	1.039568	259.8612	.5718789	.5209267	.5257943	107.2757
#3	.5302649	1.041027	258.4310	.5723119	.5207346	.5207097	106.5457

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5610871	267.8397	1.043186	.2105298	.1972036	.5395704	1.020085
Stddev	.0041227	.4892	.013376	.0002842	.2082067	.0037868	.008856
%RSD	.7347759	.1826297	1.282251	.1349699	105.5796	.7018101	.8681151
#1	.5652221	267.9830	1.058628	.2104763	.2789740	.5436495	1.016485
#2	.5610623	268.2413	1.035762	.2108369	.3521122	.5388949	1.013596
#3	.5569768	267.2950	1.035169	.2102762	-.039476	.5361669	1.030173

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.581331	.0339388	F -.039758	.0000258	-.005827	-.016665	-.000374
Stddev	.054129	.0008733	.010361	.0001065	.001764	.007071	.000777
%RSD	9.311146	2.573321	26.06146	412.0774	30.26420	42.42900	207.6975
#1	-.534182	.0332959	-.032855	.0000231	-.005032	-.024387	.000105
#2	-.569371	.0349331	-.051672	-.000079	-.007849	-.010507	-.001270
#3	-.640439	.0335874	-.034746	.000134	-.004602	-.015101	.000043

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICSAB55 Acquired: 9/22/2014 17:41:08 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSAB55 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.002154	.0011990	.1104638
Stddev	.001029	.0004244	.0004701
%RSD	47.78923	35.39462	.4255289
#1	-.001966	.0007855	.1106515
#2	-.001231	.0011782	.1108110
#3	-.003264	.0016335	.1099289

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	76.77158	5039.438	72631.07	9952.400	5069.546
Stddev	.31666	53.802	8.31	27.538	55.031
%RSD	.4124673	1.067612	.0114424	.2767010	1.085516
#1	76.87313	4977.319	72632.74	9960.390	5006.217
#2	77.02500	5071.222	72638.42	9921.750	5105.733
#3	76.41660	5069.774	72622.05	9975.060	5096.688

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCV67 Acquired: 9/22/2014 17:45:05 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV67 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.058313	5.061763	25.79920	5.012302	5.078138	417.4800	10.51555
Stddev	.028160	.023259	.07805	.012543	.008146	1.0537	.11024
%RSD	.5567126	.4594957	.3025135	.2502459	.1604082	.2524026	1.048307
#1	5.044167	5.039825	25.78892	5.008095	5.077172	417.7463	10.39559
#2	5.040031	5.059314	25.72680	5.002402	5.070518	418.3751	10.61240
#3	5.090742	5.086148	25.88187	5.026407	5.086723	416.3187	10.53866

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5180662	2.554706	422.4582	15.70760	2.580745	15.69640	417.0323
Stddev	.0040648	.009433	.8924	.07556	.009766	.02769	.6880
%RSD	.7846048	.3692570	.2112507	.4810364	.3784047	.1763912	.1649815
#1	.5223398	2.555741	422.5415	15.63137	2.577258	15.71129	416.9302
#2	.5176102	2.544798	423.3061	15.78247	2.573201	15.71346	417.7656
#3	.5142488	2.563579	421.5270	15.70897	2.591775	15.66445	416.4010

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.72166	412.9848	2.534674	1.333486	412.8483	2.614910	14.87372
Stddev	.04957	1.0497	.007756	.002134	.8310	.020850	.17325
%RSD	.3152882	.2541851	.3059842	.1600137	.2012906	.7973435	1.164824
#1	15.71776	412.3525	2.536163	1.331333	412.4094	2.599698	15.07271
#2	15.77306	414.1966	2.526281	1.333527	413.8068	2.638677	14.79206
#3	15.67416	412.4053	2.541577	1.335600	412.3287	2.606357	14.75638

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	159.1857	5.126809	5.003555	4.895159	5.205556	5.300528	5.061521
Stddev	.2013	.012577	.026947	.013928	.027974	.034280	.015870
%RSD	.1264595	.2453130	.5385503	.2845163	.5373825	.6467316	.3135475
#1	159.2937	5.113987	5.031499	4.895259	5.192638	5.336760	5.062152
#2	159.3100	5.127315	4.977731	4.881182	5.186374	5.296217	5.045344
#3	158.9535	5.139125	5.001435	4.909037	5.237654	5.268607	5.077066

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCV67 Acquired: 9/22/2014 17:45:05 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV67 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.134730	5.269271	5.256300
Stddev	.011803	.008281	.020935
%RSD	.2298672	.1571624	.3982852
#1	5.131649	5.266942	5.274327
#2	5.147767	5.278467	5.261235
#3	5.124772	5.262403	5.233338

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	69.26463	4520.092	66538.93	9265.480	4404.873
Stddev	.66403	8.786	137.68	7.155	9.851
%RSD	.9586902	.1943805	.2069207	.0772253	.2236393
#1	68.50890	4521.199	66697.75	9270.937	4407.636
#2	69.75469	4528.272	66453.45	9268.124	4413.049
#3	69.53032	4510.804	66465.58	9257.379	4393.936

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCB67 Acquired: 9/22/2014 17:49:06 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB67 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000658	.0006612	-.000199	.0000527	-.000046	.0073872	.0004932
Stddev	.001074	.0008083	.000233	.0014883	.000634	.0073301	.0002179
%RSD	163.2402	122.2417	116.9424	2825.957	1382.162	99.22771	44.17316
#1	.000164	-.000232	-.000213	-.000598	.000375	.0138120	.0003225
#2	-.000265	.001343	.000040	.001755	-.000776	-.000597	.0004186
#3	-.001873	.000872	-.000425	-.001000	.000263	.008947	.0007386

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000068	-.000018	.0128324	.0004585	.0000249	-.000984	.0246990
Stddev	.000238	.000024	.0094273	.0000169	.0000645	.000625	.0051752
%RSD	349.2183	135.1274	73.46472	3.691251	259.3207	63.55817	20.95313
#1	-.000310	.000003	.0234887	.0004777	.0000738	-.000805	.0281518
#2	-.000061	-.000043	.0055792	.0004522	-.000048	-.001679	.0271966
#3	.000167	-.000013	.0094293	.0004456	.000049	-.000468	.0187487

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007903	.0137748	-.000082	.0002054	.0214293	.0001942	.0018445
Stddev	.0001896	.0169565	.000044	.0000358	.1934209	.0013703	.0037617
%RSD	23.98750	123.0984	53.32034	17.41265	902.5991	705.6866	203.9446
#1	.0008228	.0002952	-.000076	.0002339	-.036594	-.001148	.0061443
#2	.0009614	.0328129	-.000042	.0002170	.237221	.000139	.0002282
#3	.0005865	.0082162	-.000129	.0001653	-.136339	.001591	-.000839

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0856182	-.000863	.0035622	.0006131	-.004808	-.001540	.0000535
Stddev	.0651479	.000738	.0036773	.0000203	.001230	.007365	.0001764
%RSD	76.09127	85.49518	103.2312	3.309444	25.57622	478.3188	329.5074
#1	.0108236	-.000072	.0060521	.0006255	-.003829	.005299	.0000228
#2	.1160449	-.000983	.0052958	.0005897	-.006188	-.009336	-.000106
#3	.1299859	-.001533	-.000661	.0006241	-.004407	-.000582	.000243

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCB67 Acquired: 9/22/2014 17:49:06 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB67 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0003100	.0018660	.0001139
Stddev	.0008343	.0010754	.0000437
%RSD	269.1450	57.63330	38.38268
#1	.0011205	.0007567	.0000730
#2	-.000546	.0029040	.0001600
#3	.000356	.0019374	.0001087

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	31.09385	5589.112	30113.28	9969.890	6319.744
Stddev	.97335	9.499	178.80	39.788	24.521
%RSD	1.200275	.1699638	.2231794	.3990819	.3880000
#1	80.69431	5585.114	79907.04	10011.81	6311.358
#2	82.20339	5599.957	80208.38	9965.20	6347.357
#3	80.38385	5582.266	80224.44	9932.65	6300.516

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: PB78988BLRE Acquired: 9/22/2014 18:40:38 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: PBS01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001790	-.000992	.0004403	-.000037	-.000450	-.004721	.0001490
Stddev	.000919	.000478	.0002427	.001260	.000495	.002119	.0001575
%RSD	51.33215	48.18420	55.12407	3399.467	109.8667	44.88284	105.6878
#1	-.002660	-.001289	.0003447	-.001425	-.000464	-.006797	-.000010
#2	-.001883	-.000441	.0002599	.001033	-.000938	-.004804	.000151
#3	-.000829	-.001245	.0007162	.000281	.000051	-.002561	.000305

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000156	-.000041	.0039241	.0000546	-.000030	-.000774	.0037329
Stddev	.000474	.000026	.0095151	.0003817	.000086	.000532	.0027411
%RSD	304.9140	62.49131	242.4757	698.4534	283.6784	68.64714	73.43060
#1	.000307	-.000056	.0112178	.0003008	-.000078	-.001359	.0058779
#2	-.000133	-.000012	-.006839	-.000385	-.000083	-.000643	.0046760
#3	-.000640	-.000057	.007393	.000248	.000069	-.000321	.0006448

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002078	-.003186	.0000016	.0001233	-.161174	.0025246	.0047065
Stddev	.0004142	.015854	.0001810	.0000923	.208472	.0009074	.0021268
%RSD	199.3505	497.6320	11371.99	74.85394	129.3460	35.94398	45.18851
#1	.0004894	-.014173	.0000081	.0000741	-.174568	.0023603	.0057891
#2	.0004017	-.010373	.0001793	.0002297	-.362625	.0017105	.0060743
#3	-.000268	.014989	-.000183	.0000660	.053672	.0035029	.0022562

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.026574	-.000935	-.007044	-.000325	-.004242	-.005530	-.000034
Stddev	.015934	.000324	.002362	.000294	.001056	.002780	.000612
%RSD	59.96125	34.69259	33.52542	90.42824	24.89600	50.26142	1783.493
#1	-.031464	-.000583	-.009659	.000014	-.003135	-.008457	.000329
#2	-.039491	-.001223	-.005067	-.000513	-.005238	-.005208	.000308
#3	-.008768	-.000998	-.006406	-.000476	-.004352	-.002926	-.000740

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: PB78988BLRE Acquired: 9/22/2014 18:40:38 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: PBS01 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0008221	-.002182	-.000107
Stddev	.0007077	.001069	.000041
%RSD	86.08922	48.97642	38.77527
#1	.0001043	-.003377	-.000063
#2	.0008427	-.001853	-.000145
#3	.0015193	-.001317	-.000112

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	30.65997	5570.080	78435.24	9798.424	6252.387
Stddev	.81987	15.158	362.40	32.614	13.718
%RSD	1.016452	.2721388	.4620389	.3328460	.2194016
#1	81.52065	5580.905	78693.78	9770.530	6260.231
#2	80.57109	5576.579	78021.01	9790.460	6260.383
#3	79.88816	5552.755	78590.94	9834.282	6236.548

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: PB78988BSRE Acquired: 9/22/2014 18:44:45 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: LCS01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0167575	.0511436	.0201462	.0636666	.1117569	.3649461
Stddev	.0012972	.0003477	.0010682	.0015924	.0007718	.0082398
%RSD	7.741259	.6797722	5.302044	2.501119	.6906238	2.257816
#1	.0167273	.0509790	.0189910	.0644422	.1111579	.3709496
#2	.0180696	.0515430	.0203496	.0618351	.1114849	.3555520
#3	.0154757	.0509089	.0210981	.0647227	.1126279	.3683368

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4206458	.0103603	.0097570	10.58864	.0195145	.0968719
Stddev	.0004564	.0004289	.0000601	.02008	.0001442	.0002944
%RSD	.1085025	4.139537	.6157445	.1896402	.7387243	.3038571
#1	.4211642	.0098929	.0096876	10.61135	.0196761	.0967872
#2	.4203041	.0107357	.0097922	10.58134	.0193992	.0966291
#3	.4204693	.0104522	.0097911	10.57322	.0194682	.0971993

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0483327	.2186307	.0330954	10.10201	.0774083	.0197532
Stddev	.0019606	.0057799	.0005645	.07537	.0005593	.0003008
%RSD	4.056431	2.643663	1.705796	.7460401	.7225735	1.522616
#1	.0461006	.2130979	.0334728	10.14669	.0769949	.0195727
#2	.0497761	.2246295	.0324464	10.14434	.0780447	.0201004
#3	.0491214	.2181648	.0333669	10.01499	.0771852	.0195865

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.19415	.1077936	.1143613	9.952275	F .0022565	.0116014
Stddev	.04228	.0031041	.0066719	.067889	.0003162	.0024636
%RSD	.4147291	2.879670	5.834069	.6821452	14.01154	21.23535
#1	10.14786	.1105904	.1069701	10.02638	.0026108	.0125562
#2	10.20386	.1044539	.1161746	9.93738	.0020031	.0134447
#3	10.23073	.1083366	.1199391	9.89307	.0021555	.0088033

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: PB78988BSRE Acquired: 9/22/2014 18:44:45 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: LCS01 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0193262	.1725690	.1877274	F .0128154	.2009636	.0973668
Stddev	.0001336	.0010240	.0050521	.0005114	.0003770	.0004795
%RSD	.6910712	.5933688	2.691208	3.990729	.1875829	.4925078
#1	.0192855	.1721071	.1827634	.0123105	.2012862	.0969818
#2	.0192177	.1737426	.1875554	.0133331	.2005492	.0979040
#3	.0194753	.1718574	.1928633	.0128028	.2010555	.0972146

Elem	Sr4077
Units	ppm
Avg	.2163417
Stddev	.0003504
%RSD	.1619791
#1	.2165813
#2	.2159395
#3	.2165042

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	30.24212	5559.142	78043.02	9827.700	6041.547
Stddev	1.13975	12.886	404.97	29.339	16.922
%RSD	1.420395	.2318026	.5189032	.2985372	.2800886
#1	80.87500	5572.889	78500.72	9794.975	6059.473
#2	78.92636	5557.202	77731.21	9851.651	6039.317
#3	80.92500	5547.336	77897.14	9836.475	6025.851

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-01RE Acquired: 9/22/2014 18:48:49 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.374069	-.005142	.2272903	.0381071	.0259686	97.44746	.6801561
Stddev	.051078	.000591	.0020162	.0019100	.0010426	.32659	.0019630
%RSD	1.513829	11.49120	.8870495	5.012161	4.014856	.3351481	.2886136
#1	3.394947	-.005451	.2276147	.0376077	.0260570	97.08707	.6779472
#2	3.411401	-.005515	.2291247	.0364965	.0248845	97.72383	.6808203
#3	3.315860	-.004461	.2251316	.0402172	.0269641	97.53150	.6817009

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0064470	.0021559	17.99520	2.563247	.1234302	1.457075	225.2439
Stddev	.0000729	.0002281	.06467	.003633	.0024472	.005519	.6239
%RSD	1.131059	10.58054	.3593626	.1417153	1.982656	.3787679	.2769734
#1	.0064471	.0023102	17.93212	2.567411	.1241967	1.452795	224.5354
#2	.0065199	.0022635	17.99214	2.561605	.1254023	1.463304	225.4848
#3	.0063740	.0018939	18.06135	2.560725	.1206915	1.455126	225.7113

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.498853	5.220960	.0804238	-.003208	.5255873	.3044073	.3978657
Stddev	.016417	.043594	.0015393	.000227	.0530684	.0041129	.0079387
%RSD	.4692149	.8349744	1.914023	7.065853	10.09698	1.351102	1.995329
#1	3.479933	5.198357	.0808321	-.003296	.4652907	.3009575	.3892414
#2	3.509332	5.193309	.0817178	-.002951	.5462752	.3089588	.4048685
#3	3.507295	5.271213	.0787215	-.003377	.5651960	.3033055	.3994873

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.489384	2.621927	-.070749	.0096246	1.285448	4.715545	.0130173
Stddev	.065622	.035266	.006131	.0003445	.026781	.038824	.0005075
%RSD	2.636087	1.345048	8.665734	3.579219	2.083361	.8233094	3.898959
#1	2.435637	2.635279	-.077378	.0096224	1.293988	4.671421	.0132352
#2	2.562515	2.648567	-.069584	.0099702	1.306918	4.730748	.0133794
#3	2.470000	2.581934	-.065283	.0092812	1.255439	4.744466	.0124371

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-01RE Acquired: 9/22/2014 18:48:49 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD4 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.7771571	.0524212	.1217877
Stddev	.0023312	.0006835	.0003453
%RSD	.2999656	1.303765	.2834888
#1	.7750194	.0518520	.1213919
#2	.7796427	.0531792	.1220271
#3	.7768093	.0522324	.1219440

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	84.89901	5687.702	80846.91	10399.06	5773.207
Stddev	2.11695	90.021	273.60	48.67	101.783
%RSD	2.493496	1.582730	.3384131	.4680292	1.763025
#1	87.29762	5672.975	80716.93	10446.56	5760.843
#2	83.29168	5605.953	80662.54	10401.34	5678.170
#3	84.10771	5784.179	81161.27	10349.30	5880.607

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-02RE Acquired: 9/22/2014 18:52:47 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.874871	-.012357	.5930186	.0722499	.0396602	183.4175	1.301075
Stddev	.034560	.000302	.0044525	.0032693	.0016484	.1656	.002458
%RSD	.3499834	2.441677	.7508195	4.525001	4.156334	.0902885	.1889384
#1	9.857309	-.012601	.5922363	.0730304	.0414256	183.5266	1.298487
#2	9.852618	-.012450	.5890091	.0686610	.0381612	183.4990	1.301358
#3	9.914686	-.012020	.5978104	.0750583	.0393937	183.2270	1.303379

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0129707	.0080863	53.97789	10.80990	.2711614	5.176686	463.6082
Stddev	.0007019	.0000517	.01857	.07541	.0010722	.012074	.6356
%RSD	5.411305	.6397341	.0344105	.6976414	.3954092	.2332337	.1371080
#1	.0137808	.0081280	53.97523	10.87198	.2707344	5.167318	463.5568
#2	.0125865	.0081024	53.99765	10.83175	.2703684	5.190312	464.2679
#3	.0125448	.0080284	53.96079	10.72597	.2723813	5.172427	462.9998

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.194227	12.13345	.1911205	-.006987	1.301960	.4998932	1.645303
Stddev	.005461	.04947	.0011669	.000351	.040960	.0013325	.031627
%RSD	.0881688	.4077220	.6105729	5.027598	3.145988	.2665477	1.922239
#1	6.199746	12.07763	.1903907	-.007366	1.319216	.4994917	1.681511
#2	6.188825	12.15086	.1905044	-.006923	1.255196	.4988077	1.631325
#3	6.194110	12.17187	.1924663	-.006673	1.331468	.5013803	1.623074

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.906918	8.174413	-.149427	.0232786	4.692503	4.690497	.0266186
Stddev	.070360	.027152	.002635	.0002211	.016315	.005193	.0007620
%RSD	.7899449	.3321607	1.763488	.9499279	.3476795	.1107025	2.862701
#1	8.833666	8.175532	-.152012	.0231422	4.681550	4.691676	.0271087
#2	8.973976	8.146719	-.146744	.0235337	4.684704	4.694999	.0257407
#3	8.913112	8.200988	-.149524	.0231599	4.711253	4.684817	.0270065

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-02RE Acquired: 9/22/2014 18:52:47 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD5 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.709905	.1138926	.3461082
Stddev	.005784	.0012764	.0005948
%RSD	.3382518	1.120724	.1718621
#1	1.705643	.1127713	.3462298
#2	1.707584	.1152817	.3454620
#3	1.716489	.1136249	.3466329

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	87.17284	5875.874	85436.91	11242.69	5577.515
Stddev	1.93859	5.038	503.64	54.70	12.257
%RSD	2.223846	.0857330	.5894849	.4865701	.2197576
#1	85.05799	5879.784	85099.47	11226.81	5586.423
#2	87.59489	5877.649	85195.44	11197.69	5582.586
#3	88.86563	5870.189	86015.81	11303.58	5563.537

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-03RE Acquired: 9/22/2014 18:56:41 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD6 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.320950	-.004542	.2223987	.0295190	.0247611	108.0923	.8108043
Stddev	.008934	.000836	.0011372	.0011984	.0020259	.5224	.0035316
%RSD	.2690078	18.41254	.5113117	4.059623	8.181767	.4833236	.4355701
#1	3.312191	-.005469	.2218802	.0293936	.0268201	108.3451	.8125690
#2	3.320611	-.003843	.2237027	.0307751	.0227700	108.4403	.8131057
#3	3.330048	-.004315	.2216132	.0283882	.0246934	107.4916	.8067381

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0054272	.0031831	29.54984	3.599886	.0866383	2.368103	161.7039
Stddev	.0004658	.0001280	.10243	.009199	.0007024	.005068	.7432
%RSD	8.582195	4.022453	.3466282	.2555448	.8106922	.2139930	.4596323
#1	.0048900	.0032317	29.57818	3.594587	.0861796	2.367400	162.0085
#2	.0057172	.0030379	29.63512	3.610508	.0862885	2.373486	162.2464
#3	.0056746	.0032798	29.43623	3.594562	.0874469	2.363424	160.8567

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.284206	8.573123	.0758529	-.001635	.6566570	.2093208	.9493098
Stddev	.007281	.053865	.0002409	.000224	.0303332	.0055766	.0035611
%RSD	.3187368	.6283015	.3176470	13.68307	4.619345	2.664118	.3751255
#1	2.288448	8.594884	.0757751	-.001406	.6915978	.2120616	.9454232
#2	2.288371	8.612703	.0756604	-.001646	.6370750	.2129965	.9500901
#3	2.275799	8.511781	.0761231	-.001853	.6412981	.2029042	.9524160

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.852223	4.087687	-.026881	.0085353	2.493344	5.634941	.0153668
Stddev	.081268	.011435	.001141	.0000832	.008729	.013160	.0004634
%RSD	2.109641	.2797337	4.244260	.9751599	.3500884	.2335438	3.015891
#1	3.823406	4.078353	-.027046	.0085791	2.487624	5.633318	.0148347
#2	3.789290	4.084266	-.027930	.0084394	2.489017	5.648837	.0156822
#3	3.943973	4.100441	-.025667	.0085876	2.503391	5.622667	.0155834

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-03RE Acquired: 9/22/2014 18:56:41 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD6 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.876719	.0787319	.1715383
Stddev	.008067	.0009730	.0007181
%RSD	.4298248	1.235852	.4186104
#1	1.877339	.0790465	.1714927
#2	1.884458	.0776405	.1722781
#3	1.868361	.0795086	.1708441

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	84.39553	5751.828	82441.18	10674.31	5824.870
Stddev	.62843	15.415	281.06	53.20	26.672
%RSD	.7446196	.2680051	.3409233	.4984079	.4578960
#1	85.03894	5753.798	82354.46	10653.58	5836.699
#2	83.78324	5766.163	82213.70	10634.60	5843.581
#3	84.36440	5735.522	82755.39	10734.76	5794.329

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-04RE Acquired: 9/22/2014 19:00:39 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.104210	-.010630	.5444145	.0569721	.0381504	159.8968	1.249964
Stddev	.146529	.001093	.0121326	.0004236	.0031902	.3528	.002779
%RSD	1.808064	10.28178	2.228566	.7434953	8.362261	.2206234	.2223572
#1	8.013492	-.010769	.5376366	.0566067	.0378425	160.0315	1.251476
#2	8.025881	-.011648	.5371852	.0568733	.0351253	159.4965	1.246756
#3	8.273256	-.009475	.5584216	.0574364	.0414834	160.1623	1.251660

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0104374	.0070792	49.04797	9.443246	.2458587	4.850866	359.4062
Stddev	.0001586	.0003416	.10401	.033461	.0047502	.013559	.1273
%RSD	1.519237	4.825239	.2120566	.3543342	1.932071	.2795226	.0354094
#1	.0105863	.0068113	49.07242	9.471704	.2429550	4.862404	359.5483
#2	.0104552	.0069624	48.93392	9.406384	.2432805	4.835931	359.3027
#3	.0102706	.0074639	49.13758	9.451649	.2513405	4.854263	359.3677

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.717258	12.73755	.1577123	-.005483	1.286028	.4170345	1.606441
Stddev	.009165	.05621	.0030099	.000130	.113685	.0029087	.023714
%RSD	.1364442	.4413102	1.908442	2.374580	8.839994	.6974816	1.476163
#1	6.716882	12.80017	.1562582	-.005347	1.217307	.4137039	1.581171
#2	6.708286	12.69145	.1557056	-.005498	1.417251	.4183244	1.609942
#3	6.726605	12.72103	.1611731	-.005606	1.223526	.4190753	1.628209

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.517843	7.193746	-.101396	.0201627	4.400813	4.741199	.0253826
Stddev	.050248	.145202	.005268	.0002965	.087612	.052287	.0008010
%RSD	.5899162	2.018447	5.195534	1.470266	1.990819	1.102817	3.155579
#1	8.523644	7.108941	-.096774	.0200195	4.349381	4.689868	.0244650
#2	8.464946	7.110889	-.107132	.0199652	4.351083	4.739337	.0257410
#3	8.564939	7.361407	-.100283	.0205036	4.501974	4.794392	.0259418

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-04RE Acquired: 9/22/2014 19:00:39 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD7 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.882235	.1109148	.3188602
Stddev	.003022	.0000928	.0007291
%RSD	.1605556	.0836511	.2286699
#1	1.883838	.1109798	.3195167
#2	1.878749	.1109561	.3180755
#3	1.884117	.1108086	.3189883

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	38.01690	5847.252	34868.70	11179.21	5580.743
Stddev	1.82597	90.391	350.71	21.05	86.257
%RSD	2.074564	1.545880	.4132327	.1882728	1.545616
#1	89.55709	5896.154	84496.60	11179.56	5618.851
#2	88.49381	5902.657	85193.15	11200.08	5641.382
#3	85.99980	5742.944	84916.33	11157.99	5481.995

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-05RE Acquired: 9/22/2014 19:04:32 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD7D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.052624	-.009739	.5388587	.0574917	.0346813	159.2358	1.248242
Stddev	.008753	.001481	.0006204	.0020939	.0010495	.3138	.004969
%RSD	.1086953	15.20360	.1151314	3.642020	3.026158	.1970367	.3981171
#1	8.061089	-.011276	.5391901	.0550739	.0343901	159.2050	1.249059
#2	8.043609	-.008322	.5381430	.0587036	.0358456	158.9385	1.242915
#3	8.053176	-.009620	.5392430	.0586976	.0338081	159.5638	1.252753

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0105689	.0067545	48.97324	9.652770	.2449178	4.890384	358.8334
Stddev	.0002939	.0000347	.09116	.011450	.0005489	.007978	.5198
%RSD	2.780333	.5129321	.1861448	.1186162	.2240950	.1631388	.1448509
#1	.0108738	.0067146	49.02743	9.664514	.2447938	4.882994	359.4240
#2	.0105455	.0067727	48.86799	9.652158	.2444416	4.889314	358.4454
#3	.0102875	.0067763	49.02429	9.641639	.2455180	4.898843	358.6309

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.750902	12.67513	.1565535	-.005107	1.091411	.4152883	1.598992
Stddev	.018406	.07817	.0002609	.000150	.169029	.0011664	.010701
%RSD	.2726421	.6166978	.1666660	2.936642	15.48718	.2808645	.6692408
#1	6.740817	12.74769	.1564468	-.004974	1.267987	.4166022	1.590954
#2	6.739742	12.68532	.1563629	-.005078	1.075141	.4143750	1.594882
#3	6.772146	12.59236	.1568509	-.005270	.931106	.4148877	1.611138

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.687964	7.115114	-.109834	.0199789	4.327910	4.794480	.0247513
Stddev	.058495	.016064	.003645	.0000505	.008097	.013434	.0002826
%RSD	.6732858	.2257790	3.318862	.2526174	.1870953	.2802068	1.141724
#1	8.748395	7.123858	-.108412	.0200282	4.330835	4.784172	.0244321
#2	8.683879	7.096574	-.107114	.0199273	4.318757	4.809673	.0248521
#3	8.631619	7.124909	-.113975	.0199812	4.334138	4.789594	.0249697

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-05RE Acquired: 9/22/2014 19:04:32 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD7D Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.867404	.1126266	.3188436
Stddev	.004683	.0008186	.0009279
%RSD	.2507886	.7268121	.2910318
#1	1.872223	.1133804	.3191253
#2	1.862869	.1127434	.3178075
#3	1.867121	.1117558	.3195981

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	86.72625	5905.447	84030.95	11089.33	5636.225
Stddev	1.29016	10.387	51.01	21.24	14.336
%RSD	1.487621	.1758811	.0607073	.1915070	.2543525
#1	88.20736	5899.949	84041.03	11113.30	5629.995
#2	85.84698	5917.427	84076.16	11081.83	5652.622
#3	86.12440	5898.965	83975.64	11072.87	5626.059

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-06RE Acquired: 9/22/2014 19:08:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD7S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.205461	.0842688	.4157788	.1271410	.1395388	122.3000	5.348602
Stddev	.007042	.0003953	.0017545	.0015131	.0019348	.2183	.007496
%RSD	.1674516	.4691185	.4219803	1.190086	1.386587	.1785112	.1401547
#1	4.211678	.0838126	.4173660	.1276602	.1405177	122.2399	5.351401
#2	4.197813	.0844829	.4160758	.1283262	.1373102	122.5421	5.354295
#3	4.206891	.0845108	.4138948	.1254367	.1407887	122.1181	5.340109

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1070037	.1036334	52.81811	5.901119	1.151937	3.518554	223.7055
Stddev	.0010931	.0002586	.07280	.010076	.001487	.006123	.1222
%RSD	1.021549	.2494816	.1378228	.1707532	.1291058	.1740335	.0546123
#1	.1057733	.1039293	52.73817	5.891713	1.152526	3.520489	223.7845
#2	.1073747	.1034513	52.83558	5.899893	1.150246	3.511697	223.5648
#3	.1078629	.1035197	52.88058	5.911753	1.153040	3.523476	223.7672

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.529028	10.39603	1.112830	.0937895	.9488527	1.351856	2.328762
Stddev	.003926	.04450	.002429	.0001845	.1692540	.003960	.033701
%RSD	.0710127	.4280658	.2182673	.1966694	17.83775	.2929655	1.447168
#1	5.524689	10.43977	1.113490	.0938576	1.090400	1.349061	2.299099
#2	5.532335	10.39752	1.110139	.0939301	.761374	1.350119	2.321780
#3	5.530061	10.35080	1.114861	.0935806	.994784	1.356388	2.365407

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.769474	5.260997	-.042469	.0133387	4.057803	5.962482	.0203731
Stddev	.017518	.016888	.005417	.0003390	.011141	.032353	.0001846
%RSD	.3036341	.3210053	12.75480	2.541645	.2745559	.5426160	.9062727
#1	5.762404	5.261138	-.037482	.0131355	4.070605	5.981691	.0204068
#2	5.789423	5.244039	-.048232	.0131505	4.050310	5.925128	.0205385
#3	5.756596	5.277814	-.041692	.0137301	4.052493	5.980626	.0201739

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-06RE Acquired: 9/22/2014 19:08:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD7S Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.732302	.0808173	.3220948
Stddev	.002152	.0015337	.0002629
%RSD	.1242002	1.897764	.0816322
#1	1.731082	.0804001	.3221073
#2	1.734786	.0825164	.3223512
#3	1.731037	.0795353	.3218258

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	83.88975	5727.526	82364.87	10702.14	5754.188
Stddev	.95893	17.962	136.25	21.21	17.039
%RSD	1.143089	.3136045	.1654169	.1981602	.2961172
#1	84.50388	5712.841	82394.75	10720.81	5737.086
#2	84.38061	5747.553	82483.70	10706.54	5771.164
#3	82.78476	5722.185	82216.17	10679.08	5754.313

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-04LREX5 Acquired: 9/22/2014 19:12:15 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD7L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.686860	-.002130	.1096827	.0133806	.0090129	33.74566	.2637134
Stddev	.006703	.000339	.0000861	.0007182	.0008223	.11358	.0003167
%RSD	.3973759	15.93766	.0785046	5.367682	9.123918	.3365699	.1200952
#1	1.684416	-.002521	.1096759	.0131130	.0098526	33.82065	.2638090
#2	1.681721	-.001941	.1097719	.0128346	.0082091	33.80135	.2639712
#3	1.694441	-.001926	.1096001	.0141942	.0089769	33.61499	.2633599

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0020011	.0009658	10.59836	1.984775	.0474612	1.036623	78.82145
Stddev	.0005068	.0000669	.03676	.015214	.0001829	.003622	.38002
%RSD	25.32399	6.927801	.3468121	.7665365	.3854213	.3493648	.4821290
#1	.0025858	.0009154	10.61743	1.971946	.0474451	1.040309	79.07065
#2	.0016892	.0009402	10.62167	2.001583	.0472869	1.033069	79.00964
#3	.0017282	.0010417	10.55599	1.980797	.0476517	1.036493	78.38405

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.458948	2.789919	.0307363	-.001092	.3395337	.0886668	.3484410
Stddev	.002469	.018230	.0000768	.000199	.2189699	.0015290	.0127427
%RSD	.1692471	.6534222	.2499513	18.19446	64.49136	1.724480	3.657073
#1	1.460532	2.781365	.0308030	-.000863	.3691133	.0888798	.3430201
#2	1.460209	2.810853	.0306523	-.001205	.1072776	.0900782	.3629979
#3	1.456103	2.777540	.0307535	-.001209	.5422103	.0870424	.3393051

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.680089	1.527663	-.022815	.0038443	.8353937	1.017362	.0052985
Stddev	.046743	.002092	.007274	.0001926	.0048179	.009088	.0004407
%RSD	2.782192	.1369295	31.88175	5.008927	.5767239	.8933233	8.318074
#1	1.696523	1.529584	-.022741	.0040071	.8358302	1.020805	.0047928
#2	1.627348	1.525434	-.030127	.0036317	.8303724	1.024226	.0055018
#3	1.716397	1.527972	-.015579	.0038939	.8399786	1.007055	.0056009

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-04LREX5 Acquired: 9/22/2014 19:12:15 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD7L Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.4006492	.0232604	.0676943
Stddev	.0008029	.0017481	.0003726
%RSD	.2004008	7.515340	.5503728
#1	.4015209	.0214997	.0680618
#2	.4004869	.0232857	.0677043
#3	.3999399	.0249956	.0673168

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	82.84488	5737.216	81539.04	10297.71	6088.870
Stddev	.66703	13.194	407.37	16.87	10.124
%RSD	.8051574	.2299687	.4995986	.1638093	.1662666
#1	82.69269	5727.598	81854.35	10305.66	6090.852
#2	82.26709	5752.257	81079.09	10278.34	6097.855
#3	83.57485	5731.792	81683.68	10309.14	6077.901

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCV68 Acquired: 9/22/2014 19:16:16 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV68 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.933992	5.015479	25.77818	4.832733	4.955890	418.0394	10.66715
Stddev	.016158	.006756	.06075	.008701	.013138	2.3345	.10280
%RSD	.3274741	.1346965	.2356760	.1800481	.2651008	.5584516	.9637116
#1	4.941339	5.014917	25.72538	4.831828	4.949941	417.7997	10.72237
#2	4.915467	5.009021	25.76459	4.824520	4.946778	415.8339	10.54854
#3	4.945170	5.022498	25.84458	4.841851	4.970950	420.4845	10.73055

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5125374	2.515860	422.4464	15.71188	2.561521	15.60747	410.5983
Stddev	.0034347	.004149	2.1509	.02584	.005378	.08388	2.1042
%RSD	.6701349	.1649090	.5091438	.1644906	.2099627	.5374619	.5124599
#1	.5117555	2.512505	422.5605	15.68307	2.557633	15.56306	410.6287
#2	.5095611	2.514576	420.2407	15.71952	2.559271	15.55513	408.4791
#3	.5162957	2.520499	424.5378	15.73304	2.567658	15.70423	412.6870

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.76142	408.3520	2.489364	1.349380	413.9546	2.617047	14.52665
Stddev	.10952	2.0691	.004858	.002354	1.5210	.025002	.20996
%RSD	.6948760	.5066981	.1951372	.1744573	.3674399	.9553447	1.445371
#1	15.77434	408.4817	2.483986	1.348983	413.5271	2.618923	14.33957
#2	15.64601	406.2211	2.490675	1.347250	412.6931	2.591160	14.75374
#3	15.86391	410.3532	2.493432	1.351908	415.6437	2.641058	14.48665

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	159.3879	5.088738	4.892585	4.740928	5.123553	5.298601	4.970675
Stddev	.6979	.013103	.017045	.008439	.002646	.037440	.012845
%RSD	.4378623	.2574845	.3483887	.1780034	.0516400	.7065994	.2584127
#1	159.2075	5.084026	4.898855	4.736240	5.121890	5.297815	4.957849
#2	158.7979	5.078644	4.873293	4.735874	5.122165	5.261561	4.970635
#3	160.1583	5.103545	4.905608	4.750670	5.126604	5.336428	4.983539

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCV68 Acquired: 9/22/2014 19:16:16 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV68 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.059684	5.256439	5.341689
Stddev	.019526	.014337	.076875
%RSD	.3859091	.2727426	1.439145
#1	5.044075	5.242918	5.368816
#2	5.053399	5.254928	5.254929
#3	5.081578	5.271472	5.401323

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	68.08641	4621.003	66194.89	9162.461	4440.363
Stddev	.65427	9.360	113.95	64.923	7.961
%RSD	.9609377	.2025466	.1721380	.7085706	.1792980
#1	68.75374	4626.025	66267.80	9144.448	4448.463
#2	67.44604	4626.780	66253.29	9234.487	4440.079
#3	68.05943	4610.204	66063.59	9108.446	4432.547

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCB68 Acquired: 9/22/2014 19:20:12 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB68 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001716	-.000194	-.000705	-.000475	-.000682	.0034062	-.000064
Stddev	.001377	.000594	.000877	.001258	.000566	.0079949	.000498
%RSD	80.25419	305.8140	124.4469	264.7052	83.06673	234.7160	777.8554
#1	-.002508	.000089	-.001280	-.000418	-.001310	.0093025	-.000546
#2	-.002513	-.000877	-.001139	-.001760	-.000210	.0066097	-.000093
#3	-.000126	.000205	.000305	.000753	-.000525	-.005694	.000448

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000094	-.000021	.0002760	.0001027	-.000162	-.001417	.0126650
Stddev	.000207	.000023	.0084321	.0001000	.000153	.001474	.0014157
%RSD	220.3109	111.7664	3054.880	97.38264	94.64018	103.9873	11.17814
#1	.000145	-.000046	-.008080	.0001658	-.000301	-.000473	.0133153
#2	-.000226	.000001	.000125	-.000013	-.000189	-.000663	.0136388
#3	-.000201	-.000018	.008783	.000155	.000003	-.003116	.0110410

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001808	-.000202	-.000153	.0001814	.1729568	.0018868	.0000176
Stddev	.0001349	.012699	.000176	.0002840	.2269002	.0022465	.0060804
%RSD	74.60817	6278.760	114.9672	156.5511	131.1890	119.0633	34592.94
#1	.0000271	-.014682	-.000245	.0000905	.3908051	.0001542	.0006640
#2	.0002796	.009040	-.000265	.0004997	.1900891	.0044250	-.006360
#3	.0002355	.005036	.000050	-.000046	-.062024	.0010812	.005749

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1871839	-.001400	.0012922	.0010151	-.005706	-.004233	.0000493
Stddev	.0258057	.001518	.0025651	.0003293	.001683	.005200	.0005626
%RSD	13.78630	108.4120	198.5095	32.43516	29.49269	122.8504	1140.906
#1	.1666972	.000352	-.001661	.0013254	-.007438	-.002542	.0006080
#2	.2161665	-.002331	.002577	.0010504	-.005603	-.010069	-.000517
#3	.1786881	-.002222	.002961	.0006697	-.004077	-.000089	.000057

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCB68 Acquired: 9/22/2014 19:20:12 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB68 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0005382	.0026894	.000120
Stddev	.0007972	.0004696	.000096
%RSD	148.1176	17.46012	80.37590
#1	.0007868	.0032174	-.000025
#2	.0011816	.0025319	-.000218
#3	-.000354	.0023188	-.000117

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	30.52831	5636.996	79944.92	9813.432	6289.251
Stddev	.59176	128.422	187.88	30.439	140.239
%RSD	.7348503	2.278208	.2350093	.3101818	2.229818
#1	79.84516	5709.745	79843.03	9820.255	6367.757
#2	80.85743	5712.528	79829.99	9780.159	6372.654
#3	80.88235	5488.716	80161.73	9839.880	6127.342

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-07RE Acquired: 9/22/2014 19:24:18 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD8 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1137067	-.001354	.0464774	.0083429	.0023919	38.08917	.2692286
Stddev	.0010429	.000326	.0015223	.0005152	.0002479	.03249	.0003256
%RSD	.9172057	24.10740	3.275376	6.175867	10.36646	.0853021	.1209315
#1	.1148534	-.001662	.0466187	.0089301	.0026538	38.07066	.2692347
#2	.1128148	-.001388	.0448894	.0079665	.0021607	38.07016	.2695511
#3	.1134520	-.001012	.0479242	.0081320	.0023611	38.12668	.2689000

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0019550	.0004820	5.566471	.1415284	.0069019	.0888104	34.72998
Stddev	.0004716	.0000165	.016844	.0001545	.0001977	.0010205	.06425
%RSD	24.12391	3.418145	.3025981	.1091420	2.864189	1.149053	.1849957
#1	.0024543	.0004874	5.551958	.1417054	.0067702	.0899857	34.76358
#2	.0015170	.0004636	5.562514	.1414587	.0068062	.0881496	34.65590
#3	.0018937	.0004952	5.584942	.1414210	.0071292	.0882958	34.77046

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6045367	3.131729	.0198644	-.000157	.0532255	.0666656	.2862456
Stddev	.0015677	.032815	.0000536	.000295	.1995222	.0020450	.0082128
%RSD	.2593224	1.047824	.2698827	187.9977	374.8623	3.067513	2.869155
#1	.6058318	3.098860	.0198544	-.000433	.1588974	.0653847	.2789254
#2	.6027938	3.131837	.0198165	-.000191	.1776864	.0690240	.2846844
#3	.6049843	3.164490	.0199223	.000154	-.176907	.0655882	.2951270

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2877141	1.139051	-.000824	.0025091	.3229583	3.961011	.0074686
Stddev	.0630466	.002094	.001943	.0001622	.0034712	.028119	.0001652
%RSD	21.91293	.1838004	235.8545	6.462995	1.074830	.7099004	2.212292
#1	.3602762	1.137360	.001394	.0024795	.3205589	3.993418	.0075575
#2	.2565251	1.138402	-.002229	.0023638	.3269386	3.943070	.0075704
#3	.2463409	1.141393	-.001636	.0026840	.3213774	3.946544	.0072780

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-07RE Acquired: 9/22/2014 19:24:18 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD8 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.7437417	.0166190	.0434597
Stddev	.0020498	.0015358	.0001106
%RSD	.2756078	9.240926	.2544994
#1	.7416158	.0149018	.0433534
#2	.7457058	.0170945	.0435742
#3	.7439033	.0178609	.0434514

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	79.40348	5584.053	78320.48	9892.417	6009.052
Stddev	1.91391	14.092	347.82	42.126	15.436
%RSD	2.410359	.2523693	.4441017	.4258374	.2568872
#1	81.17013	5584.246	77969.17	9920.452	6018.118
#2	77.37026	5598.048	78664.71	9912.824	6017.810
#3	79.67006	5569.865	78327.56	9843.974	5991.228

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-08RE Acquired: 9/22/2014 19:28:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD9 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1903045	-.002643	.0675694	.0066124	.0020091	46.17750	.3663758
Stddev	.0012256	.000889	.0006936	.0006242	.0011362	.20971	.0023798
%RSD	.6440385	33.63147	1.026571	9.439321	56.55339	.4541330	.6495557
#1	.1912780	-.002245	.0671763	.0059970	.0033208	46.36724	.3687966
#2	.1907075	-.002022	.0683703	.0072450	.0013249	45.95233	.3640392
#3	.1889282	-.003661	.0671616	.0065953	.0013818	46.21293	.3662916

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0028687	.0006773	7.816476	.2244992	.0106100	.1717648	47.81811
Stddev	.0011091	.0000132	.037174	.0005439	.0001005	.0018514	.15959
%RSD	38.65976	1.949030	.4755847	.2422777	.9472182	1.077846	.3337516
#1	.0033458	.0006924	7.859142	.2249373	.0106002	.1731115	47.98436
#2	.0016010	.0006679	7.791069	.2238904	.0105148	.1725293	47.66613
#3	.0036595	.0006716	7.799216	.2246700	.0107151	.1696536	47.80385

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7842124	4.333976	.0457217	-.000496	.2999274	.0881303	.3440868
Stddev	.0054166	.071811	.0001588	.000285	.1545427	.0014602	.0108779
%RSD	.6907077	1.656935	.3474089	57.33961	51.52671	1.656915	3.161388
#1	.7903954	4.403821	.0455867	-.000578	.3493060	.0867850	.3528157
#2	.7803038	4.260348	.0456816	-.000731	.4237467	.0879226	.3319003
#3	.7819379	4.337757	.0458967	-.000180	.1267297	.0896832	.3475443

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5819755	1.264285	-.002080	.0028624	.4887670	4.078503	.0093139
Stddev	.0541331	.003152	.002438	.0000598	.0001447	.025565	.0005786
%RSD	9.301605	.2493275	117.2097	2.087885	.0295995	.6268113	6.212572
#1	.6067279	1.267394	.000719	.0028044	.4887822	4.105712	.0091913
#2	.5198914	1.261091	-.003737	.0028592	.4889034	4.074811	.0088064
#3	.6193072	1.264369	-.003223	.0029238	.4886153	4.054985	.0099440

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-08RE Acquired: 9/22/2014 19:28:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD9 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.8393524	.0226357	.0647476
Stddev	.0029866	.0010798	.0001633
%RSD	.3558188	4.770335	.2522736
#1	.8389669	.0237237	.0649352
#2	.8365773	.0226191	.0646367
#3	.8425130	.0215643	.0646710

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	31.47540	5641.484	79202.55	10031.36	5979.794
Stddev	1.59440	9.986	214.23	93.92	5.021
%RSD	1.956908	.1770172	.2704857	.9362643	.0839640
#1	79.63851	5632.295	78955.81	9924.16	5977.996
#2	82.28668	5652.112	79310.65	10099.16	5985.466
#3	82.50100	5640.044	79341.20	10070.76	5975.920

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-09RE Acquired: 9/22/2014 19:32:21 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9451070	-.003445	.1965687	.0184362	.0058544	59.14508	.5835913
Stddev	.0016459	.001206	.0008949	.0012592	.0002830	.08872	.0014733
%RSD	.1741492	35.01728	.4552583	6.830038	4.833647	.1499972	.2524480
#1	.9450973	-.002880	.1957255	.0197871	.0056514	59.17453	.5834903
#2	.9434660	-.002624	.1964729	.0182265	.0057342	59.04538	.5821712
#3	.9467577	-.004830	.1975076	.0172951	.0061777	59.21532	.5851125

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0037319	.0029112	17.41357	1.257197	.0443987	.8617852	106.5770
Stddev	.0004888	.0000206	.05287	.004979	.0002058	.0018984	.2645
%RSD	13.09685	.7064617	.3036423	.3960250	.4636007	.2202856	.2482105
#1	.0032446	.0028990	17.40591	1.251683	.0446015	.8607909	106.8822
#2	.0037290	.0029350	17.36493	1.258544	.0444046	.8605905	106.4348
#3	.0042221	.0028997	17.46985	1.261364	.0441900	.8639742	106.4140

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.984105	6.243284	.0518016	-.001369	.4209057	.1493888	1.081090
Stddev	.004104	.032691	.0001491	.000221	.0851797	.0020756	.025957
%RSD	.2068205	.5236139	.2878472	16.18080	20.23723	1.389388	2.400982
#1	1.982794	6.279562	.0517133	-.001148	.4370450	.1510177	1.075995
#2	1.980817	6.234178	.0519738	-.001591	.4968612	.1500970	1.109216
#3	1.988704	6.216112	.0517178	-.001366	.3288110	.1470519	1.058058

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.146267	2.749654	-.024228	.0064132	1.531714	4.577468	.0125442
Stddev	.040090	.006096	.004263	.0003003	.004692	.027120	.0003867
%RSD	1.867894	.2217107	17.59329	4.681836	.3063169	.5924601	3.082665
#1	2.124370	2.743340	-.023388	.0066528	1.535071	4.604737	.0121415
#2	2.121894	2.750116	-.020448	.0065105	1.526353	4.550500	.0125782
#3	2.192537	2.755507	-.028848	.0060764	1.533718	4.577166	.0129127

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-09RE Acquired: 9/22/2014 19:32:21 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE0 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.069527	.0425251	.1248178
Stddev	.003115	.0003227	.0004427
%RSD	.2912847	.7589293	.3547094
#1	1.072942	.0421956	.1246102
#2	1.066839	.0428407	.1245170
#3	1.068800	.0425391	.1253262

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	83.95369	5808.438	80970.08	10459.38	6009.792
Stddev	1.71162	11.291	217.42	38.83	7.792
%RSD	2.038769	.1943949	.2685227	.3712467	.1296497
#1	82.77700	5808.905	81079.90	10435.23	6015.278
#2	83.16683	5819.489	80719.65	10504.17	6013.226
#3	85.91725	5796.921	81110.69	10438.73	6000.874

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-10RE Acquired: 9/22/2014 19:36:23 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2267260	-.002855	.1014985	.0090340	.0032529	40.76604	.2579271
Stddev	.0018887	.000568	.0004063	.0014403	.0014770	.11520	.0009340
%RSD	.8330089	19.89566	.4003162	15.94356	45.40736	.2825858	.3621186
#1	.2274808	-.002201	.1017564	.0074518	.0031869	40.73994	.2570338
#2	.2245766	-.003140	.1017090	.0093812	.0047618	40.66612	.2578503
#3	.2281205	-.003225	.1010301	.0102690	.0018099	40.89204	.2588971

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0022342	.0007087	14.62101	.2477540	.0064991	.1595144	43.43046
Stddev	.0003193	.0000585	.05665	.0004483	.0001330	.0014534	.06278
%RSD	14.29335	8.256123	.3874900	.1809442	2.045663	.9111370	.1445644
#1	.0022779	.0006560	14.58073	.2473115	.0066434	.1578377	43.35807
#2	.0025295	.0006986	14.59652	.2482079	.0064724	.1602905	43.47015
#3	.0018953	.0007717	14.68579	.2477426	.0063815	.1604150	43.46316

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7486436	3.176994	.0223803	-.000348	.2088743	.0800971	.1923023
Stddev	.0040216	.016242	.0000449	.000124	.0696579	.0015237	.0114367
%RSD	.5371850	.5112426	.2007628	35.55658	33.34918	1.902323	5.947248
#1	.7508979	3.195730	.0224206	-.000472	.1381861	.0786768	.2001117
#2	.7440005	3.166898	.0223318	-.000346	.2109828	.0817066	.1791749
#3	.7510324	3.168355	.0223884	-.000225	.2774540	.0799078	.1976203

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2721258	2.298529	-.004109	.0028780	.4819617	4.427424	.0082640
Stddev	.0106934	.006414	.006747	.0002202	.0025648	.011853	.0003508
%RSD	3.929568	.2790330	164.1913	7.652297	.5321602	.2677140	4.245456
#1	.2747110	2.292382	-.003413	.0030181	.4840636	4.428276	.0078690
#2	.2603768	2.298027	.002262	.0026241	.4791039	4.415169	.0085396
#3	.2812896	2.305180	-.011178	.0029917	.4827174	4.438828	.0083833

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-10RE Acquired: 9/22/2014 19:36:23 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE1 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.6807920	.0179755	.1066452
Stddev	.0039031	.0010387	.0005581
%RSD	.5733121	5.778303	.5233700
#1	.6770455	.0169013	.1060039
#2	.6848347	.0189746	.1070207
#3	.6804956	.0180505	.1069112

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	81.67788	5721.169	80165.97	10151.22	6111.378
Stddev	.86596	5.777	205.70	32.95	6.797
%RSD	1.060216	.1009814	.2565902	.3246072	.1112152
#1	81.44808	5721.298	80088.83	10182.13	6114.299
#2	82.63557	5726.881	80009.98	10154.98	6116.226
#3	80.95000	5715.328	80399.08	10116.55	6103.609

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-11RE Acquired: 9/22/2014 19:40:25 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8952744	-.002500	.1241820	.0134308	.0050313	43.21101	.3475275
Stddev	.0075813	.000589	.0011480	.0021302	.0006764	.12070	.0004116
%RSD	.8468078	23.54476	.9244515	15.86047	13.44473	.2793270	.1184475
#1	.8885307	-.002110	.1228581	.0142212	.0054728	43.15510	.3472545
#2	.8938123	-.002214	.1249015	.0150527	.0042525	43.12839	.3480010
#3	.9034802	-.003177	.1247865	.0110183	.0053685	43.34952	.3473271

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0024802	.0010362	19.51429	1.180548	.0211588	.8493138	68.28949
Stddev	.0002652	.0000232	.01895	.004186	.0002065	.0037504	.18506
%RSD	10.69131	2.236191	.0971276	.3545611	.9759813	.4415770	.2709952
#1	.0027083	.0010209	19.49830	1.178306	.0209465	.8467039	68.41590
#2	.0025430	.0010248	19.50934	1.177960	.0211707	.8536116	68.07708
#3	.0021892	.0010628	19.53522	1.185377	.0213590	.8476260	68.37550

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9196918	5.118842	.0339595	-.000846	.3387925	.1047189	.2930891
Stddev	.0006275	.014646	.0003927	.000284	.0697042	.0015625	.0081594
%RSD	.0682324	.2861149	1.156360	33.52741	20.57429	1.492066	2.783947
#1	.9204074	5.102501	.0335225	-.000662	.3177393	.1060260	.2841783
#2	.9194326	5.123240	.0340736	-.000703	.2820418	.1029884	.2948940
#3	.9192354	5.130785	.0342826	-.001173	.4165965	.1051424	.3001949

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8451601	1.728093	-.020251	.0036482	1.068729	4.448818	.0101465
Stddev	.0191252	.014392	.002194	.0001919	.011136	.021807	.0010358
%RSD	2.262911	.8328216	10.83591	5.259549	1.041982	.4901792	10.20844
#1	.8397101	1.720767	-.022343	.0034423	1.059869	4.437567	.0104292
#2	.8293514	1.718838	-.020442	.0036803	1.065088	4.434933	.0110116
#3	.8664187	1.744674	-.017967	.0038221	1.081230	4.473952	.0089987

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-11RE Acquired: 9/22/2014 19:40:25 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE2 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.7553292	.0253272	.0920394
Stddev	.0027393	.0007841	.0002862
%RSD	.3626672	3.095954	.3109461
#1	.7539325	.0259209	.0920543
#2	.7535697	.0256223	.0917461
#3	.7584853	.0244383	.0923179

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	82.33371	5720.533	80894.63	10357.63	6048.553
Stddev	.62737	33.719	177.75	42.73	35.546
%RSD	.7619803	.5894455	.2197256	.4125063	.5876704
#1	83.05034	5726.310	80786.54	10347.08	6066.379
#2	82.06717	5750.991	81099.77	10404.64	6071.658
#3	81.88362	5684.299	80797.56	10321.16	6007.622

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-12RE Acquired: 9/22/2014 19:44:27 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3335446	-.004570	.2271202	.0177715	.0058696	51.70853	1.084400
Stddev	.0016739	.001488	.0032742	.0017783	.0004722	.09566	.001025
%RSD	.5018524	32.57231	1.441601	10.00662	8.045001	.1849974	.0945551
#1	.3316196	-.003684	.2234895	.0195490	.0063355	51.64477	1.083449
#2	.3343566	-.003737	.2280224	.0159923	.0053913	51.66231	1.084264
#3	.3346576	-.006288	.2298486	.0177733	.0058820	51.81853	1.085486

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0027615	.0030267	94.81214	.5295845	.0478716	.4669447	114.0489
Stddev	.0004034	.0000342	.00285	.0010915	.0004461	.0031370	.1279
%RSD	14.60760	1.128686	.0030042	.2061052	.9319188	.6718094	.1121122
#1	.0026089	.0029894	94.80932	.5291382	.0475302	.4655727	113.9799
#2	.0024566	.0030566	94.81209	.5287868	.0477081	.4705339	113.9705
#3	.0032189	.0030339	94.81501	.5308284	.0483764	.4647275	114.1965

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.160481	14.07287	.0634947	-.001528	.6415843	.1615936	.9522761
Stddev	.005153	.02997	.0006336	.000208	.1175794	.0018122	.0155224
%RSD	.2385086	.2129863	.9979100	13.64273	18.32641	1.121450	1.630035
#1	2.155027	14.05290	.0628761	-.001706	.7132306	.1604528	.9610718
#2	2.161147	14.10733	.0634656	-.001578	.7056362	.1636832	.9614031
#3	2.165268	14.05837	.0641423	-.001299	.5058862	.1606449	.9343534

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.63792	3.791510	.0430968	.0067417	3.483833	5.362736	.0130508
Stddev	.09145	.017566	.0028267	.0001373	.019689	.002919	.0002756
%RSD	.8596343	.4632941	6.558841	2.036889	.5651621	.0544293	2.111832
#1	10.53256	3.782642	.0430220	.0066576	3.466760	5.361425	.0127327
#2	10.69673	3.780146	.0403082	.0066673	3.479367	5.366081	.0132166
#3	10.68446	3.811742	.0459601	.0069001	3.505372	5.360703	.0132032

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-12RE Acquired: 9/22/2014 19:44:27 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE3 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.729849	.0729536	.5122622
Stddev	.006069	.0006597	.0008282
%RSD	.2223128	.9043003	.1616746
#1	2.728526	.0723480	.5113188
#2	2.724551	.0736566	.5125984
#3	2.736470	.0728560	.5128694

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	32.52095	5474.759	79117.26	10326.48	5588.152
Stddev	1.13622	20.274	161.76	37.93	21.056
%RSD	1.376888	.3703128	.2044566	.3673069	.3768028
#1	82.48655	5478.347	79080.56	10369.77	5600.407
#2	81.40232	5492.999	79294.22	10299.09	5600.209
#3	83.67398	5452.931	78977.01	10310.57	5563.838

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-13RE Acquired: 9/22/2014 19:48:27 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3080341	-.002913	.1323180	.0185308	.0040336	29.07183	.3759568
Stddev	.0013221	.001885	.0013640	.0007681	.0008486	.09392	.0004488
%RSD	.4292037	64.69305	1.030869	4.144918	21.03912	.3230511	.1193649
#1	.3065243	-.002640	.1324206	.0184299	.0041754	28.99784	.3760657
#2	.3089846	-.001180	.1309056	.0178181	.0031231	29.17749	.3763411
#3	.3085933	-.004920	.1336279	.0193443	.0048025	29.04017	.3754636

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0032483	.0010539	19.62435	.8818921	.0507130	.4259915	98.64284
Stddev	.0002811	.0001191	.03575	.0057156	.0003553	.0027661	.14115
%RSD	8.654354	11.29706	.1821556	.6481086	.7006281	.6493343	.1430958
#1	.0034847	.0010825	19.61817	.8754207	.0505673	.4229702	98.51711
#2	.0033227	.0009231	19.59209	.8840055	.0504538	.4266047	98.79553
#3	.0029374	.0011560	19.66278	.8862500	.0511180	.4283996	98.61590

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.951902	6.801042	.0435521	-.001150	.1661104	.1000695	.2365560
Stddev	.000356	.054525	.0002444	.000350	.1656938	.0037789	.0077217
%RSD	.0182640	.8017175	.5611966	30.46099	99.74922	3.776264	3.264217
#1	1.952314	6.834446	.0432806	-.000878	.0742709	.0967740	.2437287
#2	1.951702	6.738122	.0437545	-.001028	.3573868	.1041941	.2375564
#3	1.951691	6.830558	.0436211	-.001545	.0666734	.0992405	.2283829

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.353756	3.387637	-.031861	.0048966	2.363754	4.757124	.0088158
Stddev	.024156	.008284	.014247	.0001208	.007927	.031549	.0005259
%RSD	1.784347	.2445443	44.71444	2.466355	.3353692	.6632019	5.965074
#1	1.329037	3.378233	-.039879	.0050186	2.359053	4.792831	.0091893
#2	1.377306	3.390821	-.015413	.0047771	2.359303	4.745525	.0082144
#3	1.354927	3.393857	-.040293	.0048942	2.372907	4.733015	.0090437

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-13RE Acquired: 9/22/2014 19:48:27 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE4 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.6945827	.0338999	.1123044
Stddev	.0021348	.0011184	.0003012
%RSD	.3073489	3.299206	.2681885
#1	.6960596	.0344737	.1119570
#2	.6921350	.0346149	.1124924
#3	.6955535	.0326110	.1124637

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	31.29831	5654.646	79239.11	10163.08	5913.998
Stddev	.57523	11.595	334.95	26.68	16.576
%RSD	.7075567	.2050561	.4227017	.2625159	.2802764
#1	80.63472	5667.878	79622.96	10164.33	5921.497
#2	81.65503	5646.256	79006.15	10189.11	5925.498
#3	81.60518	5649.805	79088.23	10135.79	5894.998

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-14RE Acquired: 9/22/2014 19:52:27 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4435759	-.006611	.2161262	.0713122	.0131787	51.31217	1.539752
Stddev	.0023394	.001383	.0016843	.0015177	.0013487	.33064	.006966
%RSD	.5274011	20.91308	.7792906	2.128265	10.23373	.6443607	.4523945
#1	.4429709	-.005109	.2169169	.0715661	.0147180	51.54426	1.544124
#2	.4415984	-.007831	.2141921	.0726869	.0126138	50.93360	1.531719
#3	.4461584	-.006893	.2172697	.0696835	.0122043	51.45865	1.543414

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0102925	.0036752	45.94896	.7862654	.0489044	.2012398	443.4557
Stddev	.0002035	.0001662	.23016	.0039906	.0002069	.0010250	2.8904
%RSD	1.977389	4.522222	.5009128	.5075419	.4229870	.5093325	.6517901
#1	.0100611	.0034909	46.15308	.7824857	.0486834	.2018037	446.2564
#2	.0103723	.0037212	45.69950	.7858726	.0490933	.2018590	440.4833
#3	.0104440	.0038136	45.99429	.7904379	.0489364	.2000567	443.6275

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.930292	8.436770	.0591975	-.006903	.7347609	.2987149	.3764376
Stddev	.012670	.080302	.0002008	.000281	.0510013	.0020359	.0198237
%RSD	.6563551	.9518114	.3391144	4.066702	6.941205	.6815464	5.266135
#1	1.941197	8.510238	.0590970	-.006601	.6856071	.2995385	.3803459
#2	1.916394	8.351044	.0590669	-.006950	.7874280	.2963962	.3549508
#3	1.933286	8.449029	.0594287	-.007157	.7312477	.3002099	.3940160

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.961666	5.253052	-.167877	.0066838	1.617015	3.479318	.0125308
Stddev	.030343	.011698	.009263	.0002282	.001524	.052558	.0006077
%RSD	1.024536	.2226855	5.517549	3.413636	.0942699	1.510592	4.849446
#1	2.982719	5.254346	-.162526	.0066300	1.615589	3.539142	.0123966
#2	2.926885	5.240762	-.178572	.0064874	1.618621	3.440564	.0131943
#3	2.975395	5.264050	-.162532	.0069341	1.616836	3.458248	.0120014

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-14RE Acquired: 9/22/2014 19:52:27 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE5 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.256007	.0397283	.1701679
Stddev	.006199	.0004838	.0006539
%RSD	.4935178	1.217746	.3842655
#1	1.260104	.0393785	.1703611
#2	1.248876	.0395261	.1694392
#3	1.259042	.0402804	.1707035

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	30.98562	5627.908	78605.60	10238.51	5732.698
Stddev	2.14831	11.703	318.06	112.01	8.454
%RSD	2.652704	.2079525	.4046256	1.093981	.1474779
#1	79.92130	5630.349	78901.46	10112.92	5730.783
#2	83.45831	5638.199	78646.12	10328.06	5741.945
#3	79.57725	5615.177	78269.22	10274.56	5725.365

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-15RE Acquired: 9/22/2014 19:56:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE6 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2043993	-.002170	.1639047	.0123848	.0037369	35.27731	.7284406
Stddev	.0014784	.000920	.0012491	.0017505	.0011665	.04186	.0034115
%RSD	.7233055	42.37896	.7620613	14.13410	31.21556	.1186540	.4683320
#1	.2031998	-.001223	.1625439	.0122681	.0034565	35.23044	.7250199
#2	.2039472	-.002228	.1649991	.0141907	.0027362	35.29050	.7318429
#3	.2060510	-.003059	.1641711	.0106956	.0050181	35.31098	.7284590

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0020552	.0019975	30.52924	.4041060	.0292113	.3648387	72.54302
Stddev	.0004844	.0000274	.06252	.0023465	.0001067	.0009923	.09721
%RSD	23.56767	1.372107	.2047740	.5806649	.3651323	.2719826	.1339997
#1	.0016122	.0020181	30.46012	.4016437	.0290882	.3639166	72.61338
#2	.0019811	.0019664	30.54578	.4043579	.0292700	.3658888	72.58358
#3	.0025724	.0020080	30.58183	.4063164	.0292758	.3647107	72.43210

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.123925	3.269542	.0395364	-.000602	.4594375	.1102954	.7285953
Stddev	.004104	.018464	.0002163	.000265	.0873597	.0015449	.0196213
%RSD	.3651239	.2232755	.5469877	44.05110	19.01449	1.400667	2.693026
#1	1.120099	8.249200	.0396536	-.000780	.5386710	.1092546	.7436907
#2	1.128259	8.274183	.0392869	-.000297	.4738879	.1120704	.7356795
#3	1.123417	8.285242	.0396689	-.000730	.3657536	.1095610	.7064158

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.003775	2.374707	.0069650	.0047155	2.716903	3.771691	.0109961
Stddev	.117400	.004932	.0066214	.0002664	.006290	.011161	.0002126
%RSD	1.955441	.2076704	95.06695	5.648733	.2315036	.2959245	1.933059
#1	5.872437	2.369649	-.000646	.0047956	2.718987	3.777145	.0109661
#2	6.040366	2.379502	.011404	.0044182	2.721886	3.779076	.0108001
#3	6.098522	2.374969	.010137	.0049326	2.709835	3.758851	.0112221

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-15RE Acquired: 9/22/2014 19:56:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE6 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.580074	.0452048	.1707900
Stddev	.004509	.0005959	.0005089
%RSD	.2853350	1.318250	.2979642
#1	1.576073	.0445182	.1703101
#2	1.584959	.0455086	.1713236
#3	1.579192	.0455875	.1707362

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	79.97324	5511.810	78105.59	10011.21	5885.244
Stddev	.38417	17.443	279.08	36.80	13.370
%RSD	.4803748	.3164659	.3573108	.3676262	.2271817
#1	79.72716	5504.484	78368.55	10053.64	5875.394
#2	79.77662	5499.224	78135.44	9991.97	5879.873
#3	80.41592	5531.721	77812.79	9988.01	5900.465

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-16RE Acquired: 9/22/2014 20:00:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1200318	-.003629	.1180380	.0175030	.0032233	53.90444	.2255763
Stddev	.0013459	.000647	.0017772	.0015285	.0008255	.09529	.0003074
%RSD	1.121274	17.83789	1.505615	8.732619	25.61080	.1767831	.1362531
#1	.1197715	-.003129	.1160511	.0192676	.0025321	53.92353	.2256645
#2	.1188351	-.004360	.1194760	.0165894	.0041374	53.80105	.2252344
#3	.1214888	-.003398	.1185869	.0166521	.0030005	53.98875	.2258298

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0044174	.0010199	57.52196	.2463971	.0313876	.1197305	104.9629
Stddev	.0004568	.0000772	.04915	.0043740	.0000434	.0019057	.1868
%RSD	10.33980	7.571088	.0854461	1.775174	.1384163	1.591691	.1779543
#1	.0039271	.0009460	57.46521	.2416293	.0314230	.1181303	105.1786
#2	.0048309	.0011001	57.54998	.2473379	.0314007	.1218388	104.8562
#3	.0044942	.0010134	57.55069	.2502241	.0313391	.1192224	104.8539

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.268092	14.04002	.0490978	-.001215	.3962107	.1780643	.2576729
Stddev	.001382	.06899	.0002401	.000294	.0724996	.0021043	.0105296
%RSD	.1090172	.4913805	.4890338	24.20448	18.29825	1.181783	4.086418
#1	1.267030	14.03173	.0491023	-.000936	.3181822	.1804753	.2456323
#2	1.267590	13.97556	.0493357	-.001187	.4089597	.1765970	.2622306
#3	1.269655	14.11279	.0488556	-.001523	.4614902	.1771205	.2651559

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.391987	1.918294	-.035210	.0042810	1.050783	4.789571	.0108134
Stddev	.075580	.001491	.003851	.0001012	.005514	.011368	.0009477
%RSD	5.429674	.0777010	10.93704	2.362805	.5247086	.2373483	8.764141
#1	1.479187	1.920015	-.030764	.0042647	1.051217	4.788155	.0097625
#2	1.351480	1.917422	-.037415	.0043893	1.045066	4.778978	.0116032
#3	1.345295	1.917446	-.037452	.0041890	1.056067	4.801581	.0110746

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-16RE Acquired: 9/22/2014 20:00:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE7 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.360506	.0848530	.1611175
Stddev	.002253	.0002244	.0006706
%RSD	.1656120	.2644177	.4162089
#1	1.361231	.0846952	.1614626
#2	1.362307	.0847539	.1603446
#3	1.357979	.0851098	.1615452

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	31.01057	5586.530	78962.98	10035.20	5749.442
Stddev	2.14113	10.390	1020.48	18.63	10.848
%RSD	2.643032	.1859882	1.292353	.1856338	.1886755
#1	81.85267	5583.912	80096.98	10013.70	5752.816
#2	78.57641	5597.979	78673.34	10046.45	5758.202
#3	82.60263	5577.700	78118.64	10045.46	5737.308

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-17RE Acquired: 9/22/2014 20:04:23 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE8 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3671807	-.004279	.1036799	.0226314	.0045033	42.59224	.3035137
Stddev	.0007759	.001440	.0011277	.0023860	.0014986	.02576	.0008033
%RSD	.2113059	33.65418	1.087627	10.54309	33.27698	.0604850	.2646768
#1	.3665983	-.002622	.1024014	.0204948	.0040231	42.56786	.3043990
#2	.3668824	-.005225	.1041059	.0221931	.0061832	42.58968	.3028312
#3	.3680615	-.004991	.1045326	.0252062	.0033037	42.61919	.3033109

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0046692	.0012917	19.67155	.5601208	.0502375	.2943264	143.7864
Stddev	.0004261	.0000520	.05751	.0013679	.0003007	.0015154	.3827
%RSD	9.124865	4.025813	.2923406	.2442178	.5985101	.5148688	.2661629
#1	.0042830	.0013383	19.60870	.5601825	.0499884	.2954777	143.3581
#2	.0045984	.0012356	19.72153	.5614569	.0501526	.2926096	144.0948
#3	.0051262	.0013013	19.68441	.5587231	.0505715	.2948919	143.9064

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.623564	4.029604	.0522798	-.001900	.3979301	.1397255	.2130438
Stddev	.006028	.035776	.0006560	.000155	.1206787	.0010884	.0106895
%RSD	.3712686	.8878257	1.254826	8.162178	30.32661	.7789611	5.017515
#1	1.616856	4.026029	.0524493	-.001768	.4923719	.1405204	.2020968
#2	1.625312	4.067033	.0515556	-.001862	.2619741	.1384850	.2234557
#3	1.628525	3.995750	.0528344	-.002071	.4394443	.1401711	.2135790

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.727556	2.193658	-.044777	.0063391	1.304273	4.692437	.0084376
Stddev	.056921	.006506	.010230	.0001422	.007364	.017522	.0002660
%RSD	2.086882	.2965647	22.84713	2.243564	.5646310	.3734151	3.152936
#1	2.666361	2.186250	-.050180	.0064236	1.301557	4.672487	.0083117
#2	2.778923	2.196283	-.032978	.0061749	1.298653	4.699494	.0082578
#3	2.737382	2.198441	-.051174	.0064188	1.312610	4.705330	.0087432

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-17RE Acquired: 9/22/2014 20:04:23 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE8 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.8114566	.0264375	.1050108
Stddev	.0015445	.0004812	.0002313
%RSD	.1903316	1.820003	.2202262
#1	.8102440	.0260539	.1051047
#2	.8109304	.0262811	.1047473
#3	.8131954	.0269773	.1051803

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	33.60208	5892.319	31765.63	10479.02	6035.680
Stddev	2.03017	10.696	101.68	78.28	9.068
%RSD	2.428376	.1815325	.1243513	.7470050	.1502419
#1	84.10586	5884.150	81881.54	10554.92	6029.234
#2	81.36745	5904.426	81723.87	10398.57	6046.050
#3	85.33293	5888.381	81691.49	10483.58	6031.758

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-18RE Acquired: 9/22/2014 20:08:23 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE9 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2623797	-.003190	.1065084	.0157933	.0026824	31.85092	.2448429
Stddev	.0005686	.001188	.0010855	.0009304	.0009107	.04756	.0015199
%RSD	.2166933	37.25134	1.019172	5.890919	33.94986	.1493325	.6207636
#1	.2625476	-.001979	.1066571	.0167958	.0034451	31.90376	.2446136
#2	.2617461	-.004355	.1075120	.0149577	.0016741	31.83744	.2464644
#3	.2628455	-.003237	.1053563	.0156262	.0029279	31.81154	.2434506

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0037835	.0008133	13.31576	.3801221	.0351144	.2626232	90.51389
Stddev	.0006716	.0000124	.04039	.0007058	.0003642	.0027881	.08492
%RSD	17.74930	1.519287	.3033561	.1856679	1.037183	1.061642	.0938206
#1	.0035757	.0008011	13.32771	.3793079	.0352801	.2602886	90.57342
#2	.0045344	.0008130	13.34883	.3805600	.0346967	.2657103	90.55161
#3	.0032404	.0008258	13.27074	.3804984	.0353662	.2618707	90.41664

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.137142	3.947822	.0318527	-.001428	.3065745	.0998200	.2198809
Stddev	.004519	.009938	.0001908	.000066	.0472378	.0028298	.0090056
%RSD	.3973839	.2517235	.5990102	4.599213	15.40825	2.834903	4.095669
#1	1.141083	3.957542	.0320719	-.001402	.3584904	.0983383	.2094983
#2	1.138132	3.948243	.0317238	-.001378	.2951065	.1030830	.2245705
#3	1.132210	3.937680	.0317625	-.001502	.2661266	.0980387	.2255740

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8524876	1.558843	-.022479	.0035006	1.325853	4.403183	.0087217
Stddev	.1114137	.010858	.005442	.0002065	.008755	.020550	.0003078
%RSD	13.06924	.6965173	24.21161	5.899878	.6602948	.4667182	3.529499
#1	.7853617	1.556961	-.026376	.0033700	1.318693	4.412184	.0084791
#2	.9810958	1.549050	-.024800	.0033930	1.323253	4.417697	.0086180
#3	.7910055	1.570519	-.016261	.0037387	1.335613	4.379668	.0090680

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-18RE Acquired: 9/22/2014 20:08:23 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AE9 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.7653905	.0316932	.0963622
Stddev	.0064464	.0008711	.0003093
%RSD	.8422402	2.748646	.3209240
#1	.7727274	.0313200	.0963980
#2	.7628101	.0326888	.0966520
#3	.7606340	.0310708	.0960366

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	32.48629	5753.983	30955.51	10285.90	6038.347
Stddev	1.52181	38.599	179.89	47.62	39.518
%RSD	1.844923	.6708163	.2222141	.4629780	.6544582
#1	83.47483	5759.924	81124.20	10247.13	6045.245
#2	83.25020	5789.266	80976.14	10271.52	6073.962
#3	80.73385	5712.758	80766.19	10339.06	5995.834

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-19RE Acquired: 9/22/2014 20:12:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1111743	-.005337	.1569466	.0267267	.0049299	51.38795	.4042144
Stddev	.0014665	.000762	.0020078	.0007008	.0005932	.06314	.0007374
%RSD	1.319076	14.28503	1.279318	2.622147	12.03218	.1228641	.1824173
#1	.1124234	-.006166	.1551303	.0275310	.0042518	51.32305	.4033654
#2	.1115398	-.005178	.1591026	.0262474	.0053528	51.44917	.4046940
#3	.1095596	-.004666	.1566068	.0264015	.0051850	51.39162	.4045839

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0068611	.0028331	414.9026	.2229079	.1045524	.1515152	160.8791
Stddev	.0001887	.0000681	.4629	.0010686	.0002562	.0009052	.2111
%RSD	2.750398	2.403423	.1115613	.4793931	.2450043	.5974116	.1312008
#1	.0066707	.0027623	414.3687	.2218183	.1042634	.1523898	160.7494
#2	.0070480	.0028981	415.1484	.2229512	.1047516	.1505823	161.1226
#3	.0068647	.0028389	415.1908	.2239542	.1046422	.1515734	160.7652

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.934031	19.65684	.0611614	-.002826	1.384072	.1511625	.3322302
Stddev	.007979	.07370	.0001566	.000197	.055125	.0029354	.0094188
%RSD	.2719383	.3749343	.2561115	6.965174	3.982802	1.941893	2.835031
#1	2.930189	19.57592	.0612524	-.002896	1.320492	.1538498	.3298455
#2	2.943204	19.67447	.0609805	-.002603	1.418502	.1516078	.3242329
#3	2.928700	19.72012	.0612512	-.002977	1.413221	.1480298	.3426121

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.217798	2.994464	-.052330	.0093224	6.687592	9.540180	.0084520
Stddev	.015808	.005115	.011553	.0003942	.019510	.030595	.0004054
%RSD	.4912561	.1708223	22.07638	4.228363	.2917372	.3206917	4.796611
#1	3.225875	2.989367	-.054930	.0096144	6.666333	9.506276	.0079847
#2	3.199584	2.994426	-.062361	.0094789	6.691766	9.565731	.0087101
#3	3.227935	2.999597	-.039699	.0088740	6.704678	9.548533	.0086612

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-19RE Acquired: 9/22/2014 20:12:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF0 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.585757	.0832585	.4818865
Stddev	.005660	.0006803	.0008533
%RSD	.3569375	.8171376	.1770702
#1	1.582415	.0836550	.4809012
#2	1.582564	.0824729	.4823807
#3	1.592292	.0836476	.4823776

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	30.06312	5531.868	77544.12	10366.22	5379.180
Stddev	1.20905	3.162	114.92	15.47	12.443
%RSD	1.510123	.0571513	.1482002	.1492435	.2313192
#1	78.98406	5533.491	77615.13	10367.23	5393.092
#2	81.36981	5533.889	77605.70	10350.26	5375.334
#3	79.83549	5528.225	77411.54	10381.16	5369.114

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-20RE Acquired: 9/22/2014 20:16:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AG4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1164486	-.003245	.1466141	.0095772	.0011382	40.46754	.3787290
Stddev	.0016023	.000784	.0018401	.0015214	.0004777	.20433	.0019836
%RSD	1.376002	24.16819	1.255065	15.88597	41.96712	.5049334	.5237419
#1	.1159677	-.004037	.1469501	.0095257	.0007451	40.66420	.3809585
#2	.1151418	-.003229	.1446291	.0080822	.0009997	40.25632	.3771599
#3	.1182363	-.002468	.1482630	.0111238	.0016698	40.48211	.3780686

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0020758	.0013685	13.08660	.1834692	.0127325	.1110452	53.52933
Stddev	.0000575	.0000500	.06194	.0004873	.0002926	.0018986	.19128
%RSD	2.768877	3.654137	.4733412	.2655744	2.297948	1.709763	.3573281
#1	.0020701	.0013140	13.14339	.1832859	.0128258	.1091183	53.71104
#2	.0021359	.0013789	13.02054	.1831001	.0124047	.1129142	53.32974
#3	.0020214	.0014124	13.09587	.1840215	.0129671	.1111031	53.54720

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.627708	3.685187	.0244188	-.000180	.2299816	.1129686	.3690215
Stddev	.011370	.017111	.0000883	.000127	.1747722	.0016861	.0009245
%RSD	.4326852	.4643054	.3616063	70.79058	75.99398	1.492577	.2505211
#1	2.640834	3.704833	.0243170	-.000033	.3129521	.1139479	.3700764
#2	2.620942	3.673550	.0244645	-.000244	.3478143	.1139363	.3686353
#3	2.621347	3.677177	.0244749	-.000262	.0291783	.1110216	.3683527

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1627569	2.687715	-.012538	.0035781	2.119603	4.478616	.0138257
Stddev	.0219532	.017681	.002703	.0003800	.020416	.017072	.0003917
%RSD	13.48832	.6578297	21.55451	10.61917	.9632001	.3811846	2.833235
#1	.1880794	2.671647	-.010829	.0032990	2.103410	4.473762	.0134897
#2	.1490859	2.684840	-.011132	.0034244	2.112863	4.464496	.0137315
#3	.1511053	2.706656	-.015654	.0040108	2.142537	4.497589	.0142559

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-20RE Acquired: 9/22/2014 20:16:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AG4 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.4202974	.0248186	.0783899
Stddev	.0029881	.0007017	.0003573
%RSD	.7109522	2.827357	.4558396
#1	.4228842	.0250443	.0787098
#2	.4170266	.0253797	.0780043
#3	.4209814	.0240318	.0784555

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	83.03367	5796.920	79621.14	10287.07	6093.305
Stddev	.10660	23.324	42.88	45.51	19.016
%RSD	.1283767	.4023457	.0538606	.4424454	.3120856
#1	82.91683	5806.947	79576.82	10251.57	6098.897
#2	83.12562	5813.554	79624.15	10338.39	6108.898
#3	83.05855	5770.260	79662.43	10271.26	6072.119

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-21RE Acquired: 9/22/2014 20:20:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AG5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0399643	-.003202	.1665166	.0146020	.0027964	64.61820	.5097865
Stddev	.0000173	.000616	.0009413	.0017522	.0007388	.76012	.0053545
%RSD	.0433711	19.23915	.5653044	11.99999	26.41976	1.176318	1.050350
#1	.0399843	-.003913	.1675958	.0151730	.0020618	64.17590	.5076956
#2	.0399558	-.002854	.1660890	.0126355	.0035393	64.18281	.5057930
#3	.0399529	-.002839	.1658649	.0159975	.0027882	65.49590	.5158711

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0022609	.0018591	20.91217	.1024184	.0202199	.0756540	32.94459
Stddev	.0008764	.0000145	.23117	.0038056	.0003455	.0016475	.97392
%RSD	38.76426	.7807094	1.105432	3.715718	1.708502	2.177626	1.174187
#1	.0030349	.0018758	20.78142	.0980366	.0204512	.0739526	82.43505
#2	.0013093	.0018506	20.77601	.1043221	.0203857	.0772416	82.33115
#3	.0024387	.0018507	21.17909	.1048964	.0198228	.0757678	84.06758

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.137262	7.161877	.0329584	-.000738	.2922077	.1866817	.3460272
Stddev	.036372	.091251	.0007797	.000183	.2636407	.0024343	.0098504
%RSD	1.159350	1.274125	2.365623	24.80657	90.22373	1.303976	2.846699
#1	3.119036	7.101977	.0326581	-.000690	.5560945	.1882168	.3347503
#2	3.113606	7.116755	.0323736	-.000940	.2917149	.1838749	.3503797
#3	3.179143	7.266899	.0338436	-.000584	.0288138	.1879532	.3529515

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.332907	3.208491	-.016173	.0062195	3.213665	4.643592	.0108487
Stddev	.100609	.012797	.009545	.0002217	.005421	.054400	.0007943
%RSD	4.312599	.3988422	59.01608	3.565275	.1686782	1.171499	7.321368
#1	2.267534	3.212033	-.014776	.0064038	3.210597	4.612646	.0116600
#2	2.282426	3.194296	-.007404	.0059734	3.210474	4.611724	.0100726
#3	2.448762	3.219144	-.026339	.0062813	3.219924	4.706405	.0108133

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-21RE Acquired: 9/22/2014 20:20:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AG5 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.6918537	.0562120	.1104350
Stddev	.0096529	.0012389	.0011894
%RSD	1.395225	2.203891	1.077038
#1	.6852391	.0558248	.1097001
#2	.6873915	.0552130	.1097976
#3	.7029304	.0575982	.1118072

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	31.98513	5746.758	30257.65	10291.47	5914.532
Stddev	1.98007	19.302	2299.33	128.67	4.218
%RSD	2.415153	.3358817	2.864931	1.250241	.0713141
#1	84.09000	5737.061	82909.64	10423.67	5910.226
#2	81.70586	5768.987	78821.57	10284.08	5918.656
#3	80.15952	5734.228	79041.75	10166.65	5914.714

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-22RE Acquired: 9/22/2014 20:24:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AG6 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6658877	-.003716	.3478037	.0183729	.0058837	51.72107	.3860216
Stddev	.0052788	.001748	.0042223	.0008755	.0012737	.29454	.0010406
%RSD	.7927505	47.03256	1.214003	4.765079	21.64881	.5694690	.2695693
#1	.6644739	-.001756	.3466619	.0178035	.0066322	51.52768	.3850936
#2	.6614596	-.004280	.3442697	.0179342	.0044129	51.57548	.3858245
#3	.6717294	-.005111	.3524795	.0193810	.0066058	52.06005	.3871466

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0034166	.0056084	9.095643	.3681201	.0170806	.3993696	105.6098
Stddev	.0005958	.0000498	.059158	.0017877	.0001642	.0004025	.3031
%RSD	17.43994	.8879516	.6503977	.4856212	.9611159	.1007891	.2870259
#1	.0038668	.0055581	9.097185	.3660700	.0169704	.3990296	105.6107
#2	.0027409	.0056576	9.035730	.3689363	.0170021	.3998140	105.3062
#3	.0036421	.0056095	9.154015	.3693539	.0172693	.3992650	105.9125

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.972193	4.113443	.0343720	-.001177	.4964291	.1366030	1.047901
Stddev	.005348	.035748	.0004006	.000010	.0330937	.0007996	.016657
%RSD	.2711751	.8690495	1.165505	.8794705	6.666357	.5853677	1.589517
#1	1.970009	4.074264	.0339563	-.001188	.4706231	.1361478	1.050645
#2	1.968282	4.121777	.0344042	-.001167	.4849246	.1361350	1.030043
#3	1.978287	4.144287	.0347555	-.001177	.5337398	.1375263	1.063015

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5664085	2.664146	-.034528	.0044187	1.667638	4.504525	.0113180
Stddev	.0808201	.018457	.007679	.0002555	.013283	.023757	.0003498
%RSD	14.26886	.6927963	22.23937	5.782896	.7965285	.5274014	3.090845
#1	.5663409	2.656854	-.042480	.0047024	1.672836	4.530943	.0117141
#2	.4856223	2.650449	-.027154	.0043472	1.652542	4.484916	.0111888
#3	.6472624	2.685135	-.033951	.0042065	1.677537	4.497715	.0110512

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3940-22RE Acquired: 9/22/2014 20:24:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AG6 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.5426404	.0274541	.0664137
Stddev	.0010856	.0006781	.0000612
%RSD	.2000519	2.470103	.0921641
#1	.5415947	.0279133	.0663494
#2	.5437619	.0277739	.0664205
#3	.5425646	.0266752	.0664712

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	82.56609	5823.238	80596.60	10316.89	6047.854
Stddev	2.19909	29.343	275.08	61.64	29.857
%RSD	2.663428	.5039026	.3413099	.5974775	.4936717
#1	83.15000	5840.133	80430.46	10311.58	6064.103
#2	84.41429	5840.227	80445.21	10381.01	6066.061
#3	80.13397	5789.356	80914.12	10258.07	6013.397

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCV69 Acquired: 9/22/2014 20:44:41 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV69 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.843697	4.993676	25.83392	4.729812	4.869876	397.5451	10.42958
Stddev	.013157	.015801	.05905	.013653	.002345	1.2305	.07095
%RSD	.2716222	.3164262	.2285597	.2886535	.0481504	.3095244	.6802793
#1	4.846094	4.994677	25.78720	4.730058	4.870286	396.4086	10.47950
#2	4.829507	4.977398	25.81428	4.716038	4.867353	398.8518	10.34836
#3	4.855491	5.008953	25.90028	4.743340	4.871989	397.3749	10.46087

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5019037	2.501851	410.7686	15.88001	2.550267	15.56151	388.7252
Stddev	.0033141	.005694	.9629	.07150	.006705	.04489	1.3657
%RSD	.6603114	.2275738	.2344243	.4502774	.2629212	.2884516	.3513162
#1	.5015301	2.501539	410.2425	15.96167	2.548109	15.51097	387.6745
#2	.5053887	2.496319	411.8799	15.84975	2.544906	15.59677	390.2689
#3	.4987921	2.507694	410.1832	15.82861	2.557786	15.57677	388.2321

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.62012	393.7040	2.465199	1.359665	394.8013	2.580238	14.00295
Stddev	.05076	1.5096	.007841	.003883	1.3542	.004884	.15561
%RSD	.3249354	.3834471	.3180651	.2855492	.3430191	.1892668	1.111276
#1	15.58047	392.9305	2.461753	1.363526	393.5918	2.575027	13.94094
#2	15.67732	395.4436	2.459670	1.359708	396.2644	2.584709	13.88790
#3	15.60256	392.7378	2.474172	1.355761	394.5477	2.580979	14.18000

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	158.9157	5.067732	4.821055	4.660286	5.078746	5.260728	4.939669
Stddev	.1979	.006310	.024490	.011073	.017775	.001456	.010610
%RSD	.1245370	.1245217	.5079810	.2376062	.3499857	.0276805	.2147886
#1	158.8966	5.067169	4.792796	4.666625	5.075470	5.262393	4.935898
#2	159.1224	5.061721	4.836101	4.647500	5.062837	5.259693	4.931460
#3	158.7280	5.074305	4.834268	4.666734	5.097931	5.260098	4.951649

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCV69 Acquired: 9/22/2014 20:44:41 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV69 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.966046	5.233509	5.324243
Stddev	.017881	.006268	.020733
%RSD	.3600643	.1197701	.3894053
#1	4.953705	5.228387	5.343851
#2	4.986552	5.240499	5.302544
#3	4.957881	5.231642	5.326332

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	68.77020	4773.500	66916.79	9322.297	4551.221
Stddev	.93437	11.911	226.07	39.232	4.646
%RSD	1.358683	.2495293	.3378391	.4208444	.1020749
#1	68.66022	4759.747	66745.01	9289.081	4547.135
#2	69.75469	4780.292	66832.44	9312.226	4556.274
#3	67.89568	4780.462	67172.90	9365.583	4550.255

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCB69 Acquired: 9/22/2014 20:48:41 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB69 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001321	.0009403	-.000911	-.000491	-.000823	-.002574	-.000074
Stddev	.001448	.0006154	.000714	.001053	.000174	.011725	.000478
%RSD	109.6304	65.44912	78.43817	214.3755	21.17388	455.4409	642.3330
#1	-.002992	.0004384	-.001337	-.001636	-.000925	-.008459	-.000615
#2	-.000510	.0007556	-.001309	-.000274	-.000922	-.010192	.000296
#3	-.000460	.0016269	-.000086	.000436	-.000622	.010928	.000095

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000049	-.000004	-.000036	.0001603	-.000147	-.002592	.0104213
Stddev	.000457	.000028	.008059	.0001367	.000073	.001213	.0081307
%RSD	923.3918	785.8783	22385.78	85.28034	49.75766	46.80177	78.01951
#1	-.000159	.000026	.008273	.0000619	-.000229	-.002722	.0133418
#2	-.000441	-.000029	-.000560	.0001026	-.000125	-.001319	.0166884
#3	.000452	-.000007	-.007820	.0003164	-.000088	-.003734	.0012338

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000011	-.003425	-.000150	.0004984	-.024685	.0000442	.0036934
Stddev	.000740	.012567	.000088	.0002404	.129663	.0004959	.0035107
%RSD	6592.596	366.9534	58.21536	48.22603	525.2602	1121.983	95.05309
#1	.000705	-.013872	-.000236	.0007759	-.102645	.0003328	-.000354
#2	.000034	-.006923	-.000154	.0003670	.124993	.0003282	.005913
#3	-.000773	.010520	-.000061	.0003524	-.096404	-.000528	.005521

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1816859	-.001590	-.001621	.0013858	-.002903	-.003631	.0000145
Stddev	.0608555	.000601	.005620	.0003744	.000908	.005583	.0003355
%RSD	33.49492	37.80471	346.8186	27.01314	31.28782	153.7572	2320.939
#1	.2293683	-.002047	.003494	.0017634	-.003745	-.009930	-.000085
#2	.1131436	-.001813	-.007637	.0013792	-.003022	-.001668	.000388
#3	.2025458	-.000909	-.000719	.0010148	-.001941	.000705	-.000260

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCB69 Acquired: 9/22/2014 20:48:41 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB69 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0013539	.0024004	.000042
Stddev	.0003033	.0000913	.000100
%RSD	22.39916	3.805245	237.4684
#1	.0016998	.0024288	-.000053
#2	.0011335	.0022982	.000063
#3	.0012285	.0024742	-.000135

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	78.55784	5672.107	76953.83	9645.521	6257.678
Stddev	.98362	5.567	165.43	27.888	9.920
%RSD	1.252101	.0981416	.2149734	.2891258	.1585234
#1	77.77223	5675.809	76820.22	9674.176	6267.789
#2	78.24028	5665.705	76902.40	9643.918	6257.283
#3	79.66102	5674.806	77138.87	9618.470	6247.961

CHEMTECH

Instrument ID: P5

284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Daily Analysis Runlog For Sequence/QCBatch ID # LB72859

Review By	BIN	Review On	9/23/2014 10:43:36 AM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

Sr#	SampleId	ClientID	QcType	Date	Comment	Status
1	S0	S0	CAL1	09/22/14 16:41		OK
2	S1	S1	CAL2	09/22/14 16:45		OK
3	S2	S2	CAL3	09/22/14 16:49		OK
4	S3	S3	CAL4	09/22/14 16:53		OK
5	S4	S4	CAL5	09/22/14 16:57		OK
6	S5	S5	CAL6	09/22/14 17:01		OK
7	S6	S6	CAL7	09/22/14 17:05		OK
8	ICV55	ICV55	ICV	09/22/14 17:29		OK
9	ICB55	ICB55	ICB	09/22/14 17:33		OK
10	ICSA55	ICSA55	ICSA	09/22/14 17:37		OK
11	ICSAB55	ICSAB55	ICSAB	09/22/14 17:41		OK
12	CCV67	CCV67	CCV	09/22/14 17:45		OK
13	CCB67	CCB67	CCB	09/22/14 17:49		OK
14	F3847-01	ME42Z2	SAM	09/22/14 17:53		OK
15	F3847-02	ME42Z3	SAM	09/22/14 17:57		OK
16	F3847-11	ME4301	SAM	09/22/14 18:01		OK
17	F3847-12	ME4302	SAM	09/22/14 18:04		OK
18	F3847-03	ME42Z5	SAM	09/22/14 18:08	Report 10X for Fe	Confirms
19	F3847-05	ME42Z7	SAM	09/22/14 18:12	Report 10X for Fe,Ni	Confirms
20	F3847-06	ME42Z8	SAM	09/22/14 18:16	Report 10X for Ni	Confirms
21	F3847-07	ME42Z9	SAM	09/22/14 18:20	Report 10X for Fe,Ni	Confirms

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ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

22	F3847-13	ME4303	SAM	09/22/14 18:24	Report 10X for Fe,Ni	Confirms
23	F3847-08A	ME4300A	PS	09/22/14 18:28	Not required	Not Ok
24	F3976-04A	MB0AD7A	PS	09/22/14 18:32	PS for Sb,Mn	OK
25	F3939-08A	MC0AK1A	PS	09/22/14 18:36	PS for Cr	OK
26	PB78988BL	PBS01	MB	09/22/14 18:40		OK
27	PB78988BS	LCS01	LCS	09/22/14 18:44		OK
28	F3940-01	MC0AD4	SAM	09/22/14 18:48		OK
29	F3940-02	MC0AD5	SAM	09/22/14 18:52		OK
30	F3940-03	MC0AD6	SAM	09/22/14 18:56		OK
31	F3940-04	MC0AD7	SAM	09/22/14 19:00		OK
32	F3940-05	MC0AD7D	DUP	09/22/14 19:04		OK
33	F3940-06	MC0AD7S	MS	09/22/14 19:08	MS fail for Sb(Below RL)	OK
34	F3940-04L	MC0AD7L	SD	09/22/14 19:12	SD fail for Cd	OK
35	CCV68	CCV68	CCV	09/22/14 19:16		OK
36	CCB68	CCB68	CCB	09/22/14 19:20		OK
37	F3940-07	MC0AD8	SAM	09/22/14 19:24		OK
38	F3940-08	MC0AD9	SAM	09/22/14 19:28		OK
39	F3940-09	MC0AE0	SAM	09/22/14 19:32		OK
40	F3940-10	MC0AE1	SAM	09/22/14 19:36		OK
41	F3940-11	MC0AE2	SAM	09/22/14 19:40		OK
42	F3940-12	MC0AE3	SAM	09/22/14 19:44		OK
43	F3940-13	MC0AE4	SAM	09/22/14 19:48		OK
44	F3940-14	MC0AE5	SAM	09/22/14 19:52		OK

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ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

45	F3940-15	MC0AE6	SAM	09/22/14 19:56		OK
46	F3940-16	MC0AE7	SAM	09/22/14 20:00		OK
47	F3940-17	MC0AE8	SAM	09/22/14 20:04		OK
48	F3940-18	MC0AE9	SAM	09/22/14 20:08		OK
49	F3940-19	MC0AF0	SAM	09/22/14 20:12		OK
50	F3940-20	MC0AG4	SAM	09/22/14 20:16		OK
51	F3940-21	MC0AG5	SAM	09/22/14 20:20		OK
52	F3940-22	MC0AG6	SAM	09/22/14 20:24		OK
53	PB79101BL	PBW01	MB	09/22/14 20:28		OK
54	PB79101BS	LCS01	LCS	09/22/14 20:32		OK
55	F4000-01	MC0J90	SAM	09/22/14 20:36	CCV fail for Se,Ba,Ag,Zn	Not Ok
56	F4000-02	MC0J90D	DUP	09/22/14 20:40	CCV fail for Se,Ba,Ag,Zn	Not Ok
57	CCV69	CCV69	CCV	09/22/14 20:44		OK
58	CCB69	CCB69	CCB	09/22/14 20:48		OK
59	F4000-03	MC0J90S	MS	09/22/14 20:52	CCV fail for Se,Ba,Ag,Zn	Not Ok
60	F4000-01L	MC0J90L	SD	09/22/14 20:56	CCV fail for Se,Ba,Ag,Zn	Not Ok
61	F4000-04	MC0J92	SAM	09/22/14 21:00	CCV fail for Se,Ba,Ag,Zn	Not Ok
62	F4000-05	MC0J94	SAM	09/22/14 21:04	CCV fail for Se,Ba,Ag,Zn	Not Ok
63	F4000-06	MC0J96	SAM	09/22/14 21:08	CCV fail for Se,Ba,Ag,Zn	Not Ok
64	F4000-07	MC0J98	SAM	09/22/14 21:13	CCV fail for Se,Ba,Ag,Zn	Not Ok
65	F4000-08	MC0JA0	SAM	09/22/14 21:17	CCV fail for Se,Ba,Ag,Zn	Not Ok
66	F4000-09	MC0JA2	SAM	09/22/14 21:21	CCV fail for Se,Ba,Ag,Zn	Not Ok
67	PB79099BL	PBW01	MB	09/22/14 21:25	CCV fail for Se,Ba,Ag,Zn	Not Ok

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Daily Analysis Runlog For Sequence/QCBatch ID # LB72859

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STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

68	PB79099BS	LCS01	LCS	09/22/14 21:29	CCV fail for Se,Ba,Ag,Zn	Not Ok
69	F3884-01	MBBRC1	SAM	09/22/14 21:33	CCV fail for Se,Ba,Ag,Zn	Not Ok
70	F3884-02	MBBRC2	SAM	09/22/14 21:37	CCV fail for Se,Ba,Ag,Zn	Not Ok
71	F3884-03	MBBRC3	SAM	09/22/14 21:41	CCV fail for Se,Ba,Ag,Zn	Not Ok
72	F3884-04	MBBRC3D	DUP	09/22/14 21:45	CCV fail for Se,Ba,Ag,Zn	Not Ok
73	F3884-05	MBBRC3S	MS	09/22/14 21:49	CCV fail for Se,Ba,Ag,Zn	Not Ok
74	F3884-03L	MBBRC3L	SD	09/22/14 21:53	CCV fail for Se,Ba,Ag,Zn	Not Ok
75	F3884-06	MBBRC4	SAM	09/22/14 21:57	CCV fail for Se,Ba,Ag,Zn	Not Ok
76	F3884-07	MBBRC5	SAM	09/22/14 22:01	CCV fail for Se,Ba,Ag,Zn	Not Ok
77	F3884-08	MBBRC6	SAM	09/22/14 22:06	CCV fail for Se,Ba,Ag,Zn	Not Ok
78	F3884-09	MBBRC7	SAM	09/22/14 22:10	CCV fail for Se,Ba,Ag,Zn	Not Ok
79	CCV70	CCV70	CCV	09/22/14 22:14	Fail for Se,Ba,Ag,Zn	OK
80	CCB70	CCB70	CCB	09/22/14 22:18		OK
81	F3884-10	MBBRC8	SAM	09/22/14 22:22	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
82	F3884-11	MBBRC9	SAM	09/22/14 22:26	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
83	F3884-12	MBBRD0	SAM	09/22/14 22:30	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
84	F3884-13	MBBRD1	SAM	09/22/14 22:34	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
85	F3884-14	MBBRD2	SAM	09/22/14 22:38	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
86	F3884-15	MBBRD3	SAM	09/22/14 22:42	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
87	F3978-07	MB0AA3	SAM	09/22/14 22:46	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
88	F3978-08	MB0AA4	SAM	09/22/14 22:50	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
89	F3978-09	MB0AA4D	DUP	09/22/14 22:54	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
90	F3978-10	MB0AA4S	MS	09/22/14 22:58	CCV fail for Se,Ba,Ag,K,Zn	Not Ok

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Daily Analysis Runlog For Sequence/QCBatch ID # LB72859

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STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

91	F3978-08L	MB0AA4L	SD	09/22/14 23:02	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
92	F3978-11	MB0AA5	SAM	09/22/14 23:06	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
93	F3978-15	MB0AA6	SAM	09/22/14 23:10	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
94	F3978-20	MB0AR4	SAM	09/22/14 23:14	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
95	PB79102BL	PBS01	MB	09/22/14 23:18	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
96	PB79102BS	LCS01	LCS	09/22/14 23:22	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
97	F3978-01	MB0AR2	SAM	09/22/14 23:27	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
98	F3978-02	MB0AA0	SAM	09/22/14 23:31	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
99	F3978-03	MB0AA1	SAM	09/22/14 23:35	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
100	F3978-04	MB0AA1D	DUP	09/22/14 23:39	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
101	CCV71	CCV71	CCV	09/22/14 23:43	Fail for Se,Ba,K,Ag,Zn	OK
102	CCB71	CCB71	CCB	09/22/14 23:47		OK
103	F3978-05	MB0AA1S	MS	09/22/14 23:51	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
104	F3978-03L	MB0AA1L	SD	09/22/14 23:55	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
105	F3978-06	MB0AA2	SAM	09/22/14 23:59	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
106	F3978-12	MB0AA9	SAM	09/23/14 00:03	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
107	F3978-13	MB0AB0	SAM	09/23/14 00:07	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
108	F3978-14	MB0AB1	SAM	09/23/14 00:11	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
109	F3978-16	MB0AB2	SAM	09/23/14 00:15	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
110	F3978-17	MB0AB2D	DUP	09/23/14 00:19	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
111	F3978-18	MB0AB2S	MS	09/23/14 00:23	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
112	F3978-16L	MB0AB2L	SD	09/23/14 00:27	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
113	F3978-19	MB0AB3	SAM	09/23/14 00:31	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok

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Daily Analysis Runlog For Sequence/QCBatch ID # LB72859

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CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

114	CCV72	CCV72	CCV	09/23/14 00:35	Barium, Calcium, Copper, Manganese, Silver, Y	OK
115	CCB72	CCB72	CCB	09/23/14 00:39		OK

Prep Standard - Chemical Standard Summary

Order ID : F3940

Test : Metals CLP Full

Prepbatch ID : PB78988

Sequence ID/Qc Batch ID: LB72859

Standard ID :
MP23410,MP23559,MP23642,MP23639,MP23643,MP23655,MP23656,MP23658,MP23654,MP23660,MP23661,MP23662,MP23663,MP23664,MP23665,MP23666,MP23667,MP23668,MP23410,MP23559,MP23639,MP23642,MP23643,MP23654,MP23655,MP23656,MP23658,MP23660,MP23661,MP23662,MP23663,MP23664,MP23665,MP23666,MP23667,MP23668,

Chemical ID :
M3245,M3207,M3218,M2942,V1456,M3215,W1152,M2995,M3227,M3047,M3218,M3057,M3156,M2988,M2961,M3081,M3187,M2782,M3151,M3096,M3099,M3100,M3102,M3115,M3224,M2979,M3112,M3124,M3122,M3110,M3185,M3225,M2975,M2991,M3113,M3118,M3098,M3117,M3106,M3121,M3101,M3097,M3108,M2987,M3111,M3104,M3123,M2962,M3145,M3148,M2782,M2942,M2961,M2962,M2975,M2979,M2987,M2988,M2991,M2995,M3047,M3057,M3081,M3096,M3097,M3098,M3099,M3100,M3101,M3102,M3104,M3106,M3108,M3110,M3111,M3112,M3113,M3115,M3117,M3118,M3121,M3122,M3123,M3124,M3145,M3148,M3151,M3156,M3185,M3187,M3207,M3215,M3218,M3224,M3225,M3227,M3245,V1456,W1152,

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
169	1:1HNO3	MP23410	09/02/2014	03/02/2015	BHUPENDRA

FROM 1250.000ml of M3215 + 1250.000ml of V1456 = Final Quantity: 2500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1346	Hg ICV SOLUTION	MP23559	09/09/2014	09/10/2014	Julles

FROM 2.500ml of M2995 + 2.500ml of M3227 + 245.000ml of W1152 = Final Quantity: 250.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23639	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
904	ICP AES ICSA SOLN	MP23642	09/17/2014	09/30/2014	BIN

FROM 25.000ml of M3047 + 225.000ml of MP23639 = Final Quantity: 250.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
905	ICP AES ICSAB SOLN	MP23643	09/17/2014	09/30/2014	BIN

FROM 25.000ml of M3047 + 25.000ml of M3057 + 200.000ml of MP23639 = Final Quantity: 250.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23654	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
903	ICP AES RINSE SOLN	MP23655	09/17/2014	09/30/2014	BIN

FROM 200.000ml of M3227 + 9800.000ml of W1152 = Final Quantity: 10000.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
919	ICP AES INTERNAL STD	MP23656	09/17/2014	09/30/2014	BIN

FROM 1.000ml of M2988 + 10.000ml of M3156 + 1969.000ml of W1152 + 20.000ml of M3227 = Final Quantity: 2000.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
2054	ICV-ICPAES	MP23658	09/17/2014	09/30/2014	BIN

FROM 0.500ml of M2961 + 0.500ml of M3187 + 10.000ml of M3081 + 89.000ml of MP23654 = Final Quantity: 100.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
994	ICPAES ISM01.2 S1 (CONC.)	MP23660	09/17/2014	09/30/2014	BIN

FROM 0.100ml of M3100 + 0.100ml of M3112 + 0.100ml of M3115 + 0.140ml of M2987 + 0.200ml of M2979 + 0.200ml of M2991 + 0.200ml of M3096 + 0.200ml of M3102 + 0.200ml of M3106 + 0.200ml of M3110 + 0.200ml of M3122 + 0.300ml of M2975 + 0.300ml of M3187 + 0.400ml of M2782 + 0.500ml of M3108 + 0.500ml of M3124 + 0.700ml of M3098 + 0.800ml of M3113 + 1.000ml of M3104 + 1.000ml of M3185 + 1.200ml of M3123 + 1.200ml of M3151 + 10.000ml of M3118 + 10.000ml of M3121 + 10.000ml of M3224 + 10.000ml of M3225 + 2.000ml of M3097 + 2.000ml of M3101 + 2.000ml of M3111 + 2.000ml of M3117 + 4.000ml of M3099 + 37.360ml of MP23654 = Final Quantity: 100.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1003	ICPAES ISM01.2 S1	MP23661	09/17/2014	09/18/2014	BIN

FROM 1.000ml of MP23660 + 199.000ml of MP23654 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1004	ICPAES ISM01.2 (S5)	MP23662	09/17/2014	09/30/2014	BIN

FROM 0.375ml of M3100 + 18.750ml of M2975 + 18.750ml of M3118 + 18.750ml of M3121 + 18.750ml of M3123 + 20.625ml of M3124 + 21.750ml of M2782 + 21.750ml of M2979 + 21.750ml of M3122 + 30.000ml of M3110 + 33.750ml of M3224 + 33.750ml of M3225 + 7.500ml of M2962 + 7.500ml of M3097 + 7.500ml of M3101 + 7.500ml of M3145 + 7.500ml of M3148 + 7.500ml of M3151 + 7.500ml of M3185 + 7.500ml of M3187 + 431.250ml of MP23654 = Final Quantity: 750.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1119	ICPAES ISM01.2(CCV)	MP23663	09/17/2014	09/30/2014	BIN

FROM 12.250ml of M2782 + 12.500ml of M3121 + 12.500ml of M3122 + 7.500ml of M3224 + 7.500ml of M3225 + 197.750ml of MP23654 + 250.000ml of MP23662 = Final Quantity: 500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1005	ICPAES ISM01.2(S4)	MP23664	09/17/2014	09/30/2014	BIN

FROM 100.000ml of MP23654 + 100.000ml of MP23662 = Final Quantity: 200.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1007	ICPAES ISM01.2(S3)	MP23665	09/17/2014	09/30/2014	BIN

FROM 150.000ml of MP23654 + 50.000ml of MP23662 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1008	ICPAES ISM01.2(S2)	MP23666	09/17/2014	09/30/2014	BIN

FROM 175.000ml of MP23654 + 25.000ml of MP23662 = Final Quantity: 200.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
2480	ICP AES STD 6 ISM01.3	MP23667	09/17/2014	09/30/2014	BIN

FROM 16.000ml of M2782 + 16.000ml of M3121 + 16.000ml of M3122 + 16.000ml of M3224 + 16.000ml of M3225 + 120.000ml of MP23654 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23668	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Aluminum (Al) 10,000PPM	082812	08/28/2015	12/28/2012 / Janet	12/28/2012 / Janet	M2782

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Labpure	0919120 / Boiling Stones	4368-7F031	08/22/2018	08/22/2013 / bhupendra	08/22/2013 / bhupendra	M2942

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CHEM-QC-4 / CHEM-QC-4, Second Source, 1000 ug/ml, B, Mo, Si, Sn, Ti	F2-MEB452072	10/01/2014	09/03/2013 / aesha	08/26/2013 / aesha	M2961

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	G2-MEB491013	10/01/2014	09/03/2013 / aesha	08/26/2013 / aesha	M2962

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58025 / Manganese, Mn, 500 ml, 1000 PPM	070313	07/03/2016	09/25/2013 / jaswal	09/25/2013 / jaswal	M2975

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58024 / Chromium, Cr, 500 ml, 1000 PPM	072913	07/29/2016	09/25/2013 / jaswal	09/25/2013 / jaswal	M2979

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSNCL1-1 / TIN/HCL 125mL 1000ug/mL	G2-SN02062	11/01/2014	10/21/2013 / BIN	10/18/2013 / BIN	M2987

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	F2-Y02004	11/01/2014	10/21/2013 / BIN	10/18/2013 / BIN	M2988

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57042 / Molybdeum, Mo, 100 ml, 1000 PPM	080913	08/09/2016	10/30/2013 / BIN	09/25/2013 / BIN	M2991

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV5-0508	10/09/2018	08/21/2014 / mohan	10/09/2013 / Julles	M2995

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3047

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3057

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV1-0307	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3081

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGAS1-1 / ARSENIC 125mL 1000ug/mL	G2-AS02102	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3096

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGS1-1 / SULFUR 125mL 1000ug/mL	G2-S02007	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3097

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSE(4)1-1 / SELENIUM 125mL 1000ug/mL	E2-SE02033	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3098

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGBA1-1 / BARIUM 125mL 1000ug/mL	F2-BA02076	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3099

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGBE1-1 / BERYLLIUM 125mL 1000ug/mL	F2-BE02021	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3100

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSR1-1 / Strontium, 125 ml, 1000 PPM	F2-SR02036	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3101

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGB1-1 / BORON 125mL 1000ug/mL	F2-B02109	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3102

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGV1-1 / VANADIUM 125mL 1000ug/mL	G2-V02081	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3104

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGAG1-1 / SILVER 125mL 1000ug/mL	G2-AG03035	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3106

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTL1-1 / THALLIUM 125mL 1000ug/mL	F2-TL02003	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3108

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGPB1-1 / LEAD 125mL 1000ug/mL	G2-PB03044	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3110

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	F2-TI02094	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3111

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCO1-1 / COBALT 125mL 1000ug/mL	F2-CO02052	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3112

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGNI1-1 / NICKEL 125mL 1000ug/mL	G2-NI02086	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3113

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCD1-1 / CADMIUM, 125mL 1000ug/mL	G2-CD02043	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3115

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSI1-1 / SILICON 125mL 1000ug/mL	G2-SI03023	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3117

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGK10-5 / Potassium, 500 ml, 10000 PPM	F2-K03033	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3118

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGNA10-5 / Sodium, 500 ml, 10000 PPM	G2-NA03110	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3121

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGFE10-5 / Iron, 500 ml, 10000 PPM	G2-FE04029	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3122

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGZN1-5 / Zinc, 500 ml, 1000 PPM	F2-ZN02088	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3123

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCU1-5 / Copper, 500 ml, 1000 PPM	F2-CU02147	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3124

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	G2-MEB479124	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3145

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	G2-MEB467069	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3148

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSBF1-1 / Antimony, Sb, 125 ml	G2-SB03021	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3151

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGIN10-1 / INDIUM 125mL 10,000ug/mL	F2-IN01095	04/01/2015	03/07/2014 / jaswal	03/07/2014 / jaswal	M3156

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57003 / Lithium, Li, 100 ml, 1000 PPM	122713	12/27/2016	05/19/2014 / BIN	05/09/2014 / jaswal	M3185

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGP1-1 / Phosphorus, 125 ml	G2-P02048	06/01/2015	09/02/2014 / BIN	05/09/2014 / jaswal	M3187

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-2186-03 / Hydrogen Peroxide (cs/4x4L)	0000064775	05/27/2015	07/15/2014 / bhupendra	07/03/2014 / bhupendra	M3207

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000077192	04/15/2019	08/22/2014 / bhupendra	08/12/2014 / bhupendra	M3215

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	0000075649	03/25/2019	09/02/2014 / BHUPENDRA	08/20/2014 / bhupendra	M3218

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCA10-5 / Calcium, 500 ml, 10000 PPM	G2-CA04095	09/01/2015	09/02/2014 / BIN	08/12/2014 / jaswal	M3224

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGMG10-5 / Magnesium, 500 ml, 10000 PPM	G2-MG03120	09/01/2015	09/02/2014 / BIN	08/12/2014 / jaswal	M3225

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000077192	04/15/2019	09/05/2014 / bhupendra	09/03/2014 / bhupendra	M3227

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000084115	07/01/2019	09/23/2014 / bhupendra	09/12/2014 / BHUPENDRA	M3245

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Res-Kem General water	DIW / DI Water	DAILY	12/31/2019	03/01/2010 / apatel	03/02/2010 / apatel	V1456

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Res-Kem General water	DIW / DI Water	Lab certified	02/23/2015	02/23/2010 /	02/23/2010 / divya	W1152

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ISO 9001 QS Registered
ISO 17025-34-35-[illegible] Accredited
Scopes: http://Absolute[illegible]andards.com

Standard ID : M2782

CERTIFIED WEIGHT REPORT:

D: 12/28/12
R: 12/28/12

Part Number: 58113
Lot Number: 082812
Description: Aluminum (Al)
Expiration Date: 082815
Storage: 20 °C
Nominal Concentration (µg/mL): 10000
Weight shown below was diluted to (mL): 1999.68

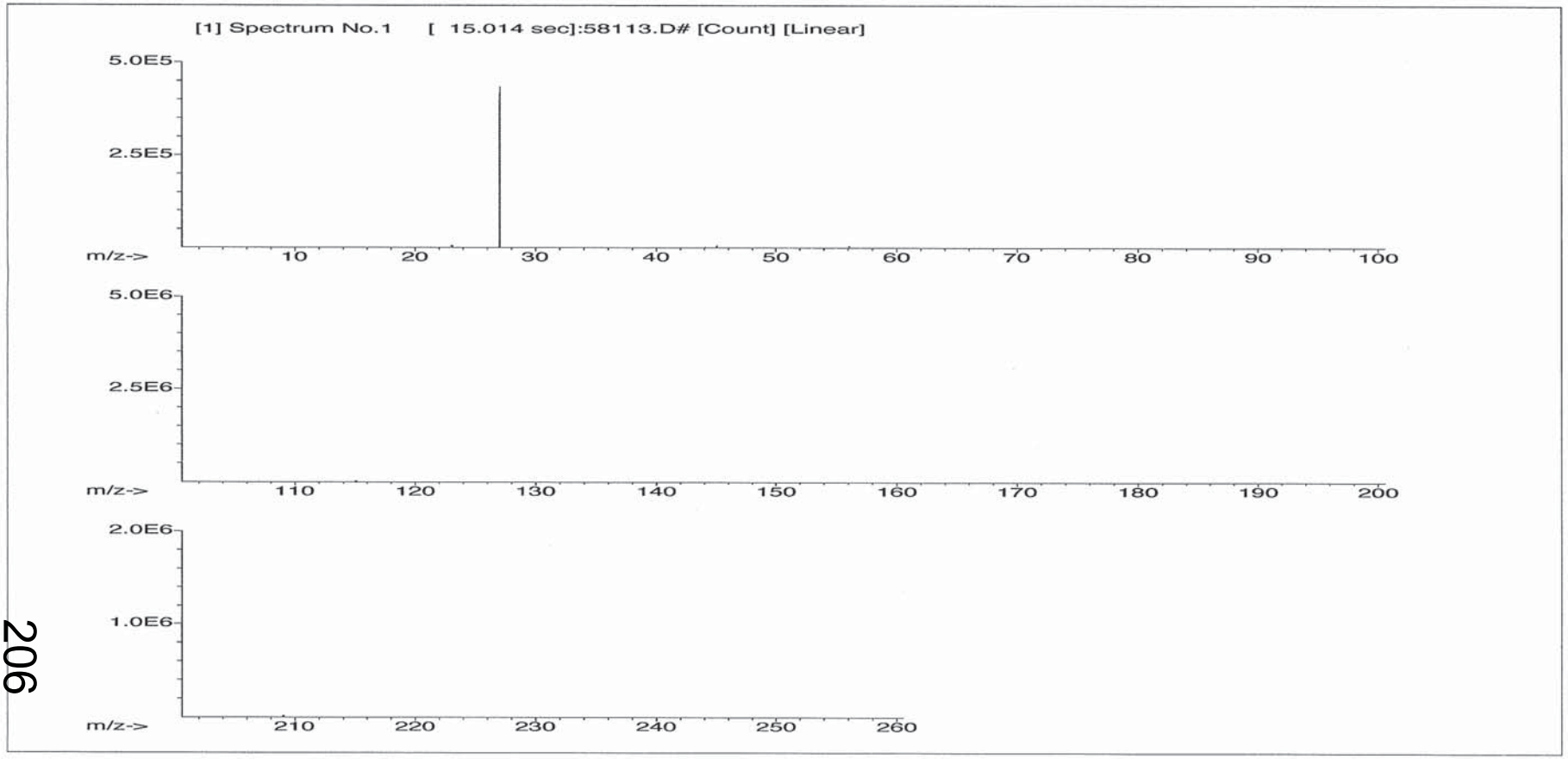
	Lot #		
Solvent:	C142199	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.100 Flask Uncertainty

M2782

Formulated By:	Lawrence Barry	082812
Reviewed By:	Pedro L. Rentas	082812

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity	Uncertainty Purity	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty (+/-)	CAS#	MSDS Information (Solvent Safety Info. On Attached pg.) OSHA PEL (TWA)	LD50	NIST SRM
1. Aluminum Nitrate Nonahydrate (Al)	IN022	D312ALA1	10000.0	99.999	0.10	7.10	281.6484	281.6803	**10001.1**	0.00200	07784-27-2	5 mg/m3	orl-rat 264 mg/kg	3101a



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INORGANIC VENTURES™
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CERTIFICATE OF ANALYSIS

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info@inorganicventures.com

M2961

R: 08/26/13

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Custom Second Source Solution**

Catalog No.: CHEM-QC-4

Lot Number: **F2-MEB452072**

Matrix: 3% HNO3(v/v), 2.7% HF(v/v)

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

1,000 µg/mL ea:
B, Mo, Si, Sn, Ti

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Boron, B	1,000 ± 7 µg/mL	Molybdenum, Mo	1,000 ± 6 µg/mL	Silicon, Si	1,000 ± 5 µg/mL
Tin, Sn	1,000 ± 5 µg/mL	Titanium, Ti	1,000 ± 7 µg/mL		

Certified Density: 1.033 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$$

2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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Standard ID : M2962

CERTIFICATE OF ANALYSIS

M2962

R: 08/26/13

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Custom Solution**

Catalog No.: CHEM-CLP-4

Lot Number: **G2-MEB491013**

Matrix: 3% HNO3(v/v), 2.7% HF(v/v)

1,000 µg/mL ea:
B, Mo, Si, Sn, Ti

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Boron, B	1,000 ± 7 µg/mL	Molybdenum, Mo	1,000 ± 5 µg/mL	Silicon, Si	1,000 ± 7 µg/mL
Tin, Sn	1,001 ± 7 µg/mL	Titanium, Ti	1,000 ± 7 µg/mL		

Certified Density: 1.035 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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Certified Reference Material CRM

RD: 09/25/13
M2975

ISO 9001 QS Registered
ISO 17025-34-35- Accredited
Scopes: http://Absolute ndards.com

Standard ID : M2975

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**58025**		C257285	Nitric Acid	
Lot Number:	**070313**				
Description:	**Manganese (Mn)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	070316				
	Storage:	20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty		

Gabriel Helland

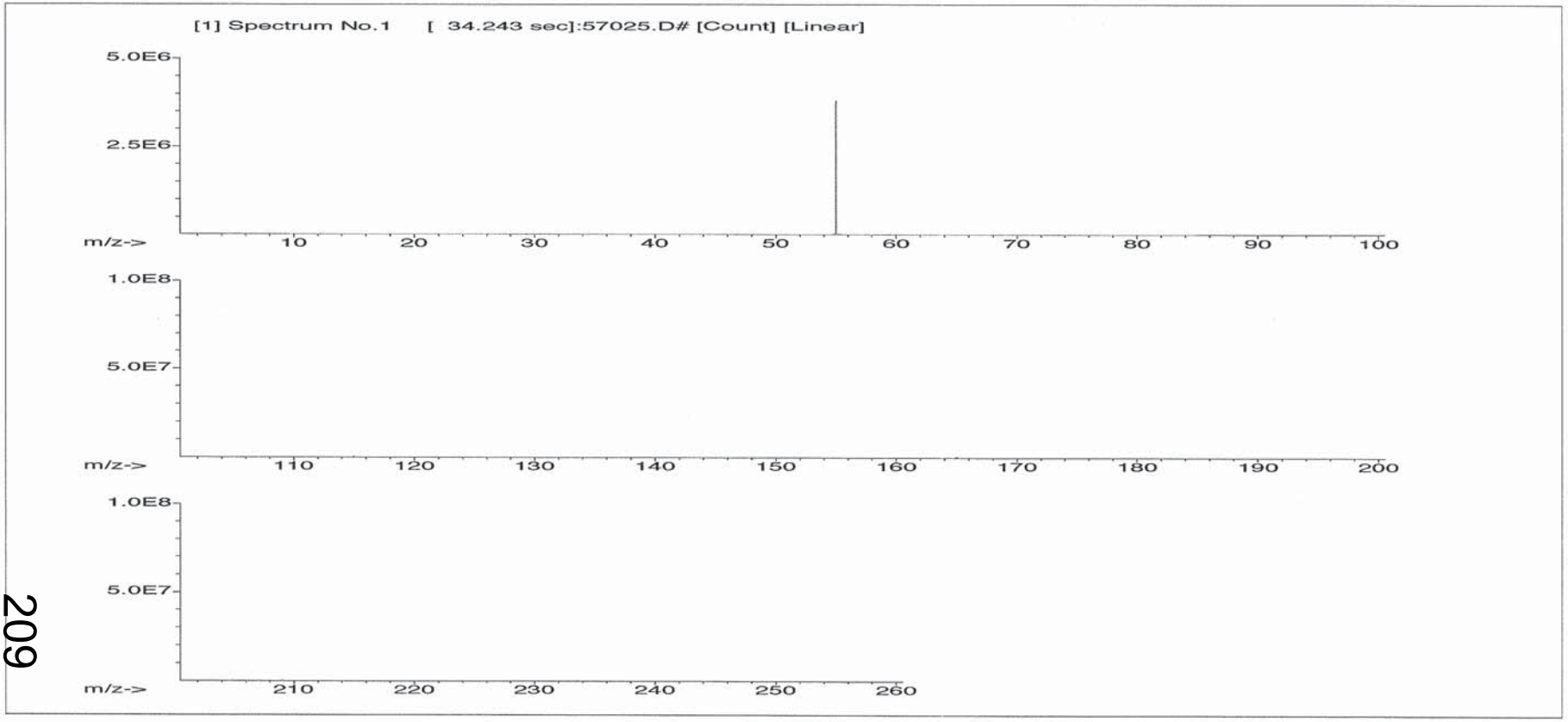
Formulated By:	Gabriel Helland	070313

Pedro Rentas

Reviewed By:	Pedro L. Rentas	070313

MSDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	ty Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Manganese (II) nitrate Hydrate (Mn)	58125	122712	0.1000	200.0	0.013	10000.9	**1000.2**	0.00201	15710-66-4	5 mg/m3	N/A	3132



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Absolute Standards, Inc.
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Certified Reference Material CRM

RD: 09/25/13
M2979

ISO 9001 QS Registered
ISO 17025-34-35[illegible] Accredited
Scopes: http://Absolute[illegible]andards.com

Standard ID : M2979

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**58024**		C257285	Nitric Acid	
Lot Number:	**072913**				
Description:	**Chromium (Cr)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	072916				
	Storage:	20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty		

Gabriel Helland

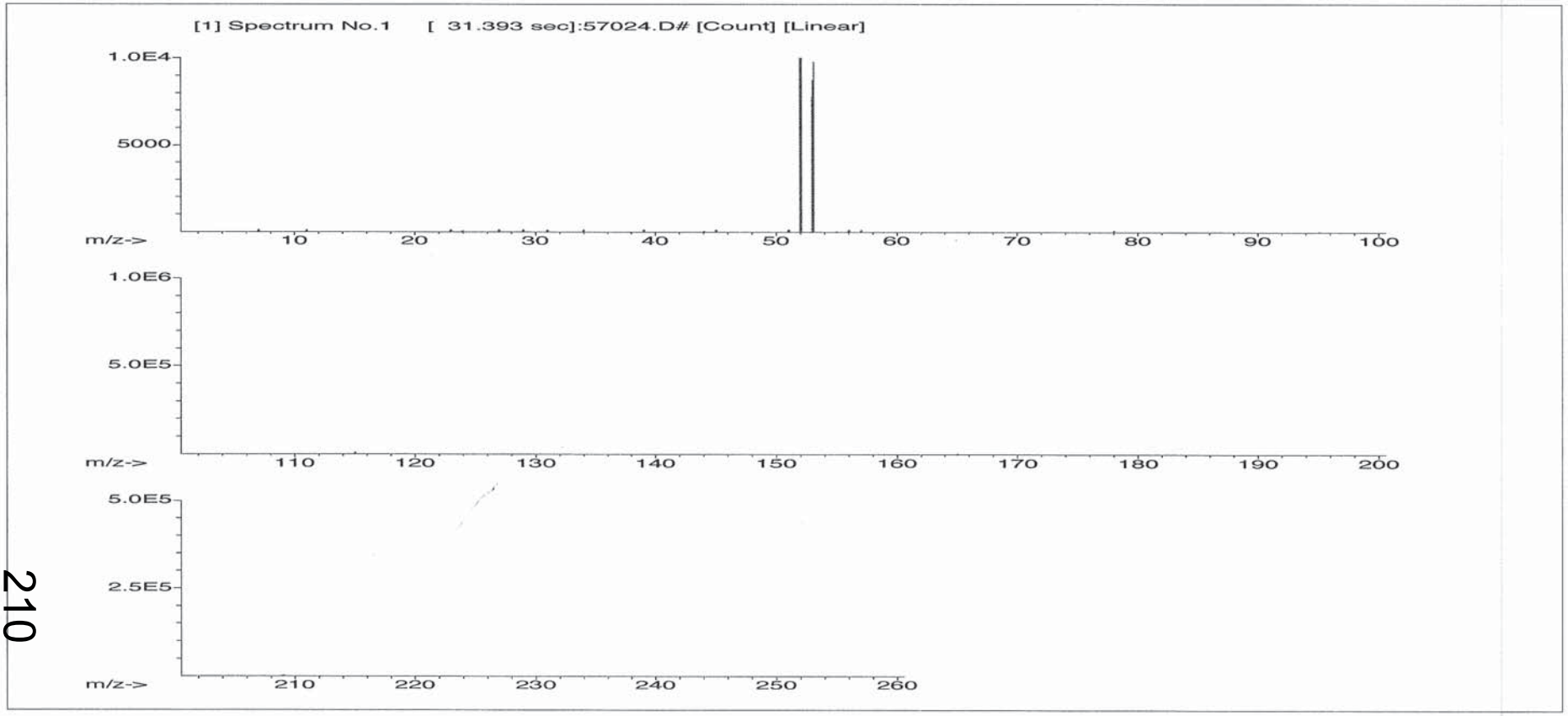
Formulated By:	Gabriel Helland	072913

Pedro Rentas

Reviewed By:	Pedro L. Rentas	072913

MSDS Information
(Solvent Safety Info. On Attached pg.)

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	**Final Conc. (µg/mL)**	Expanded Uncertainty (+/-)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Chromium (III) nitrate nonahydrate (Cr)	58124	022213	0.100	200.0	0.013	10000.9	**1000.2**	0.00201	07789-02-8	0.5 mg(Cr)/m3	orl-rat 3250 mg/kg	3112a



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M2987

RV: 10/18/2013

Standard ID : M2987

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CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Tin HCl in 20% (v/v) HCl**

Catalog Number:	CGSNCL1-1, CGSNCL1-2, and CGSNCL1-5
Lot Number:	**G2-SN02062**
Starting Material:	Sn shot
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1744
Matrix:	20% (v/v) HCl

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 3 µg/mL -weighted mean-
Certified Density:	1.042 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

RD : 10/18/2013

Standard ID : M2988

INORGANIC VENTURES™

CERTIFICATE OF ANALYSIS

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **10000 µg/mL Yttrium in 2% (v/v) HNO3**

Catalog Number:	CGY10-1, CGY10-2, and CGY10-5
Lot Number:	**F2-Y02004**
Starting Material:	Y2O3
Starting Material Purity (%):	99.9999
Starting Material Lot No:	0623052
Matrix:	2% (v/v) HNO3

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration:	10,006 ± 53 µg/mL - weighted mean
Certified Density:	1.034 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M2991

RD : 09/25/13

Certified Reference Material CRM

ISO 9001 QS R
ISO 17025 34-35-43 A
Scopes: http:/ soluteStan

Standard ID : M2991

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:
Part Number:	**57042**	Y47057	Ammonium hydroxide
Lot Number:	**080913**		
Description:	**Molybdenum (Mo)**		
		0.5%	10.0 (mL) Ammonium hydroxide
Expiration Date:	080916		
Storage:	20 °C		
Nominal Concentration (µg/mL):	1000		
		5E-05	Balance Uncertainty
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty

Gabriel Helland

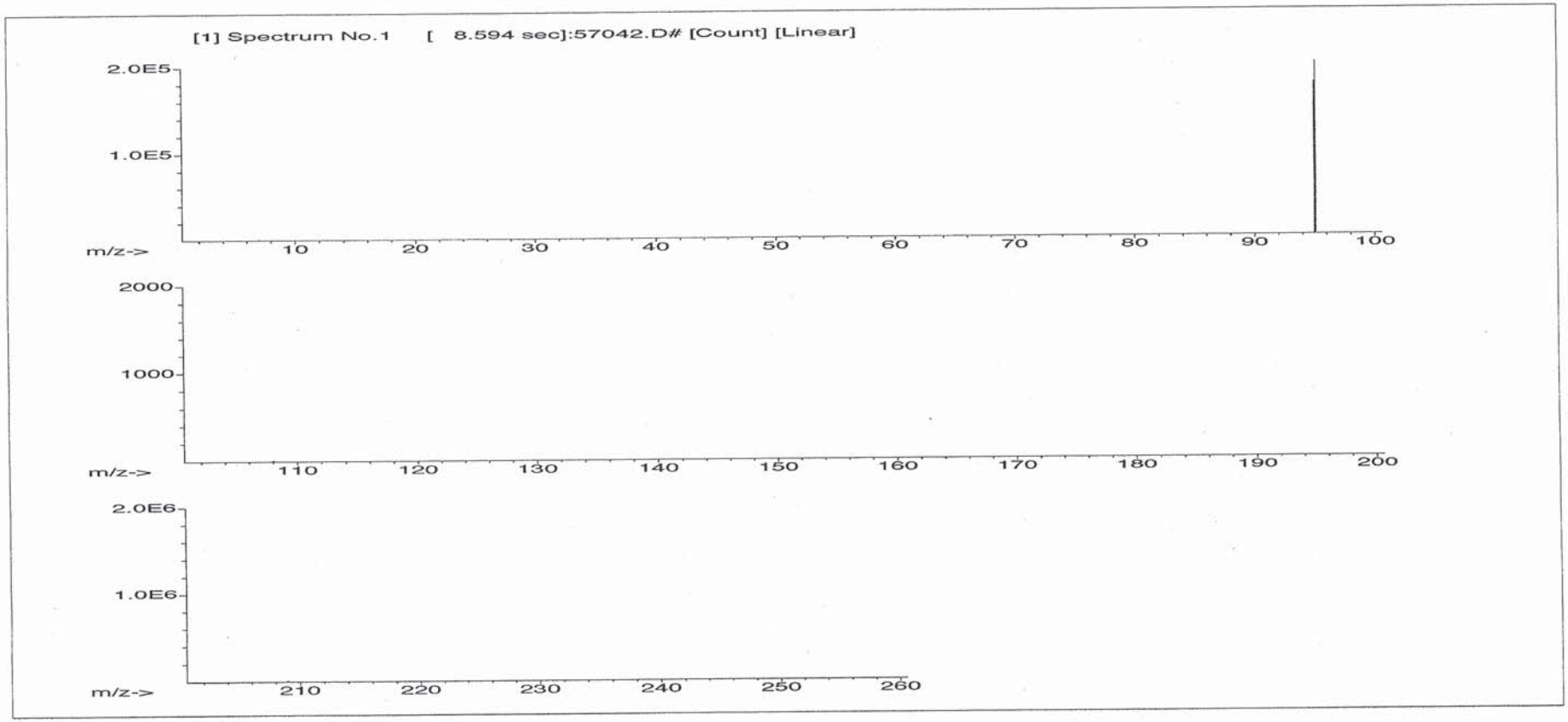
Formulated By:	Gabriel Helland	080913

Pedro Rentas

Reviewed By:	Pedro L. Rentas	080913

MSDS Information
(Solvent Safety Info. On Attached pg.)

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium molybdate (Mo)	58142	072613	0.1000	200.0	0.013	10001.3	**1000.3**	0.00201	12054-85-2	5 mg(Mo)/m3	orl-rat 333 mg/kg	3134



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QATS LABORATORY INORGANIC REFERENCE MATERIAL INITIAL CALIBRATION VERIFICATION SOLUTIONS (ICV1, ICV5, AND ICV6)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with CLP SOWs and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

JR 10/31/13

~~M2986~~ M2992
~~M2987~~ M2993
~~M2988~~ M2994
~~M2989~~ M2995
~~M2990~~ M2996

Recv'd: 10/9/13 MB

May Contain Metals in Dilute Acidic or Cyanide in Basic Aqueous Solutions
Hazardous Material

Material Safety Data Sheets Available Upon Request

(A) *SAMPLE DESCRIPTION*

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. **For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-0307", "ICV5-0508", and "ICV6-0400", respectively.**

(B) *BREAKAGE OR MISSING ITEMS*

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain-of-custody record. Report any problems to Mr. Keith Strout, Shaw Environmental, Inc. at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
Shaw Environmental, Inc.
2700 Chandler Avenue - Bldg. C
Las Vegas, NV 89120

(C) *ANALYSIS OF SAMPLES*

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in µg/L (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

ICV1-0307 For ICP-AES use: dilute the ICV1 concentrate 10-fold with 2% (v/v) nitric acid; pipet 10 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.

For ICP-MS use: dilute the ICV1 concentrate 50-fold with 1% (v/v) nitric acid; pipet 2 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.

ICV5-0508 For the cold vapor analysis of mercury by AA: dilute the ICV5 concentrate 100-fold with 2% (v/v) nitric acid; pipet 1 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) $K_2Cr_2O_7$ and 5% (v/v) nitric acid.

ICV6-0400 For the analysis of cyanide: dilute the ICV6 concentrate 100-fold with Type II water; pipet 1 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from $K_3Fe(CN)_6$, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

NOTE: USE TYPE II WATER AND HIGH-PURITY ACIDS FOR ALL DILUTIONS.

(D) *CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS*

ICV1-0307		
Element	**Concentration (µg/L) (after 10-fold dilution)**	**Concentration (µg/L) (after 50-fold dilution)**
Al	2521	504
Sb	994	199
As	999	200
Ba	497	99
Be	495	99
Cd	496	99
Ca	10026	2005
Cr	490	98
Co	499	100
Cu	492	98
Fe	5082	1016
Pb	1002	200
Mg	6074	1215
Mn	499	100
Ni	503	101
K	10021	2004
Se	1029	206
Ag	501	100
Na	10097	2019
Tl	1028	206
V	501	100
Zn	1025	205

ICV5-0508		ICV6-0400	
Element	**Concentration (µg/L) (after 100-fold dilution)**	**Analyte**	**Concentration (µg/L) (after 100-fold dilution)**
Hg	4.0	**CN^-**	99

interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:
ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSA solution by ICP-AES.
ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSAB solution by ICP-AES.

(D) *"CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)*

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB) events, CLP pre-award events, and external referee laboratories.

ICSA M3046 ↓ to M3055

ICSB M3056 ↓ to M3065

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	254900	203920	305880	246800	197440	296160
Sb	60	(0)*	-60	60	618	494	742
As	10	(0)	-10	10	104	83	125
Ba	200	(6)	-194	206	(537)	337	737
Be	5	(0)	-5	5	495	396	594
Cd	5	(1)	-4	6	972	778	1166
Ca	5000	244500	195600	293400	234900	187920	281880
Cr	10	52	42	62	542	434	650
Co	50	(0)	-50	50	476	381	571
Cu	25	(2)	-23	27	511	409	613
Fe	100	100700	80560	120840	99320	79456	119184
Pb	10	(0)	-10	10	(49)	39	59
Mg	5000	255400	204320	306480	248000	198400	297600
Mn	15	(7)	-8	22	507	406	608
Ni	40	(2)	-38	42	954	763	1145
Se	35	(0)	-35	35	(46)	11	81
Ag	10	(0)	-10	10	201	161	241
Tl	25	(0)	-25	25	(108)	83	133
V	50	(0)	-50	50	491	393	589
Zn	60	(0)	-60	60	952	762	1142

* The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 20 percent of the listed certified value.

R: 10/09/13

Standard ID : M3081

(D) *CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS*

M3081 To M3090

ICV1-0307		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2521	504
Sb	994	199
As	999	200
Ba	497	99
Be	495	99
Cd	496	99
Ca	10026	2005
Cr	490	98
Co	499	100
Cu	492	98
Fe	5082	1016
Pb	1002	200
Mg	6074	1215
Mn	499	100
Ni	503	101
K	10021	2004
Se	1029	206
Ag	501	100
Na	10097	2019
Tl	1028	206
V	501	100
Zn	1025	205

ICV5-0508		ICV6-0400	
Element	Concentration (µg/L) (after 100-fold dilution)	Analyte	Concentration (µg/L) (after 100-fold dilution)
Hg	4.0	CN^-	99

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Standard ID : M3096
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CERTIFICATE OF ANALYSIS

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R: 01517JM

M3096-

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Arsenic in 2% (v/v) HNO3**

Catalog Number:	CGAS1-1, CGAS1-2, and CGAS1-5
Lot Number:	**G2-AS02102**
Starting Material:	As Lump
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1814
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 5 µg/mL -weighted mean-

Certified Density: 1.012 (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2);$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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Standard ID : M3097

CERTIFICATE OF ANALYSIS

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R1. 01/17/14

M3097

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Sulfur in H2O**

Catalog Number:	CGS1-1, CGS1-2, and CGS1-5
Lot Number:	**G2-S02007**
Starting Material:	H2SO4
Starting Material Purity (%):	100.0000
Starting Material Lot No:	H44F03
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,005 ± 5 µg/mL -weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Selenium(+4) in 2% (v/v) HNO3**

Catalog Number:	CGSE(4)1-1, CGSE(4)1-2, and CGSE(4)1-5
Lot Number:	**E2-SE02033**
Starting Material:	Se shot
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1616
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 6 µg/mL - weighted mean

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1	**Assay Method #1**	**1,002 ± 4 µg/mL** ICP Assay NIST SRM 3149 Lot Number: 100901
	Assay Method #2	**1,000 ± 3 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

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2.0 DESCRIPTION OF CRM **1000 µg/mL Barium in 0.1%(v/v) HNO3**

Catalog Number:	CGBA1-1, CGBA1-2, and CGBA1-5
Lot Number:	**F2-BA02076**
Starting Material:	Ba(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	BAE42012A1
Matrix:	0.1%(v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	996 ± 5 µg/mL -No weighted mean-
Certified Density:	1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements

Uncertainty (±) = $2\ [\ \Sigma(s_i)^2\ ]^{½}$

2 = the coverage factor.
$[\ \Sigma(s_i)^2\ ]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Beryllium in 3% (v/v) HNO3**

Catalog Number:	CGBE1-1, CGBE1-2, and CGBE1-5
Lot Number:	**F2-BE02021**
Starting Material:	Be4O(OOCCH3)6
Starting Material Purity (%):	99.9999
Starting Material Lot No:	1772
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,003 ± 4 µg/mL - weighted mean

Certified Density: 1.022 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **1000 µg/mL Strontium in 0.1% (v/v) HNO3**

Catalog Number:	CGSR1-1, CGSR1-2, and CGSR1-5
Lot Number:	**F2-SR02036**
Starting Material:	SrCO3
Starting Material Purity (%):	99.9988
Starting Material Lot No:	1610
Matrix:	0.1% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,000 ± 5 µg/mL - weighted mean

Certified Density: 1.001 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **1000 µg/mL Boron in H2O**

Catalog Number:	CGB1-1, CGB1-2, and CGB1-5
Lot Number:	**F2-B02109**
Starting Material:	H3BO3
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1631
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 999 ± 5 µg/mL -weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **1000 µg/mL Vanadium in 2% (v/v) HNO3**

Catalog Number:	CGV1-1, CGV1-2, and CGV1-5
Lot Number:	**G2-V02081**
Starting Material:	V2O5
Starting Material Purity (%):	99.9991
Starting Material Lot No:	1782
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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2.0 DESCRIPTION OF CRM **1000 µg/mL Silver in 5% (v/v) HNO3**

Catalog Number:	CGAG1-1, CGAG1-2, and CGAG1-5
Lot Number:	**G2-AG03035**
Starting Material:	Ag shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1641
Matrix:	5% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,002 ± 6 µg/mL -weighted mean-
Certified Density:	1.026 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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2.0 DESCRIPTION OF CRM **1000 µg/mL Thallium in 0.7% (v/v) HNO3**

Catalog Number:	CGTL1-1, CGTL1-2, and CGTL1-5
Lot Number:	**F2-TL02003**
Starting Material:	TlNO3
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1576
Matrix:	0.7% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 5 µg/mL - weighted mean

Certified Density: 1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **1000 µg/mL Lead in 0.5%(v/v) HNO3**

Catalog Number:	CGPB1-1, CGPB1-2, and CGPB1-5
Lot Number:	**G2-PB03044**
Starting Material:	Pb(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1717
Matrix:	0.5%(v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 3 µg/mL -weighted mean-
Certified Density:	1.002 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Titanium in 2% (v/v) HNO3 / tr. HF**

Catalog Number:	CGTI1-1, CGTI1-2, and CGTI1-5
Lot Number:	**F2-TI02094**
Starting Material:	Ti powder
Starting Material Purity (%):	99.9948
Starting Material Lot No:	1769
Matrix:	2% (v/v) HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 6 µg/mL - weighted mean
Certified Density:	1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Testing Laboratory Certificate 883.01
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2.0 DESCRIPTION OF CRM **1000 µg/mL Cobalt in 3% (v/v) HNO3**

Catalog Number:	CGCO1-1, CGCO1-2, and CGCO1-5
Lot Number:	**F2-CO02052**
Starting Material:	Co powder
Starting Material Purity (%):	99.9982
Starting Material Lot No:	1749
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,003 ± 5 µg/mL - weighted mean

Certified Density: 1.018 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Standard ID : M3113

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2.0 **DESCRIPTION OF CRM** **1000 µg/mL Nickel in 2% (v/v) HNO3**

Catalog Number:	CGNI1-1, CGNI1-2, and CGNI1-5
Lot Number:	**G2-NI02086**
Starting Material:	Ni pieces
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1559
Matrix:	2% (v/v) HNO3

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,002 ± 4 µg/mL -weighted mean-

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **1,001 ± 3 µg/mL**
ICP Assay NIST SRM 3136 Lot Number: 000612

Assay Method #2 **1,002 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Cadmium in 3% (v/v) HNO3**

Catalog Number:	CGCD1-1, CGCD1-2, and CGCD1-5
Lot Number:	**G2-CD02043**
Starting Material:	Cd shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1714
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,004 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Silicon in tr. HNO3 / tr. HF**

Catalog Number:	CGSI1-1, CGSI1-2, and CGSI1-5
Lot Number:	**G2-SI03023**
Starting Material:	SiO2
Starting Material Purity (%):	99.9993
Starting Material Lot No:	1551
Matrix:	tr. HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 5 µg/mL -weighted mean-
Certified Density:	1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Potassium in 2% (v/v) HNO3**

Catalog Number:	CGK10-1, CGK10-2, and CGK10-5
Lot Number:	**F2-K03033**
Starting Material:	KNO3
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1727
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 10,022 ± 60 µg/mL - weighted mean

Certified Density: 1.025 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

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2.0 DESCRIPTION OF CRM **10000 µg/mL Sodium in 2% (v/v) HNO3**

Catalog Number:	CGNA10-1, CGNA10-2, and CGNA10-5
Lot Number:	**G2-NA03110**
Starting Material:	Na2CO3
Starting Material Purity (%):	99.9992
Starting Material Lot No:	1628
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,008 ± 17 µg/mL -weighted mean-
Certified Density:	1.033 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Iron in 5 % (v/v) HNO3**

Catalog Number:	CGFE10-1, CGFE10-2, and CGFE10-5
Lot Number:	**G2-FE04029**
Starting Material:	Fe pieces
Starting Material Purity (%):	99.9977
Starting Material Lot No:	1762
Matrix:	5 % (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	9,977 ± 24 µg/mL -weighted mean-
Certified Density:	1.035 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Zinc in 2% (v/v) HNO3**

Catalog Number:	CGZN1-1, CGZN1-2, and CGZN1-5
Lot Number:	**F2-ZN02088**
Starting Material:	Zn shot
Starting Material Purity (%):	99.9999
Starting Material Lot No:	1689
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	998 ± 5 µg/mL -weighted mean-
Certified Density:	1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	**Characterization of CRM by one method**
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

INORGANIC VENTURES™
Standard ID : M3124
...ology Drive
Christiansburg, VA 24073 • USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

R:011114

tel: 800.669.6799 • 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

M3124

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Copper in 3% (v/v) HNO3**

Catalog Number:	CGCU1-1, CGCU1-2, and CGCU1-5
Lot Number:	**F2-CU02147**
Starting Material:	Cu shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1718
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

INORGANIC VENTURES
300 Technology Drive
burg, VA 24073 · USA
inorganicventures.com

Standard ID : M3145

CERTIFICATE OF ANALYSIS

M3145 TO M3147

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info@inorganicventures.com

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Stock Solution**

Catalog No.: CLPP-CAL-1

Lot Number: **G2-MEB479124**

Matrix: 5% HNO3(v/v)

5,000 µg/mL ea:
Ca, K, Mg, Na,

2,000 µg/mL ea:
Al, Ba,

1,000 µg/mL ea:
Fe,

500 µg/mL ea:
Co, Mn, Ni, V, Zn,

250 µg/mL ea:
Ag, Cu,

200 µg/mL ea:
Cr3,

50 µg/mL ea:
Be

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	2,002 ± 13 µg/mL	Barium, Ba	2,002 ± 13 µg/mL	Beryllium, Be	50.03 ± 0.28 µg/mL
Calcium, Ca	5,004 ± 35 µg/mL	Chromium+3, Cr3	200.2 ± 1.3 µg/mL	Cobalt, Co	500.5 ± 3.3 µg/mL
Copper, Cu	250.2 ± 1.6 µg/mL	Iron, Fe	1,001 ± 6 µg/mL	Magnesium, Mg	5,004 ± 33 µg/mL
Manganese, Mn	500.4 ± 3.2 µg/mL	Nickel, Ni	500.5 ± 3.3 µg/mL	Potassium, K	5,004 ± 22 µg/mL
Silver, Ag	250.2 ± 1.6 µg/mL	Sodium, Na	5,004 ± 33 µg/mL	Vanadium, V	500.4 ± 3.4 µg/mL
Zinc, Zn	500.4 ± 3.3 µg/mL				

Certified Density: 1.117 g/mL (measured at 20 ± 1° C)

INORGANIC VENTURES
Standard ID : M3148
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CERTIFICATE OF ANALYSIS

M3148 To M3150

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1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM**

	Stock Solution
Catalog No.:	CLPP-CAL-3
Lot Number:	**G2-MEB467069**
Matrix:	7% HNO3(v/v)

1,000 µg/mL ea:
As, Pb, Se, Tl,

500 µg/mL ea:
Cd

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Arsenic, As	1,000 ± 7 µg/mL	Cadmium, Cd	500.0 ± 3.2 µg/mL	Lead, Pb	1,000 ± 7 µg/mL
Selenium, Se	1,000 ± 7 µg/mL	Thallium, Tl	1,000 ± 7 µg/mL		

Certified Density: 1.043 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

INORGANIC VENTURES
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Standard ID : M3151

R: 2/22/14

CERTIFICATE OF ANALYSIS

M3151

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M3151

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Antimony in HF in 2% (v/v) HNO3 / tr. HF**

Catalog Number:	CGSBF1-1, CGSBF1-2, and CGSBF1-5
Lot Number:	**G2-SB03021**
Starting Material:	Sb shot
Starting Material Purity (%):	99.9997
Starting Material Lot No:	1647
Matrix:	2% (v/v) HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,006 ± 5 µg/mL -No weighted mean-
Certified Density:	1.010 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. **w_a and w_b** = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

INORGANIC VENTURES™
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inorganicventures.com

Standard ID : M3156

CERTIFICATE OF ANALYSIS

M3156 TO M3160

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info@inorganicventures.com

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Indium in 5% (v/v) HNO3**

Catalog Number:	CGIN10-1, CGIN10-2, and CGIN10-5
Lot Number:	**F2-IN01095**
Starting Material:	In shot
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1775, 1777
Matrix:	5% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,050 ± 51 µg/mL -weighted mean-
Certified Density:	1.033 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M3185

R : 05/08/14

ISO 9001 QS Registered
ISO 17025-34-35-43 Accredited
Scopes: http://AbsoluteStandards.com

244

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**57003**		C363101	Nitric Acid	
Lot Number:	**122713**				
Description:	**Lithium (Li)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	122716				
	Storage:	20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.98	0.090	Flask Uncertainty		

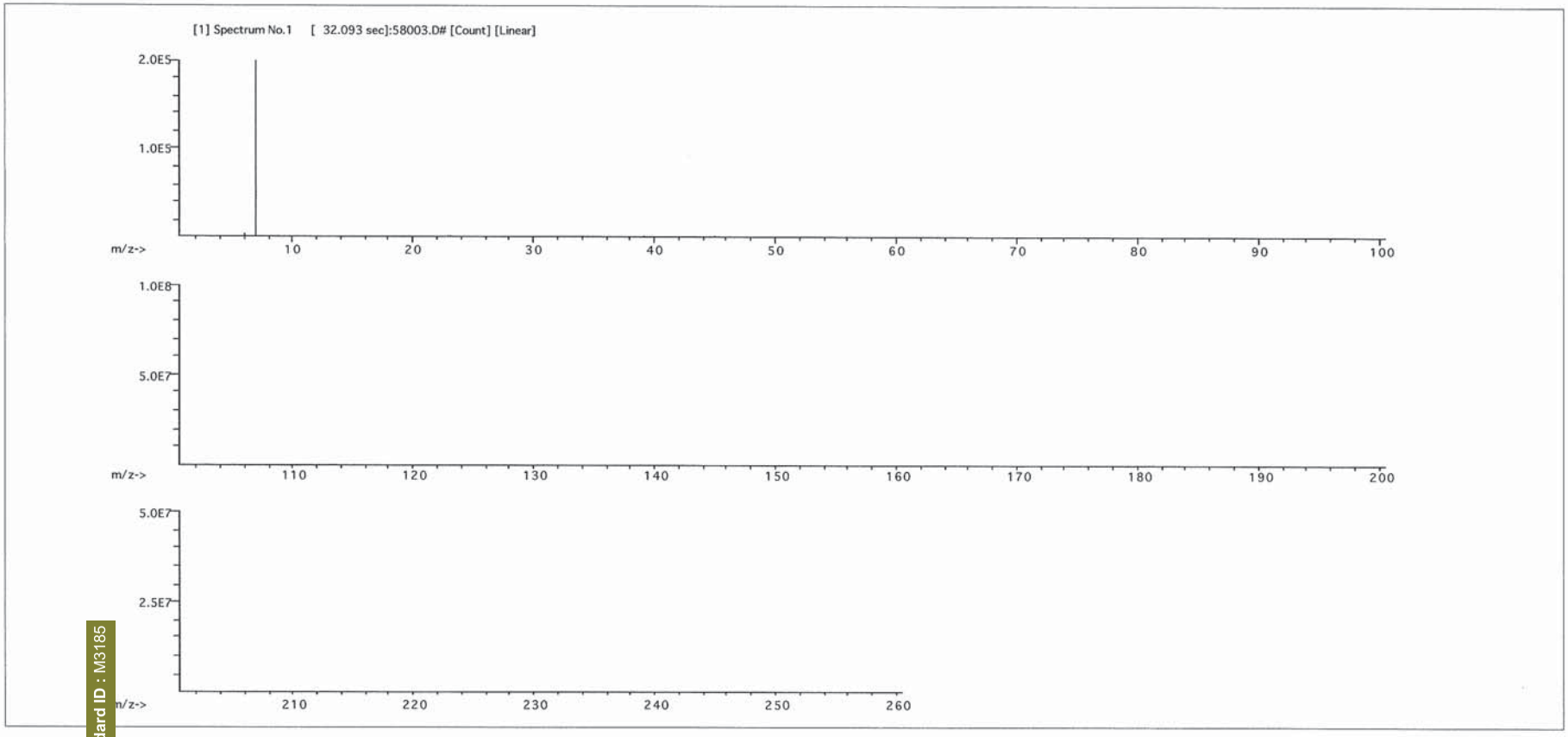
Gabriel Helland

Formulated By:	Gabriel Helland	122713

Pedro Rentas

Reviewed By:	Pedro L. Rentas	122713

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	MSDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lithium nitrate (Li)	58103	111412	0.1000	200.0	0.013	10001.5	**1000.2**	0.00201	07790-69-4	5 mg/m3	N/A	N/A



Standard ID : M3185

INORGANIC VENTURES™

Standard ID : M3187

R: 05/09/19

CERTIFICATE OF ANALYSIS

M3187

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Phosphorus in H2O**

Catalog Number:	CGP1-1, CGP1-2, and CGP1-5
Lot Number:	**G2-P02048**
Starting Material:	H3PO4
Starting Material Purity (%):	99.9997
Starting Material Lot No:	1704
Matrix:	H2O

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration:	1,001 ± 4 µg/mL -weighted mean-
Certified Density:	1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	**Characterization of CRM by one method**
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$ CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$ $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results: X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$ $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

Standard ID : M3207

Hydrogen Peroxide, 30%
BAKER ANALYZED® A.C.S. Reagent
(Stabilized)

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

M3207.
Received Date 7/3/14
Exp. Date 5/27/15 7/3/14.

Material No.: 2186-03
Batch No.: 0000064775
Manufactured Date: 2013/11/26
Expiration Date: 2015/05/27

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay (H_2O_2)	30.0 - 32.0 %	31.7
Color (APHA)	<= 10	5
Residue after Evaporation	<= 0.0020 %	0.0002
Titrable Acid (meq/g)	<= 0.0006	< 0.0001
Chloride (Cl)	<= 3 ppm	< 1
Nitrate (NO_3)	<= 2 ppm	< 2
Phosphate (PO_4)	<= 2 ppm	< 1
ACS - Sulfate (SO_4)	<= 5 ppm	< 3
Ammonium (NH_4)	<= 5 ppm	< 3
Trace Impurities - Copper (Cu)	<= 50.0 ppb	< 1.0
Trace Impurities - Iron (Fe)	<= 100.0 ppb	4.1
Heavy Metals (as Pb)	<= 1000 ppb	< 250
Trace Impurities - Lead (Pb)	<= 100.0 ppb	< 10.0
Trace Impurities - Nickel (Ni)	<= 50.0 ppb	< 5.0

For Laboratory, Research or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs

Country of Origin: US
Packaging Site: Paris Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Nitric Acid, 69.0-70.0%
Standard ID : M3215 ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

M 3215
Received D. 08/12/14
Exp. D. 04/15/19.

Material No.: 9598-34
Batch No.: 0000077192
Manufactured Date: 2014/04/16
Retest Date: 2019/04/15

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.7
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.419
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	< 0.7
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.3
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	2.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	< 1.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000077192

Test	Specification	Result
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	< 1.0
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.3
Trace Impurities - Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities - Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities - Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities - Silicon (Si)	<= 20.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 200.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Standard ID : M3218

Hydrochloric Acid, 36.5-38.0%
[redacted]ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

M 3218
Received d. 8/20/14
Exp. D. 25/03/19
By

Material No.: 9530-33
Batch No.: 0000075649
Manufactured Date: 2014/03/26
Retest Date: 2019/03/25

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	< 1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.190
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	< 1
ACS - Free Chlorine (as Cl_2)	<= 0.5 ppm	< 0.5
Phosphate (PO_4)	<= 0.05 ppm	< 0.03
Sulfate (SO_4)	<= 0.5 ppm	< 0.3
Sulfite (SO_3)	<= 0.8 ppm	0.2
Ammonium (NH_4)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	9.3
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

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Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9530-33
Batch No.: 0000075649

Test	Specification	Result
Trace Impurities - Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 15.0 ppb	< 1.0
Trace Impurities - Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 10.0 ppb	0.2
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.1
Trace Impurities - Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities - Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.2
Trace Impurities - Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities - Selenium (Se), For Information Only	ppb	1.0
Trace Impurities - Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Titanium (Ti)	<= 1.0 ppb	0.5
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

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Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

INORGANIC VENTURES

Standard ID : M3224

CERTIFICATE OF ANALYSIS

M3224

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number (010105).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.03

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGCA10
Lot Number:	G2-CA04095
Matrix:	2% (v/v) HNO3
Value/Analyte(s):	10,000 µg/mL Calcium
Starting Material:	CaO
Starting Material Lot#:	Multiple Lots
Starting Material Purity:	99.9990%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10,027 ± 23 µg/mL weighted mean

Certified Density: 1.040 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	**10031 ± 41 µg/mL** ICP Assay NIST SRM 3109a Lot Number: 050825
Assay Method #2	**10025 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

INORGANIC VENTURES

Standard ID : M3225

CERTIFICATE OF ANALYSIS

M3225

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number (010105).

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGMG10
Lot Number:	G2-MG03120
Matrix:	2% (v/v) HNO3
Value/Analyte(s):	10,000 µg/mL Magnesium
Starting Material:	Mg chips
Starting Material Lot#:	1484
Starting Material Purity:	99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9,973 ± 20 µg/mL -weighted mean-

Certified Density: 1.053 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	**9,955 ± 29 µg/mL** ICP Assay NIST SRM 3131a Lot Number: 050302
Assay Method #2	**9,986 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Standard ID : M3227 0-70.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

SEIDLER CHEMICAL COMPANY
537 Raymond Boulevard
Newark, NJ 07105

Material No.: 9598-34
Batch No.: 0000077192
Manufactured Date: 2014/04/16
Retest Date: 2019/04/15

M3227.
Received D. 9/3/14
Expired d. 4/15/19.
B 9/3/14.

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.7
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.419
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	< 0.7
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.3
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	2.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	< 1.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000077192

Test	Specification	Result
Trace Impurities – Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities – Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities – Magnesium (Mg)	<= 7.0 ppb	< 1.0
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities – Mercury (Hg)	<= 0.5 ppb	0.3
Trace Impurities – Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities – Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities – Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities – Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities – Silicon (Si)	<= 20.0 ppb	< 10.0
Trace Impurities – Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities – Sodium (Na)	<= 200.0 ppb	< 5.0
Trace Impurities – Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities – Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities – Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities – Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities – Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities – Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities – Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

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Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Standard ID : M3245 -70.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

M3245
Received 9/12/14
Exp. 07/01/19.
BS

Part of AVANTOR™ PERFORMANCE MATERIALS

Material No.: 9598-34
Batch No.: 0000084115
Manufactured Date: 2014/07/02
Retest Date: 2019/07/01

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.5
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	< 1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.420
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	0.5
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	0.8
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.0
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	3.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 0.2
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	0.5

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000084115

Test	Specification	Result
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	0.2
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	< 0.1
Trace Impurities - Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities - Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities - Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities - Silicon (Si)	<= 20.0 ppb	2.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 200.0 ppb	< 0.5
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	0.2

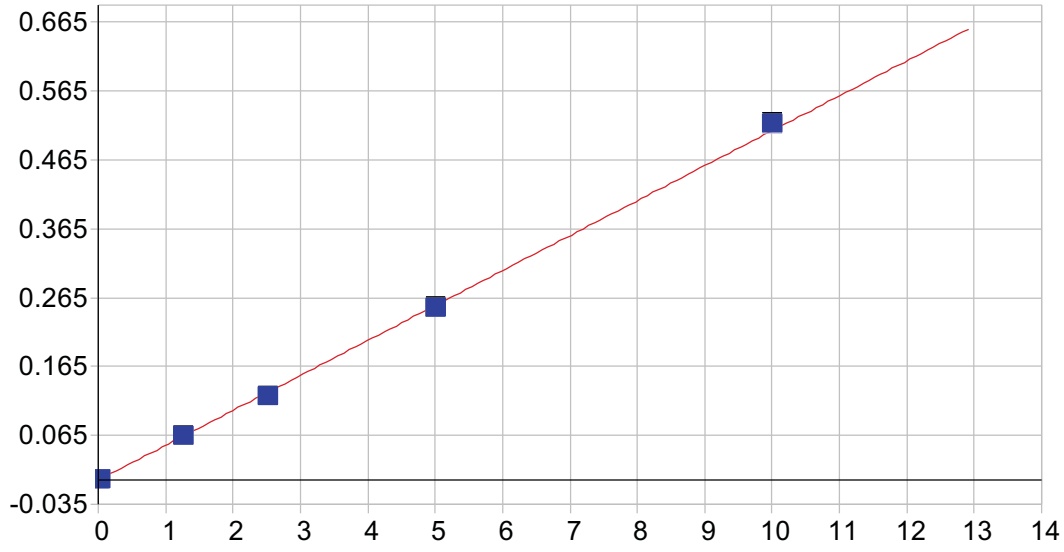
For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



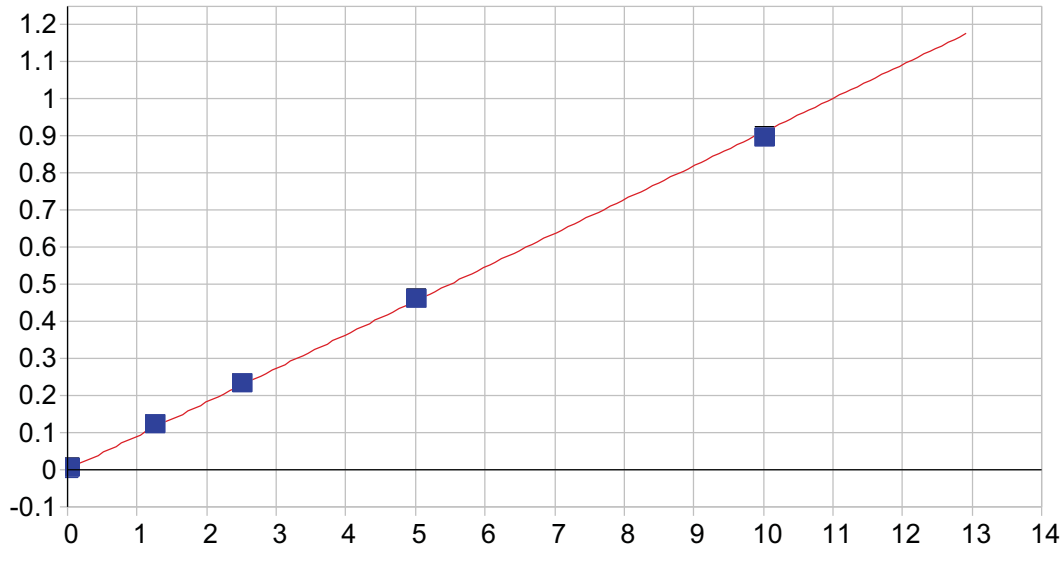
As 189.042 {479}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000107	Re-Slope:	1.000000
A1 (Gain):	0.050760	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999756	Status:	OK.
Std Error of Est:	0.000019		
Predicted MDL:	0.001908		
Predicted MQL:	0.006361		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00011	.000	1
S1	.01000	.00926	-.001	-7.42	.00036	.000	1
S2	1.2500	1.2439	-.006	-.487	.06293	.000	1
S3	2.5000	2.3951	-.105	-4.20	.12126	.001	1
S4	5.0000	4.9249	-.075	-1.50	.24947	.000	1
S5	10.000	10.187	.187	1.87	.51616	.002	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



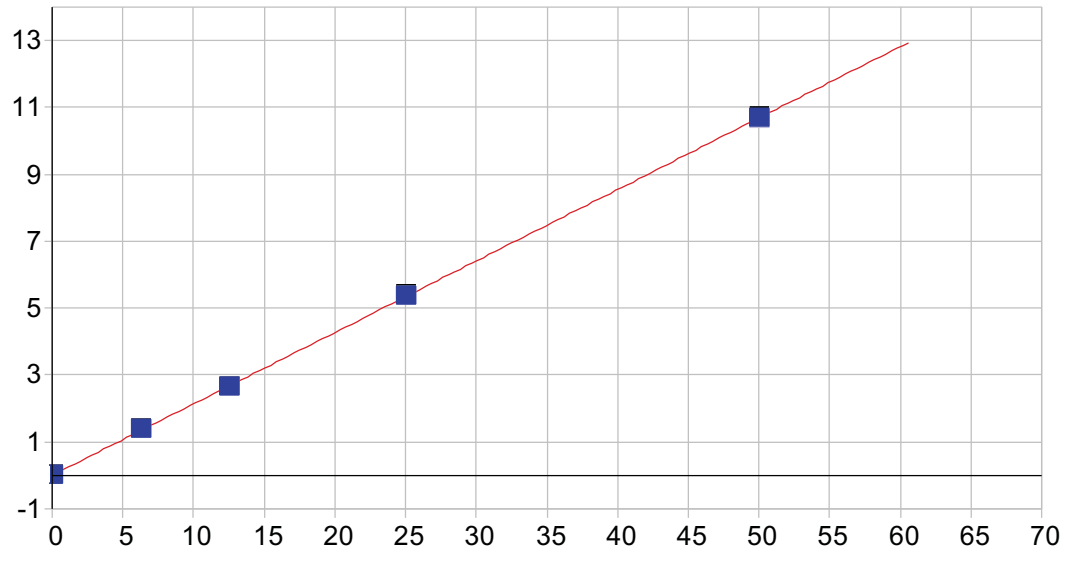
Tl 190.856 {477}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000066	Re-Slope:	1.000000
A1 (Gain):	0.091091	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999724	Status:	OK.
Std Error of Est:	0.000057		
Predicted MDL:	0.001192		
Predicted MQL:	0.003972		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00007	.000	1
S1	.02500	.02409	-.001	-3.63	.00213	.000	1
S2	1.2500	1.3410	.091	7.28	.12202	.000	1
S3	2.5000	2.5358	.036	1.43	.23078	.001	1
S4	5.0000	5.0425	.042	.850	.45899	.001	1
S5	10.000	9.8317	-.168	-1.68	.89498	.004	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



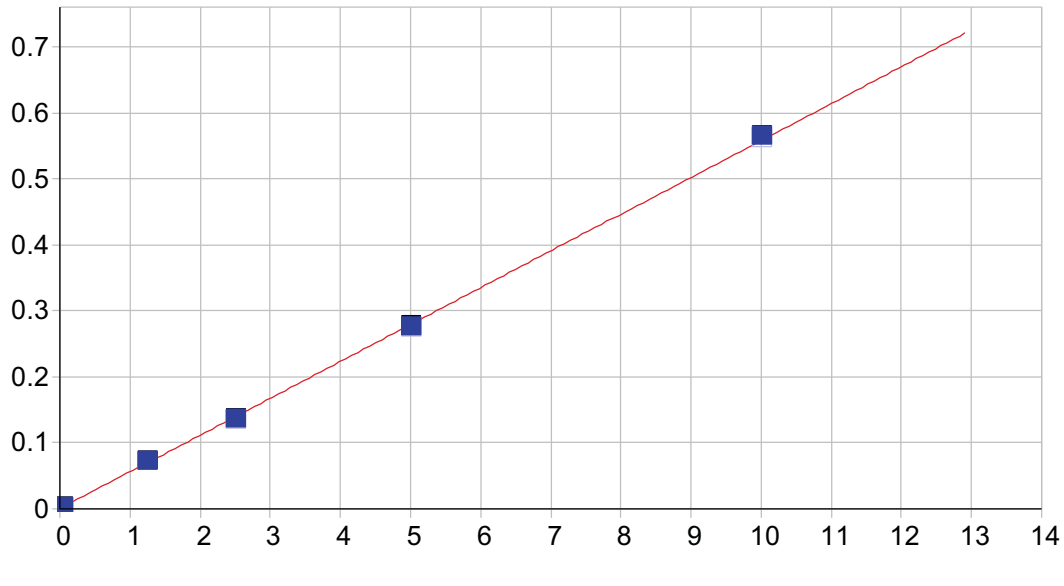
Pb 220.353 {453}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000193	Re-Slope:	1.000000
A1 (Gain):	0.213674	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999956	Status:	OK.
Std Error of Est:	0.000075		
Predicted MDL:	0.001145		
Predicted MQL:	0.003816		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00019	.000	1
S1	.01000	.00908	-.001	-9.25	.00173	.000	1
S2	6.2500	6.4333	.183	2.93	1.3740	.003	1
S3	12.500	12.343	-.157	-1.26	2.6362	.014	1
S4	25.000	25.107	.107	.429	5.3628	.014	1
S5	50.000	49.868	-.132	-.265	10.652	.036	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



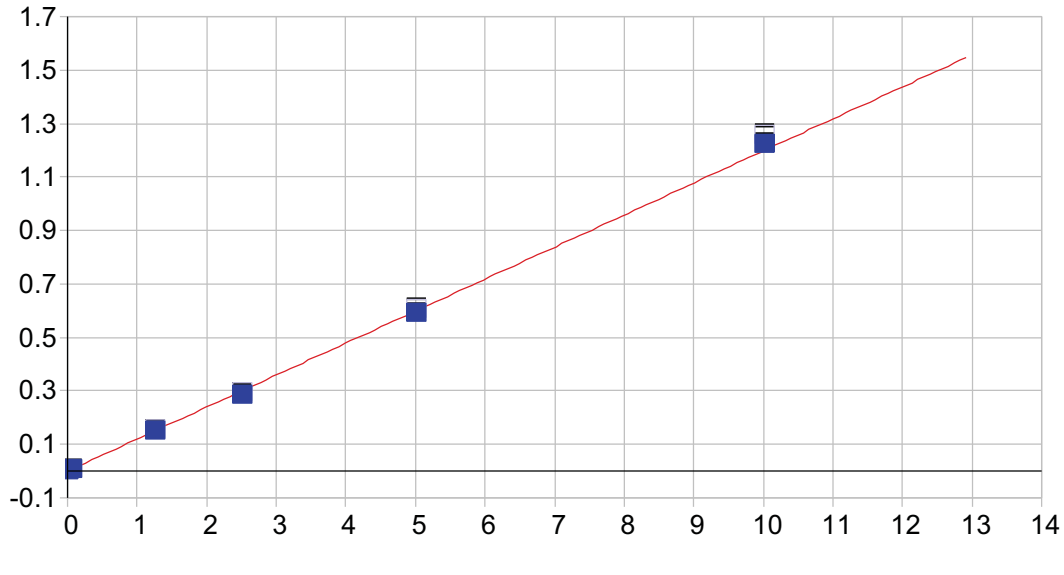
Se 196.090 {472}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000164	Re-Slope:	1.000000
A1 (Gain):	0.055781	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999871	Status:	OK.
Std Error of Est:	0.000028		
Predicted MDL:	0.002438		
Predicted MQL:	0.008128		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00016	.000	1
S1	.03500	.03607	.001	3.04	.00217	.000	1
S2	1.2500	1.2746	.025	1.97	.07081	.000	1
S3	2.5000	2.4251	-.075	-3.00	.13455	.000	1
S4	5.0000	4.9378	-.062	-1.24	.27381	.001	1
S5	10.000	10.111	.111	1.11	.56061	.001	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

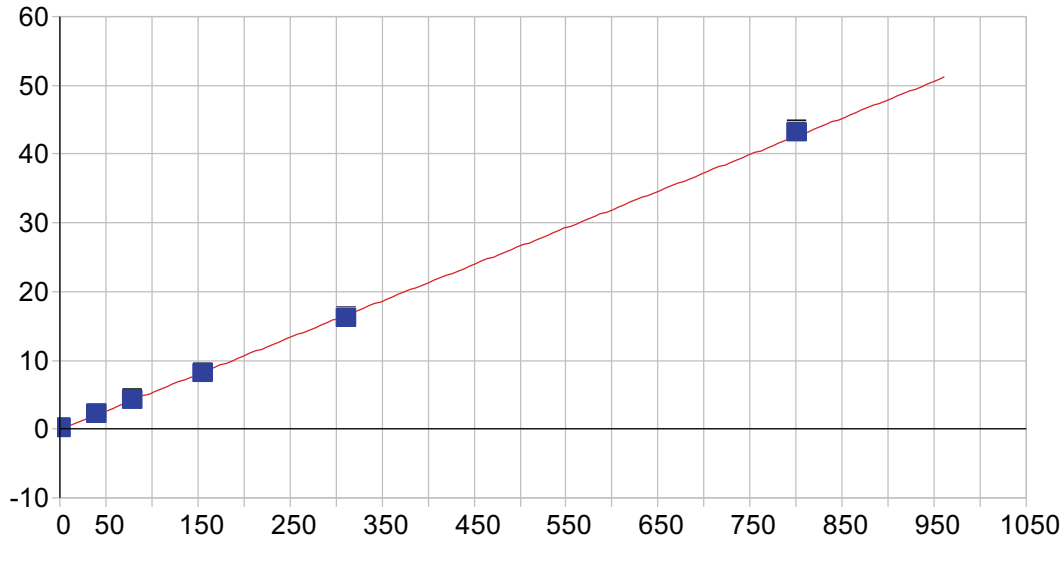


Sb 206.833 {463}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000017			Re-Slope:	1.000000	
A1 (Gain):	0.119740			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.999698		Status:	OK.		
Std Error of Est:	0.000124					
Predicted MDL:	0.001393					
Predicted MQL:	0.004643					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00002	.000	1
S1	.06000	.05720	-.003	-4.67	.00687	.000	1
S2	1.2500	1.2389	-.011	-.891	.15230	.000	1
S3	2.5000	2.3793	-.121	-4.83	.29278	.001	1
S4	5.0000	4.9199	-.080	-1.60	.60487	.001	1
S5	10.000	10.215	.215	2.15	1.2546	.004	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



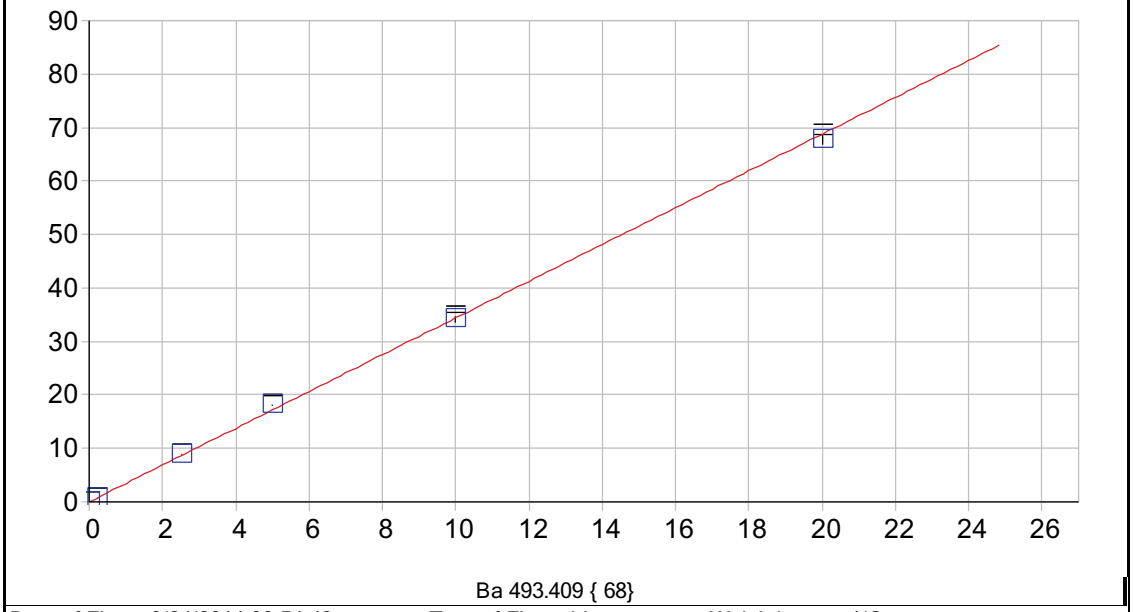
Al 396.152 { 85}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000306	Re-Slope:	1.000000
A1 (Gain):	0.053231	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999871	Status:	OK.
Std Error of Est:	0.000534		
Predicted MDL:	0.009755		
Predicted MQL:	0.032516		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00002	.000	.000	-.00031	.000	1
S1	.20000	.18147	-.019	-9.27	.01037	.000	1
S2	38.750	39.166	.416	1.07	2.0995	.008	1
S3	77.500	79.060	1.56	2.01	4.2381	.011	1
S4	155.00	151.22	-3.78	-2.44	8.1093	.006	1
S5	310.00	303.40	-6.60	-2.13	16.270	.015	1
S6	800.00	808.45	8.45	1.06	43.192	.204	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

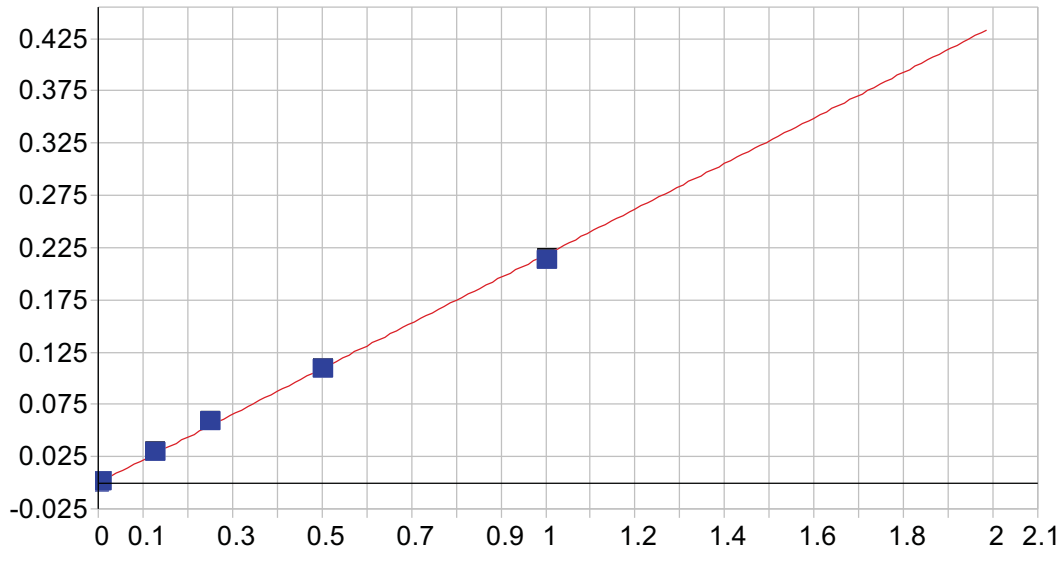


Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.009650	Re-Slope:	1.000000
A1 (Gain):	3.438046	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999716	Status:	OK.
Std Error of Est:	0.008708		
Predicted MDL:	0.000373		
Predicted MQL:	0.001242		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00002	.000	.000	.00960	.001	1
S1	.20000	.20218	.002	1.09	.70474	.003	1
S2	2.5000	2.5924	.092	3.70	8.9225	.019	1
S3	5.0000	5.2587	.259	5.17	18.089	.056	1
S4	10.000	9.9350	-.065	-.650	34.167	.553	1
S5	20.000	19.712	-.288	-1.44	67.779	1.03	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



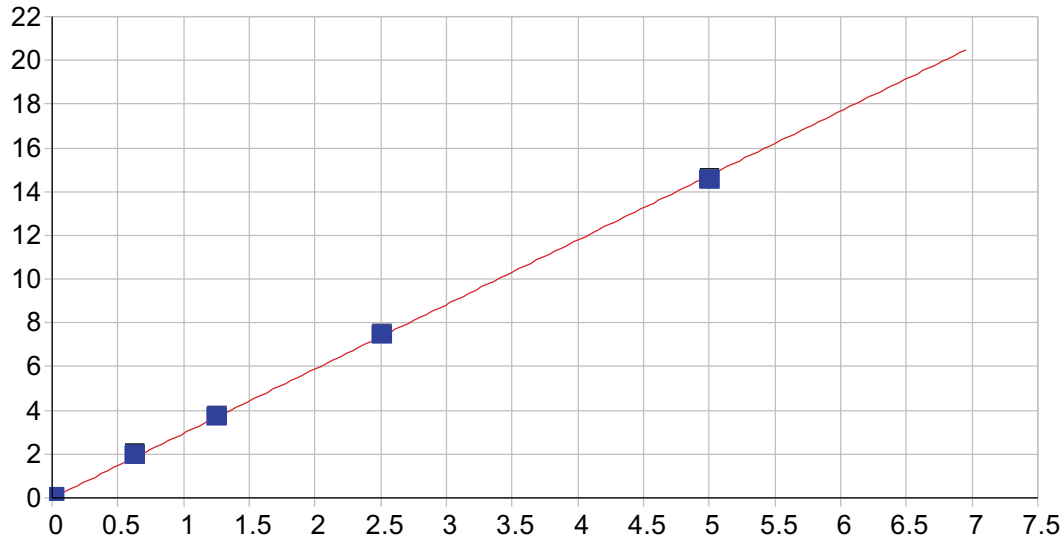
Be 234.861 {144}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000059	Re-Slope:	1.000000
A1 (Gain):	0.218192	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999461	Status:	OK.
Std Error of Est:	0.000027		
Predicted MDL:	0.000517		
Predicted MQL:	0.001724		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00006	.000	1
S1	.00500	.00502	.000	.469	.00115	.000	1
S2	.12500	.13229	.007	5.83	.02888	.000	1
S3	.25000	.26638	.016	6.55	.05809	.000	1
S4	.50000	.49917	-.001	-.166	.10879	.000	1
S5	1.0000	.97714	-.023	-2.29	.21289	.001	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



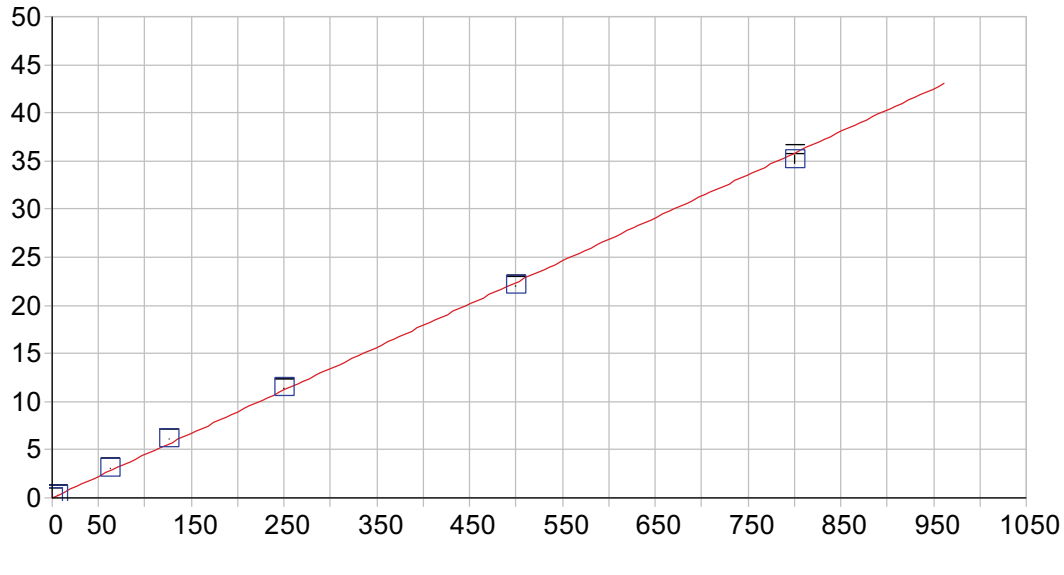
Cd 214.438 {457}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000130	Re-Slope:	1.000000
A1 (Gain):	2.946764	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999783	Status:	OK.
Std Error of Est:	0.000516		
Predicted MDL:	0.000057		
Predicted MQL:	0.000189		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00013	.000	1
S1	.00500	.00504	.000	.882	.01500	.000	1
S2	.62500	.66378	.039	6.20	1.9597	.003	1
S3	1.2500	1.2608	.011	.862	3.7224	.012	1
S4	2.5000	2.5294	.029	1.18	7.4678	.013	1
S5	5.0000	4.9210	-.079	-1.58	14.529	.038	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



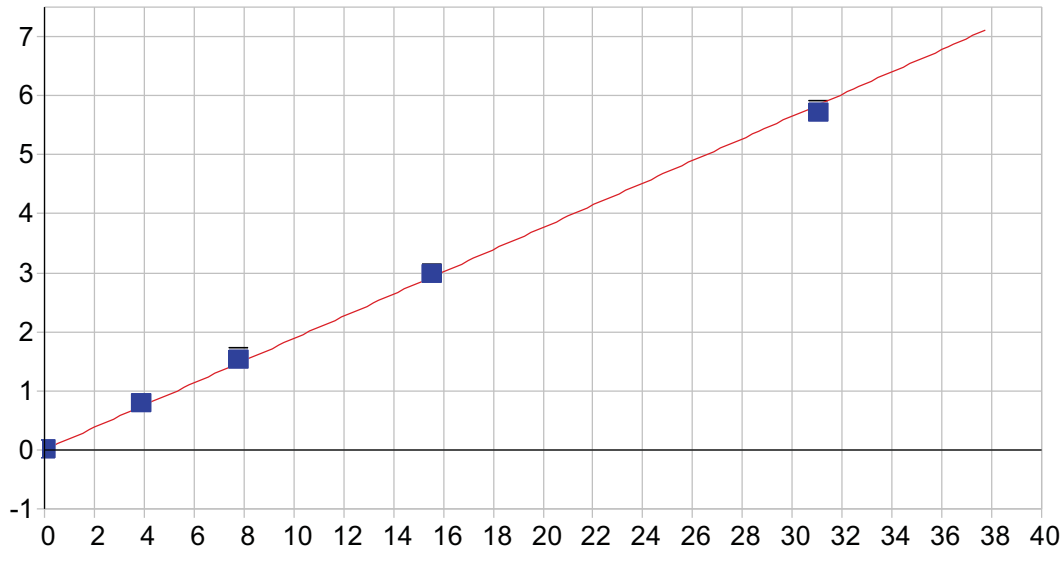
Ca 373.690 { 90}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002617	Re-Slope:	1.000000
A1 (Gain):	0.044756	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999390	Status:	OK.
Std Error of Est:	0.005457		
Predicted MDL:	0.010462		
Predicted MQL:	0.034873		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00121	-.001	.000	.00256	.000	1
S1	5.0000	5.3443	.344	6.89	.24181	.000	1
S2	62.500	68.629	6.13	9.81	3.0742	.008	1
S3	125.00	136.40	11.4	9.12	6.1076	.018	1
S4	250.00	254.34	4.34	1.74	11.386	.027	1
S5	500.00	492.80	-7.20	-1.44	22.059	.059	1
S6	800.00	784.98	-15.0	-1.88	35.136	.450	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



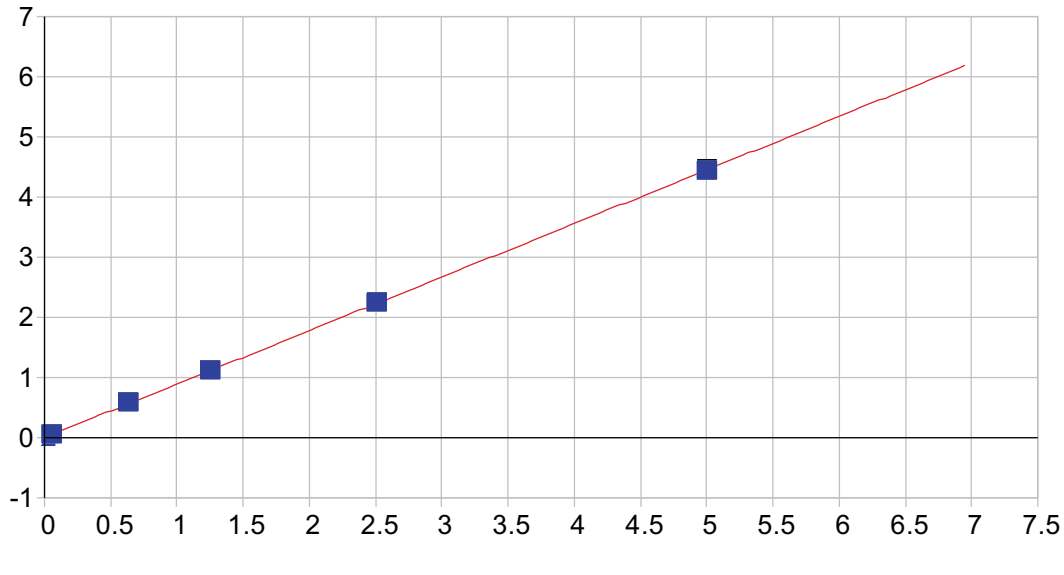
Cr 267.716 {126}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000053	Re-Slope:	1.000000
A1 (Gain):	0.188395	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999553	Status:	OK.
Std Error of Est:	0.000166		
Predicted MDL:	0.000333		
Predicted MQL:	0.001111		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00005	.000	1
S1	.01000	.01030	.000	3.04	.00189	.000	1
S2	3.8750	4.1554	.280	7.24	.78300	.003	1
S3	7.7500	7.9946	.245	3.16	1.5065	.060	1
S4	15.500	15.757	.257	1.66	2.9693	.008	1
S5	31.000	30.217	-.783	-2.53	5.6943	.042	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



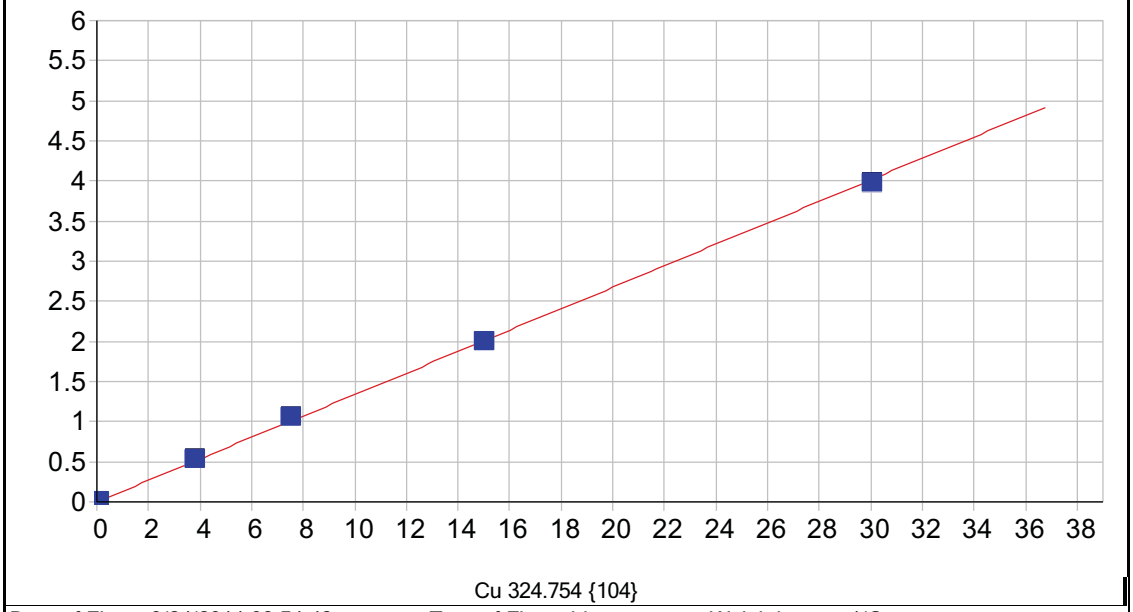
Co 228.616 {448}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000058	Re-Slope:	1.000000
A1 (Gain):	0.889942	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999934	Status:	OK.
Std Error of Est:	0.000273		
Predicted MDL:	0.000190		
Predicted MQL:	0.000634		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00006	.000	1
S1	.05000	.04819	-.002	-3.61	.04298	.000	1
S2	.62500	.64922	.024	3.87	.57861	.001	1
S3	1.2500	1.2395	-.011	-.844	1.1048	.003	1
S4	2.5000	2.5115	.012	.460	2.2387	.006	1
S5	5.0000	4.9766	-.023	-.467	4.4361	.014	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



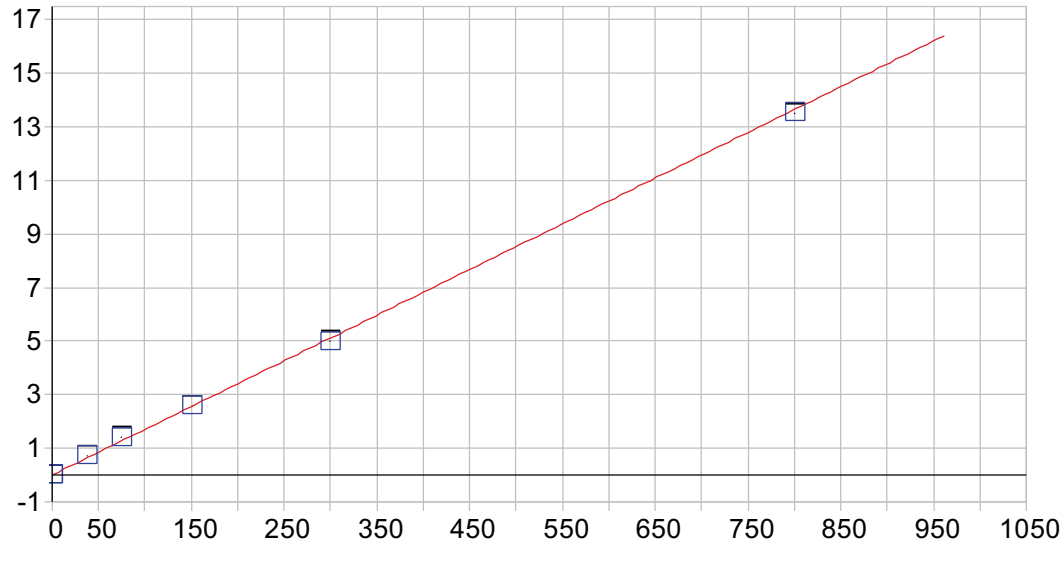
Cu 324.754 {104}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000564	Re-Slope:	1.000000
A1 (Gain):	0.133770	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999784	Status:	OK.
Std Error of Est:	0.000127		
Predicted MDL:	0.002360		
Predicted MQL:	0.007868		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00056	.000	1
S1	.02500	.02374	-.001	-5.05	.00373	.000	1
S2	3.7500	3.8850	.135	3.60	.51958	.000	1
S3	7.5000	7.8291	.329	4.39	1.0465	.002	1
S4	15.000	14.877	-.123	-.818	1.9880	.006	1
S5	30.000	29.660	-.340	-1.13	3.9627	.005	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



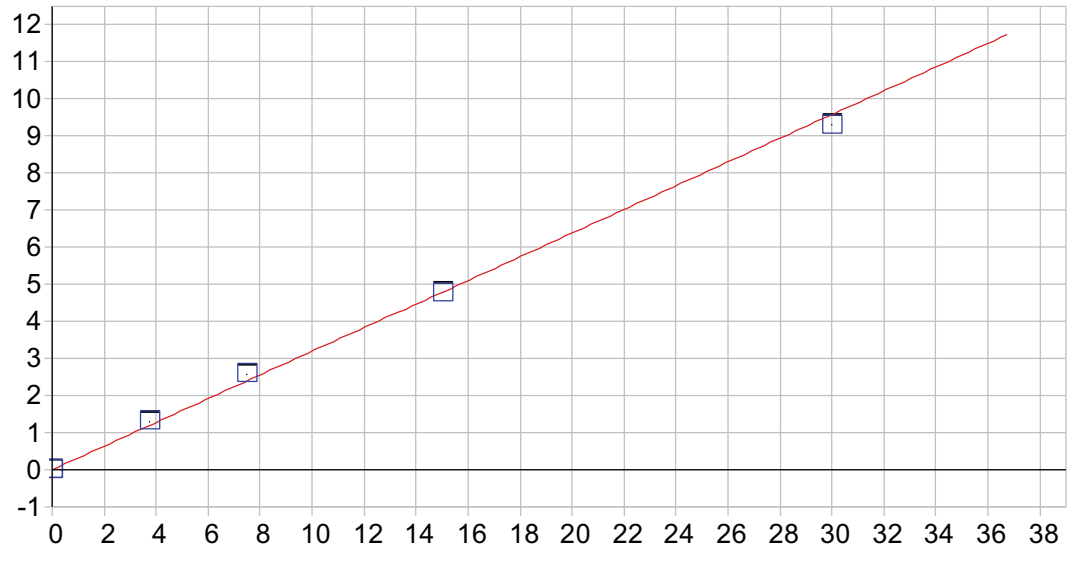
Fe 259.837 {130}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000087	Re-Slope:	1.000000
A1 (Gain):	0.017063	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999394	Status:	OK.
Std Error of Est:	0.000259		
Predicted MDL:	0.008959		
Predicted MQL:	0.029863		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00004	.000	.000	-.00009	.000	1
S1	.10000	.11879	.019	18.8	.00194	.000	1
S2	37.500	42.042	4.54	12.1	.71728	.002	1
S3	75.000	82.780	7.78	10.4	1.4124	.003	1
S4	150.00	152.49	2.49	1.66	2.6018	.007	1
S5	300.00	292.65	-7.35	-2.45	4.9935	.015	1
S6	800.00	792.52	-7.48	-.935	13.523	.024	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



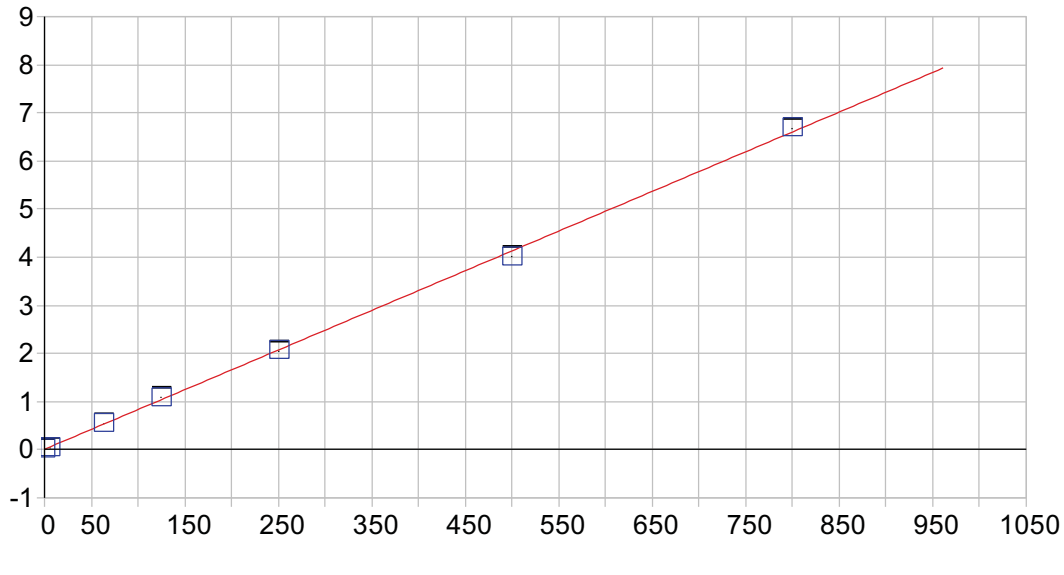
Mn 257.610 {131}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000004	Re-Slope:	1.000000
A1 (Gain):	0.319400	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999150	Status:	OK.
Std Error of Est:	0.000469		
Predicted MDL:	0.000478		
Predicted MQL:	0.001594		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00000	.000	1
S1	.01500	.01609	.001	7.27	.00514	.000	1
S2	3.7500	4.0614	.311	8.30	1.2972	.005	1
S3	7.5000	8.0799	.580	7.73	2.5807	.016	1
S4	15.000	14.973	-.027	-.177	4.7825	.009	1
S5	30.000	29.134	-.866	-2.89	9.3055	.012	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



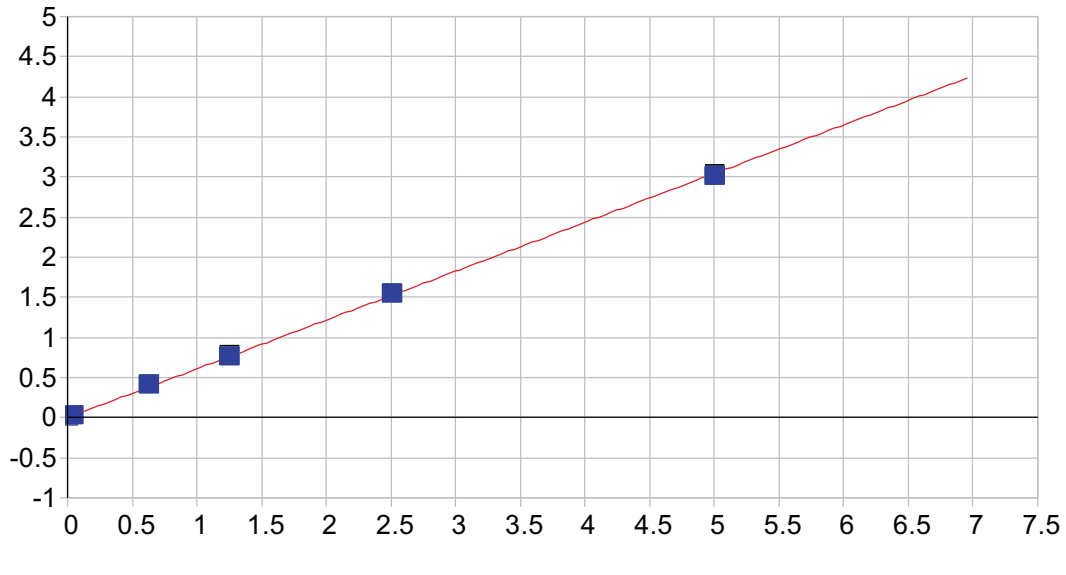
Mg 279.079 {121}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000023	Re-Slope:	1.000000
A1 (Gain):	0.008267	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999681	Status:	OK.
Std Error of Est:	0.000729		
Predicted MDL:	0.023546		
Predicted MQL:	0.078487		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00065	-.001	.000	-.00003	.000	1
S1	5.0000	5.2884	.288	5.77	.04370	.000	1
S2	62.500	65.728	3.23	5.17	.54337	.000	1
S3	125.00	131.45	6.45	5.16	1.0867	.002	1
S4	250.00	247.52	-2.48	-.991	2.0463	.007	1
S5	500.00	484.38	-15.6	-3.12	4.0045	.012	1
S6	800.00	808.12	8.12	1.02	6.6810	.013	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



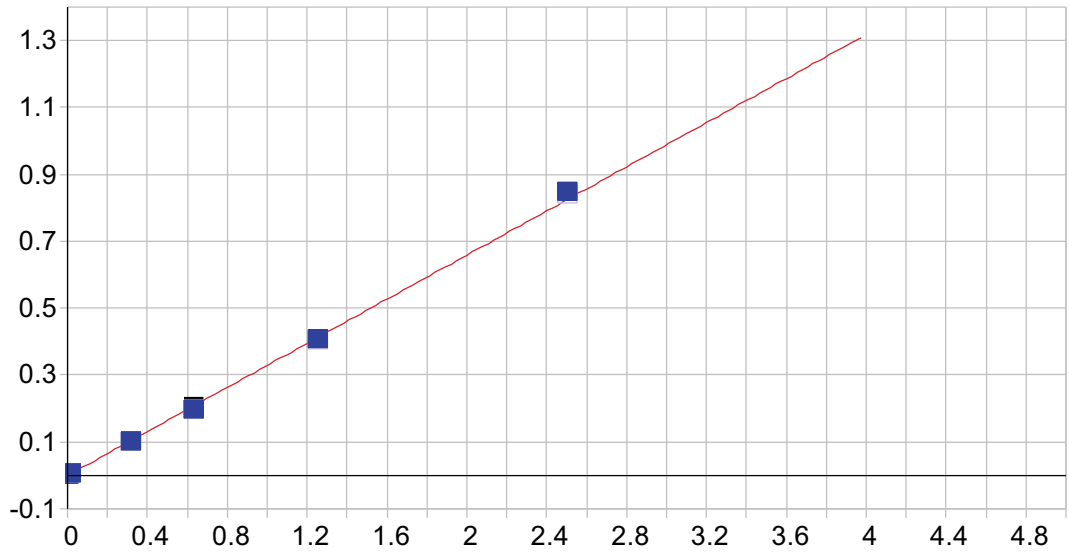
Ni 231.604 {446}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000026	Re-Slope:	1.000000
A1 (Gain):	0.608556	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999854	Status:	OK.
Std Error of Est:	0.000247		
Predicted MDL:	0.000314		
Predicted MQL:	0.001046		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00002	.000	1
S1	.04000	.04028	.000	.692	.02453	.000	1
S2	.62500	.66097	.036	5.76	.40215	.002	1
S3	1.2500	1.2533	.003	.266	.76252	.002	1
S4	2.5000	2.5146	.015	.585	1.5299	.004	1
S5	5.0000	4.9458	-.054	-1.08	3.0089	.011	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



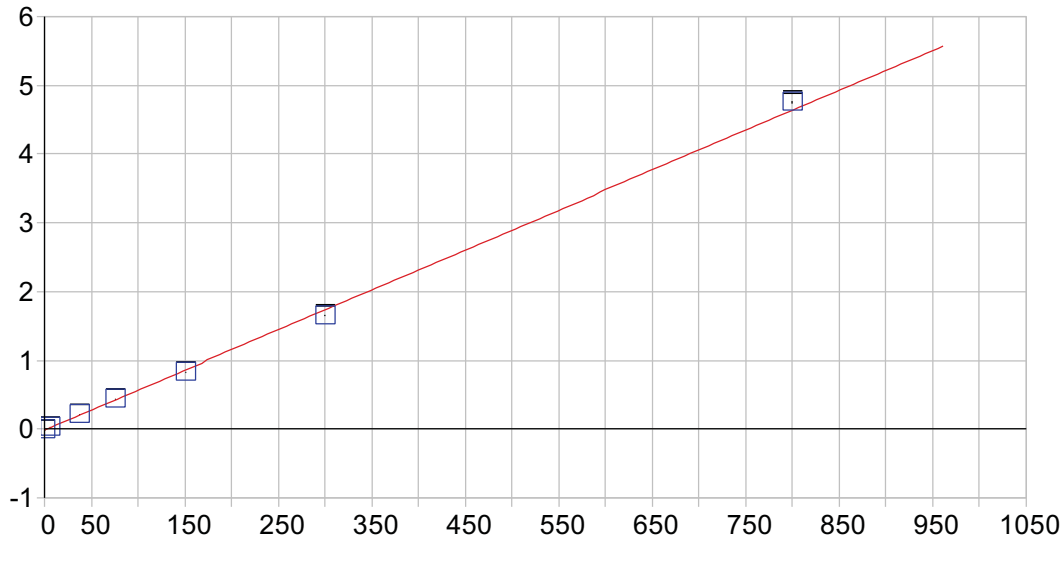
Ag 328.068 {103}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000677	Re-Slope:	1.000000
A1 (Gain):	0.329754	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999619	Status:	OK.
Std Error of Est:	0.000076		
Predicted MDL:	0.000329		
Predicted MQL:	0.001095		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00068	.000	1
S1	.01000	.00945	-.001	-5.49	.00242	.000	1
S2	.31250	.30331	-.009	-2.94	.09841	.000	1
S3	.62500	.59566	-.029	-4.69	.19389	.005	1
S4	1.2500	1.2285	-.022	-1.72	.40070	.001	1
S5	2.5000	2.5606	.061	2.43	.83628	.003	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



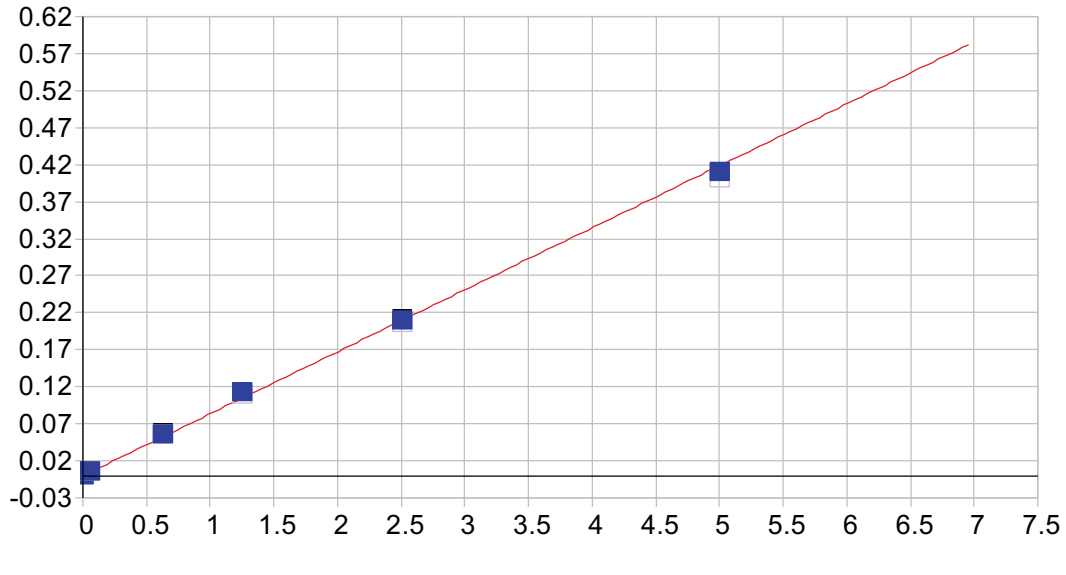
Na 818.326 { 41}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.011682	Re-Slope:	1.000000
A1 (Gain):	0.005814	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999489	Status:	OK.
Std Error of Est:	0.000575		
Predicted MDL:	0.191414		
Predicted MQL:	0.638047		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00033	.000	.000	-.01168	.001	1
S1	5.0000	4.9739	-.026	-.522	.01724	.001	1
S2	37.500	37.412	-.088	-.236	.20584	.001	1
S3	75.000	75.463	.463	.618	.42709	.003	1
S4	150.00	143.59	-6.41	-4.27	.82320	.002	1
S5	300.00	286.24	-13.8	-4.59	1.6527	.002	1
S6	800.00	819.82	19.8	2.48	4.7551	.023	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

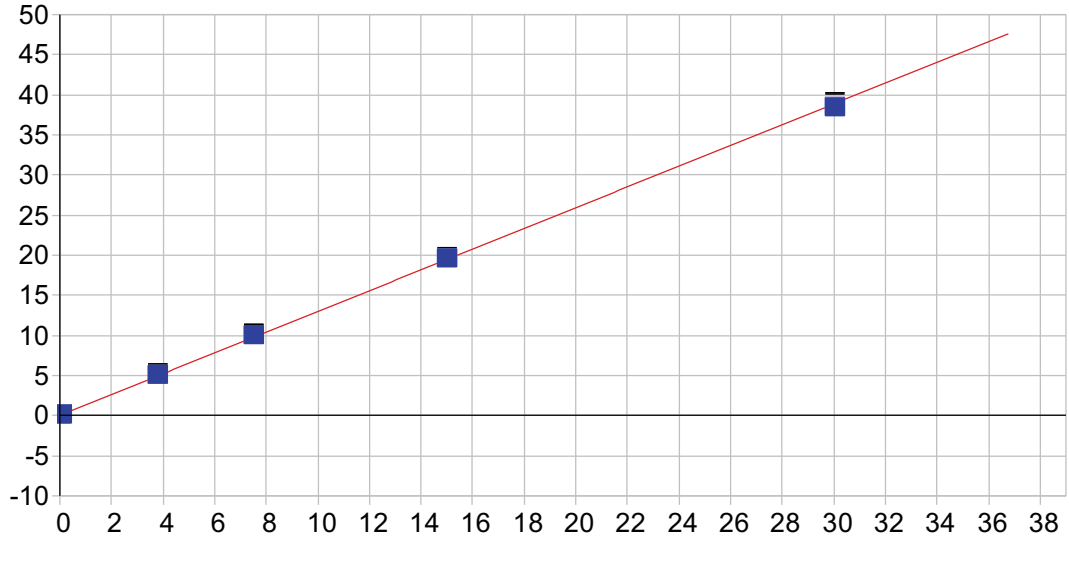


Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000073	Re-Slope:	1.000000
A1 (Gain):	0.083697	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999429	Status:	OK.
Std Error of Est:	0.000074		
Predicted MDL:	0.002679		
Predicted MQL:	0.008931		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	-.00007	.000	1
S1	.05000	.05368	.004	7.35	.00442	.000	1
S2	.62500	.66368	.039	6.19	.05443	.000	1
S3	1.2500	1.3283	.078	6.26	.10902	.001	1
S4	2.5000	2.4971	-.003	-.115	.20476	.001	1
S5	5.0000	4.8821	-.118	-2.36	.40021	.001	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



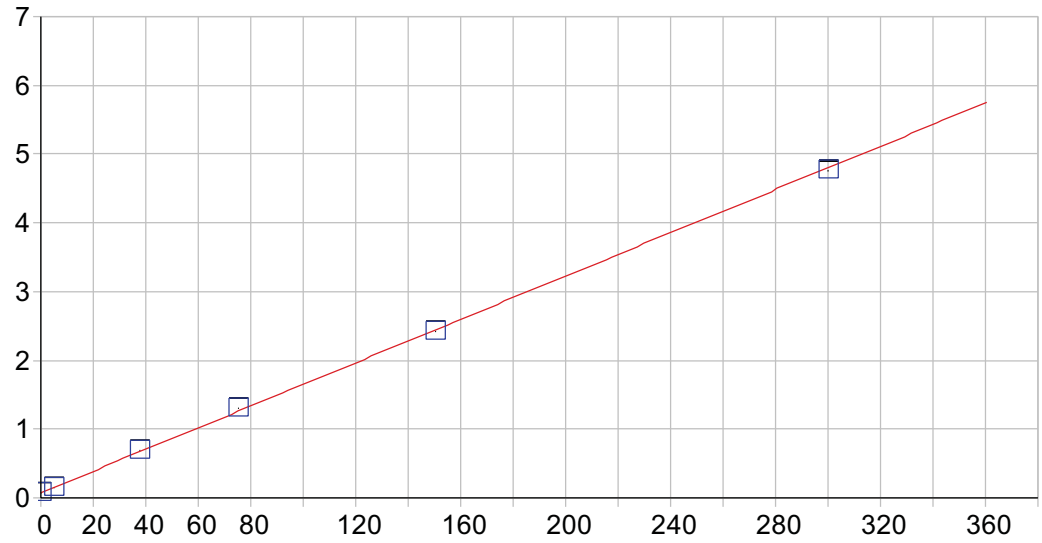
Zn 213.856 {158}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.002613	Re-Slope:	1.000000
A1 (Gain):	1.295114	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999884	Status:	OK.
Std Error of Est:	0.001405		
Predicted MDL:	0.005880		
Predicted MQL:	0.019598		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	-.00262	.006	1
S1	.06000	.06505	.005	8.42	.08189	.010	1
S2	3.7500	3.8564	.106	2.84	4.9998	.100	1
S3	7.5000	7.7038	.204	2.72	9.9905	.191	1
S4	15.000	15.032	.032	.216	19.498	.118	1
S5	30.000	29.652	-.348	-1.16	38.464	.488	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



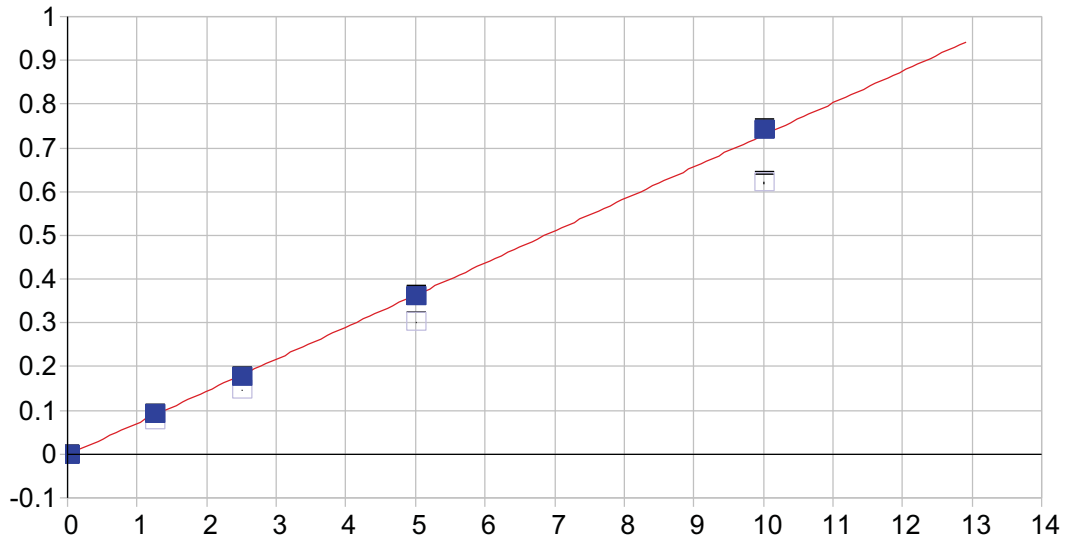
K 769.896 { 44}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.075563	Re-Slope:	1.000000
A1 (Gain):	0.015749	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999846	Status:	OK.
Std Error of Est:	0.000569		
Predicted MDL:	0.063547		
Predicted MQL:	0.211823		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00037	.000	.000	.07556	.001	1
S1	5.0000	5.1199	.120	2.40	.15619	.001	1
S2	37.500	38.603	1.10	2.94	.68352	.001	1
S3	75.000	77.784	2.78	3.71	1.3006	.001	1
S4	150.00	148.75	-1.25	-.832	2.4182	.002	1
S5	300.00	297.24	-2.76	-.920	4.7567	.017	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



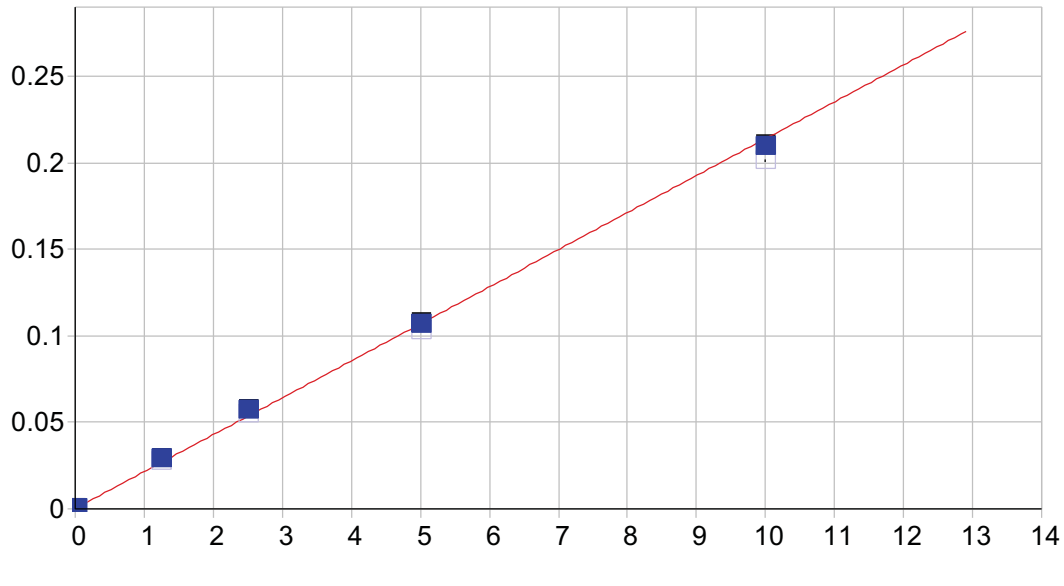
P 177.495 {490}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.002220	Re-Slope:	1.000000
A1 (Gain):	0.073138	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999359	Status:	OK.
Std Error of Est:	0.000045		
Predicted MDL:	0.001404		
Predicted MQL:	0.004679		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	-.00222	.000	1
S1	.01500	.00150	-.013	-90.0	-.00220	.000	1
S2	1.2500	1.2516	.002	.132	.07445	.000	1
S3	2.5000	2.4227	-.077	-3.09	.14523	.000	1
S4	5.0000	4.9530	-.047	-.940	.30056	.001	1
S5	10.000	10.137	.137	1.37	.62025	.003	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



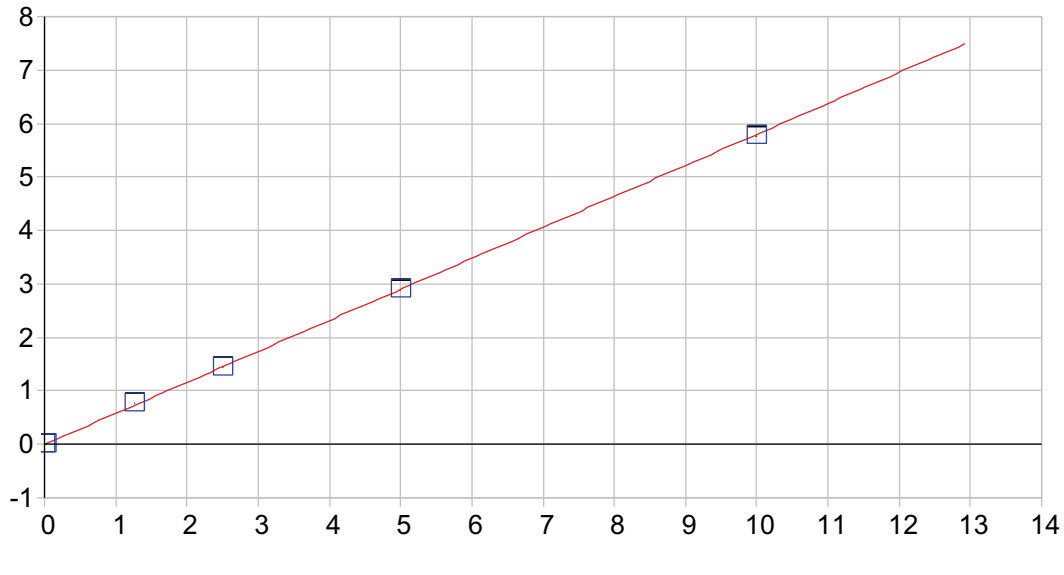
B 249.678 {135}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000142	Re-Slope:	1.000000
A1 (Gain):	0.021376	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999365	Status:	OK.
Std Error of Est:	0.000012		
Predicted MDL:	0.006793		
Predicted MQL:	0.022643		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00014	.000	1
S1	.01000	.00592	-.004	-40.8	.00027	.000	1
S2	1.2500	1.3340	.084	6.72	.02767	.000	1
S3	2.5000	2.6556	.156	6.22	.05493	.000	1
S4	5.0000	4.9906	-.009	-.188	.10287	.000	1
S5	10.000	9.7741	-.226	-2.26	.20116	.001	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

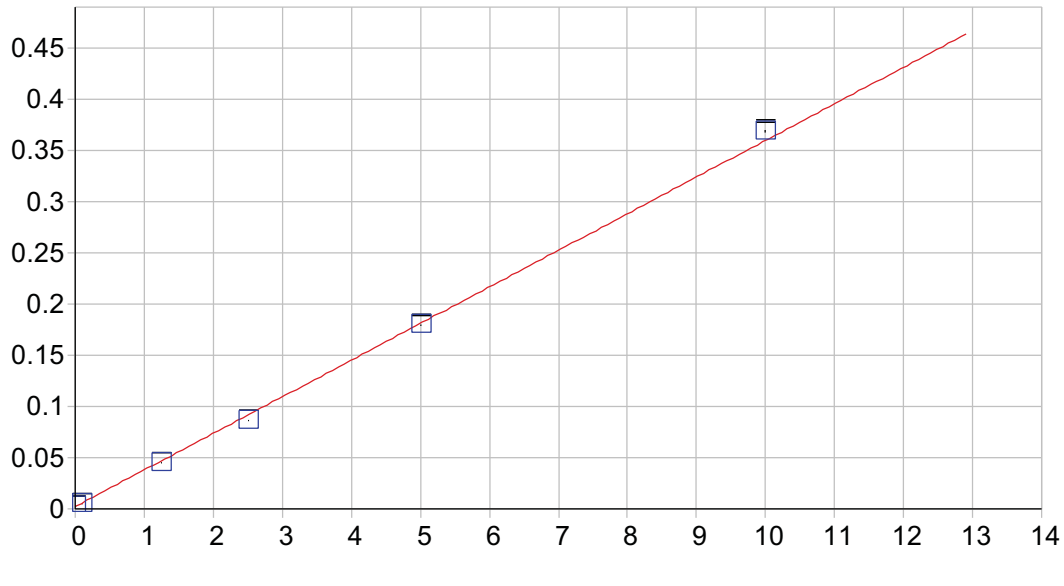


Mo 202.030 {467}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	-0.000035			Re-Slope:	1.000000	
A1 (Gain):	0.579771			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.999856			Status:	OK.	
Std Error of Est:	0.000165					
Predicted MDL:	0.000260					
Predicted MQL:	0.000866					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00004	.000	1
S1	.01000	.01038	.000	3.76	.00598	.000	1
S2	1.2500	1.3288	.079	6.30	.77034	.002	1
S3	2.5000	2.4928	-.007	-.288	1.4452	.003	1
S4	5.0000	4.9881	-.012	-.239	2.8919	.006	1
S5	10.000	9.9400	-.060	-.600	5.7629	.017	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



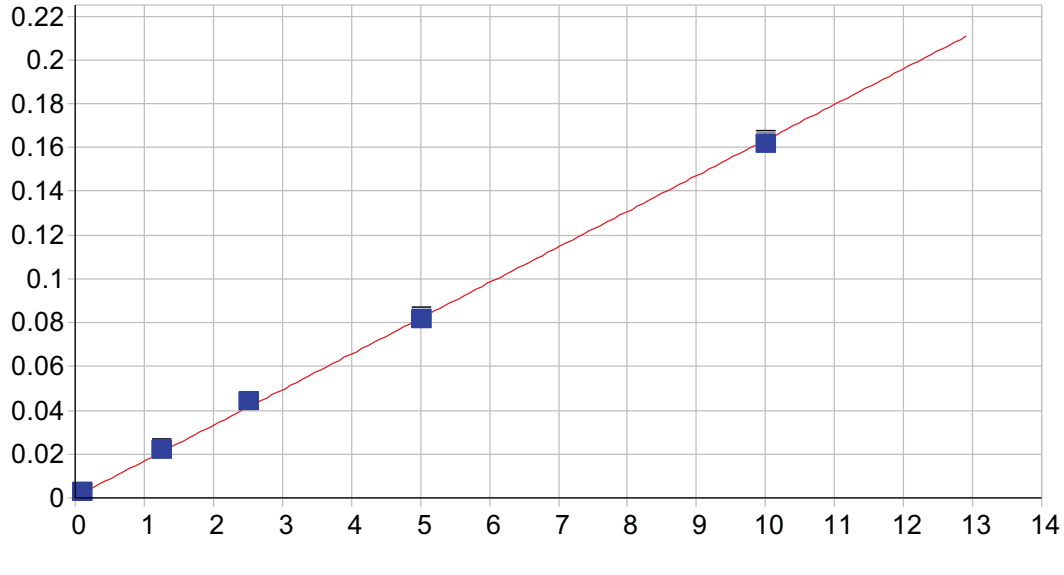
S 182.034 {485}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002185	Re-Slope:	1.000000
A1 (Gain):	0.035761	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999493	Status:	OK.
Std Error of Est:	0.000061		
Predicted MDL:	0.002503		
Predicted MQL:	0.008344		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00002	.000	.000	.00219	.000	1
S1	.10000	.08501	-.015	-15.0	.00522	.000	1
S2	1.2500	1.2031	-.047	-3.75	.04521	.000	1
S3	2.5000	2.3544	-.146	-5.82	.08638	.000	1
S4	5.0000	4.9570	-.043	-.860	.17945	.001	1
S5	10.000	10.250	.250	2.50	.36875	.002	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



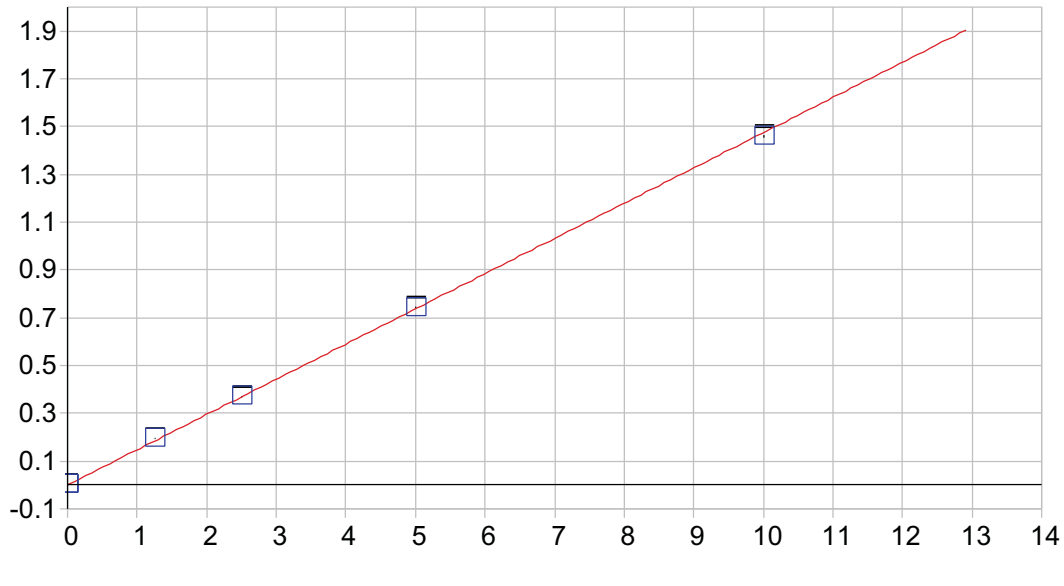
Si 251.611 {134}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000542	Re-Slope:	1.000000
A1 (Gain):	0.016283	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999652	Status:	OK.
Std Error of Est:	0.000023		
Predicted MDL:	0.008639		
Predicted MQL:	0.028796		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00054	.000	1
S1	.10000	.09466	-.005	-5.34	.00209	.000	1
S2	1.2500	1.2998	.050	3.99	.02191	.000	1
S3	2.5000	2.6466	.147	5.86	.04405	.000	1
S4	5.0000	4.9522	-.048	-.955	.08201	.000	1
S5	10.000	9.8566	-.143	-1.43	.16269	.000	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



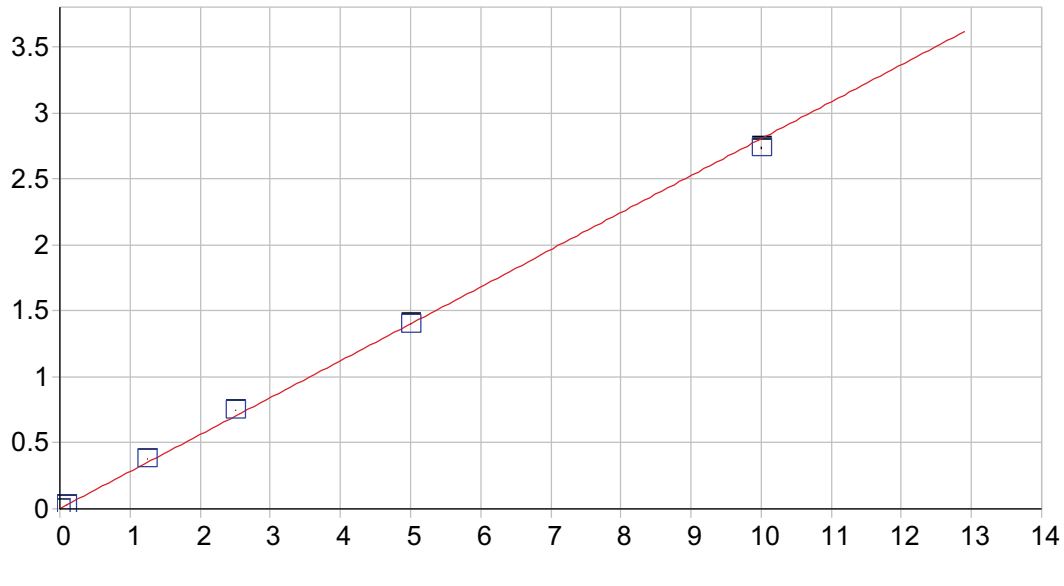
Sn 189.989 {478}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000025	Re-Slope:	1.000000
A1 (Gain):	0.147436	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999878	Status:	OK.
Std Error of Est:	0.000032		
Predicted MDL:	0.000631		
Predicted MQL:	0.002104		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00002	.000	1
S1	.00700	.00646	-.001	-7.79	.00093	.000	1
S2	1.2500	1.3126	.063	5.01	.19350	.001	1
S3	2.5000	2.5073	.007	.293	.36964	.001	1
S4	5.0000	5.0363	.036	.725	.74250	.001	1
S5	10.000	9.8943	-.106	-1.06	1.4588	.007	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



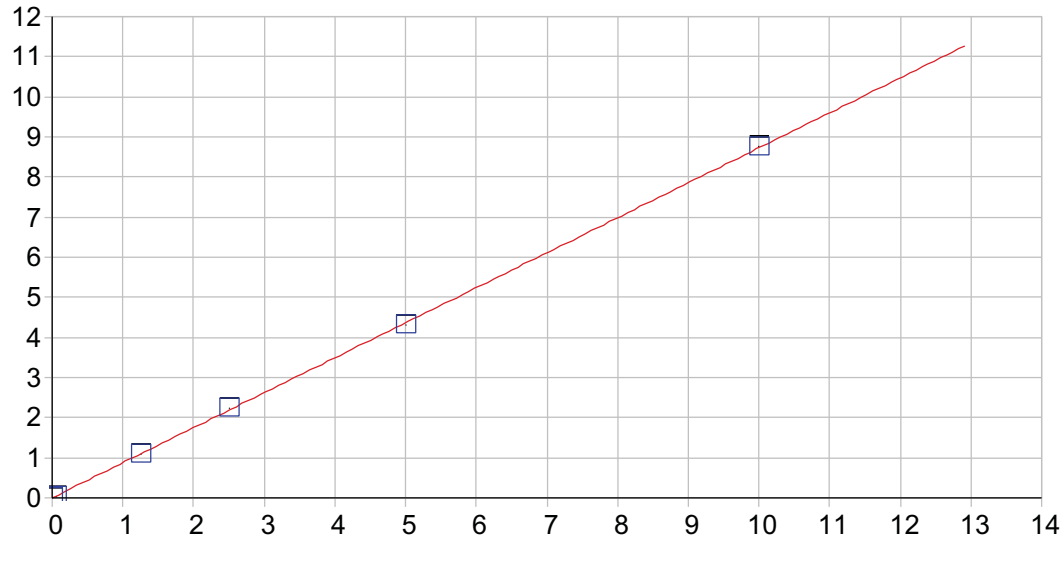
Ti 336.121 {100}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001061	Re-Slope:	1.000000
A1 (Gain):	0.280443	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999330	Status:	OK.
Std Error of Est:	0.000546		
Predicted MDL:	0.001205		
Predicted MQL:	0.004015		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00002	.000	.000	.00106	.000	1
S1	.10000	.10571	.006	5.71	.03071	.000	1
S2	1.2500	1.3413	.091	7.30	.37721	.000	1
S3	2.5000	2.6704	.170	6.81	.74995	.001	1
S4	5.0000	4.9909	-.009	-.181	1.4007	.004	1
S5	10.000	9.7417	-.258	-2.58	2.7331	.009	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



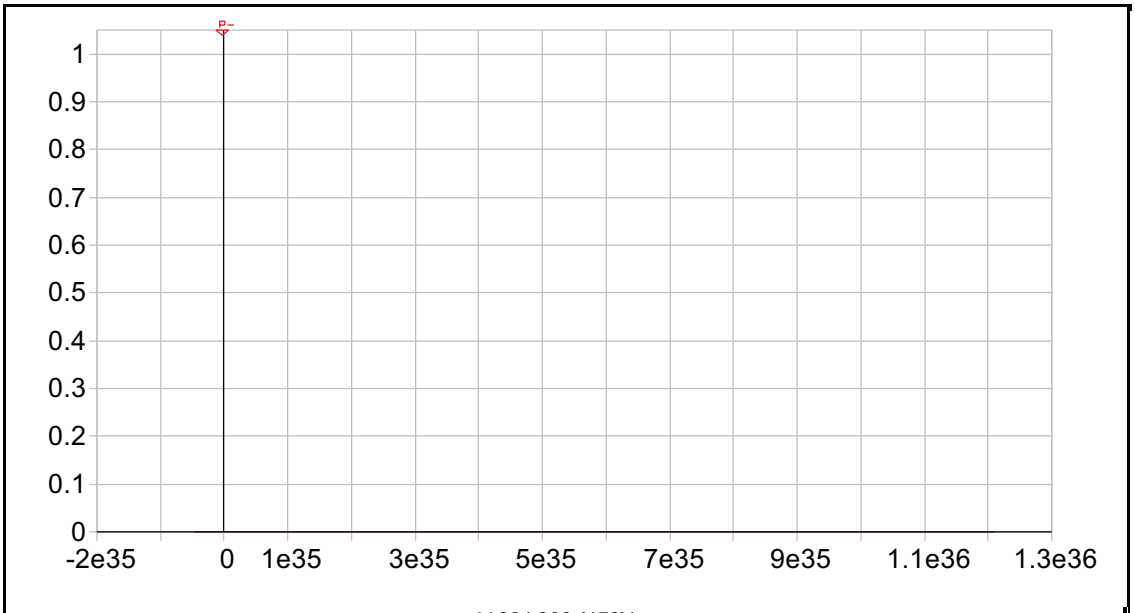
Li 670.784 { 50}

Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.003761	Re-Slope:	1.000000
A1 (Gain):	0.872451	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999941	Status:	OK.
Std Error of Est:	0.000356		
Predicted MDL:	0.001345		
Predicted MQL:	0.004483		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00376	.001	1
S5	10.000	10.029	.029	.292	8.7537	.016	1
S4	5.0000	4.9240	-.076	-1.52	4.2997	.007	1
S3	2.5000	2.5481	.048	1.92	2.2268	.002	1
S2	1.2500	1.2504	.000	.035	1.0947	.002	1
S1	.05000	.04829	-.002	-3.42	.04589	.000	1

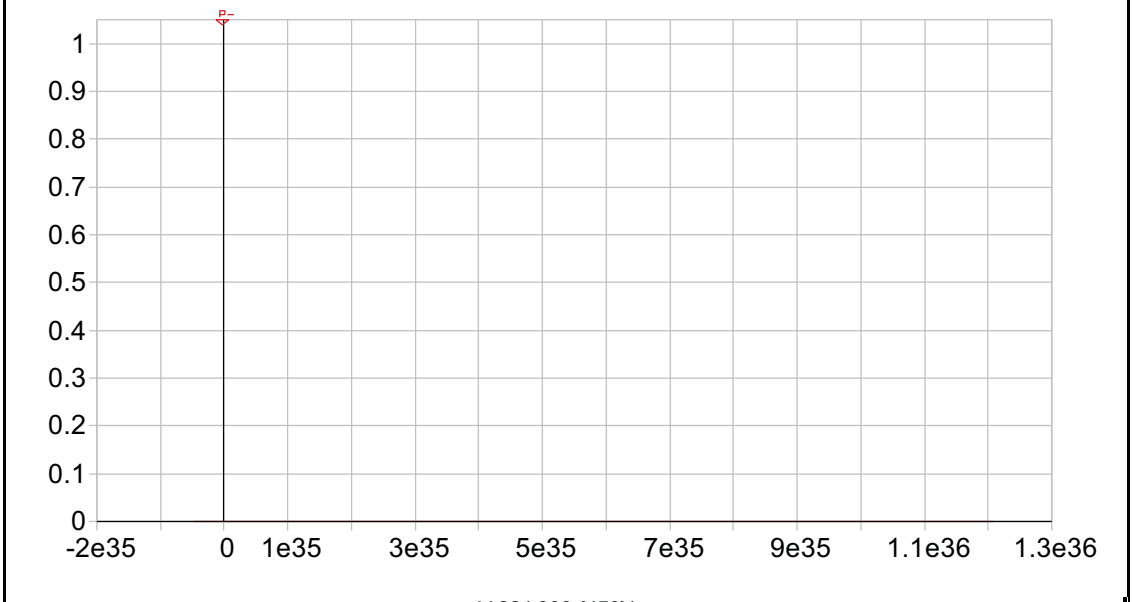
Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



Y 224.306 {150}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000			Status:	Warning	Zero Gain
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



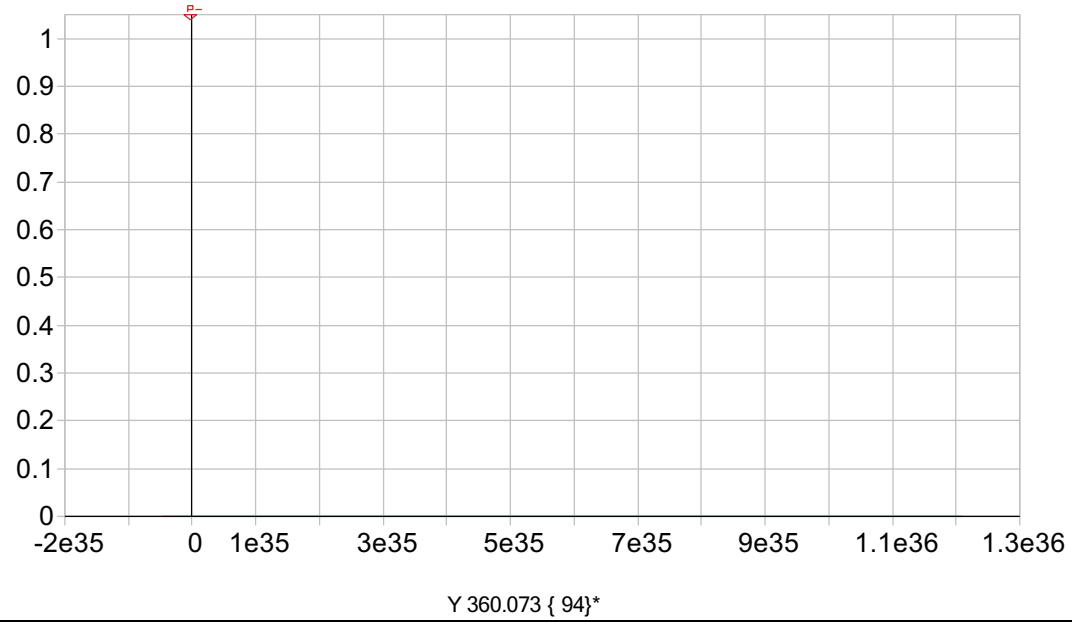
Y 224.306 {450}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

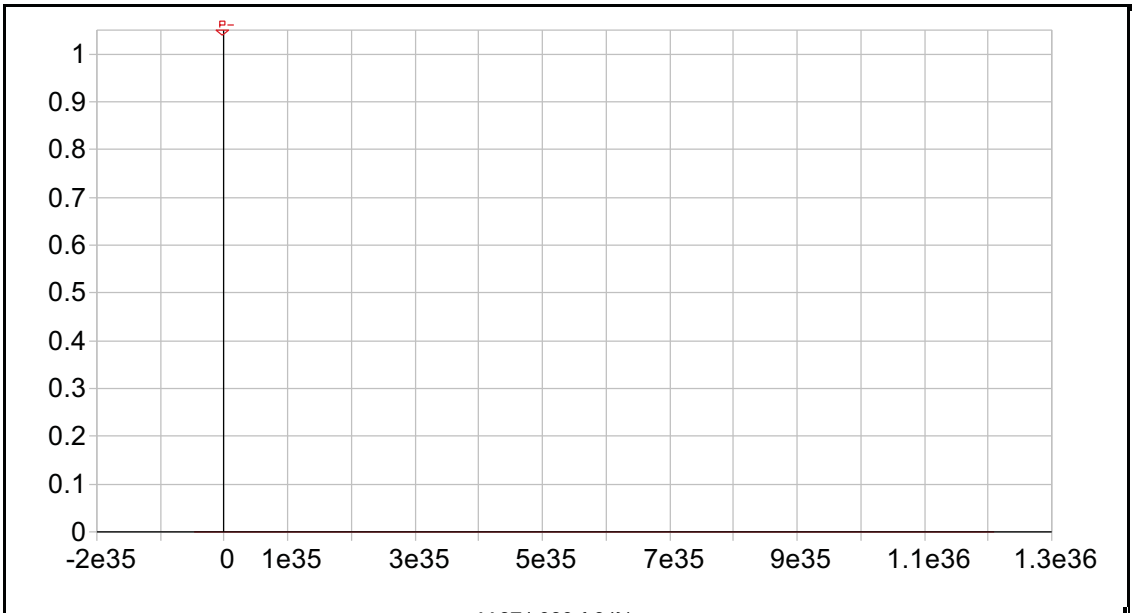


Y 360.073 { 94}*

Date of Fit:	<not fit>		Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):		0.000000		Re-Slope:	1.000000	
A1 (Gain):		0.000000		Y-int:	0.000000	
A2 (Curvature):		0.000000				
n (Exponent):		1.000000				
Correlation:		0.000000		Status:	Warning	Zero Gain
Std Error of Est:		0.000000				
Predicted MDL:		n/a				
Predicted MQL:		n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

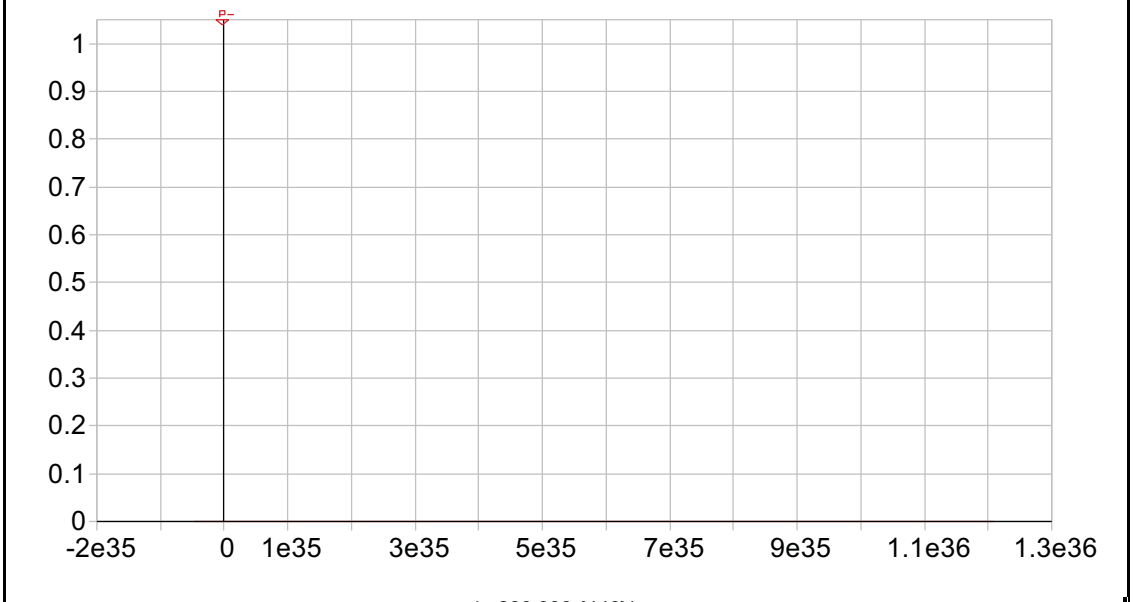
Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5



Y 371.030 { 91}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000			Status:	Warning	Zero Gain
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



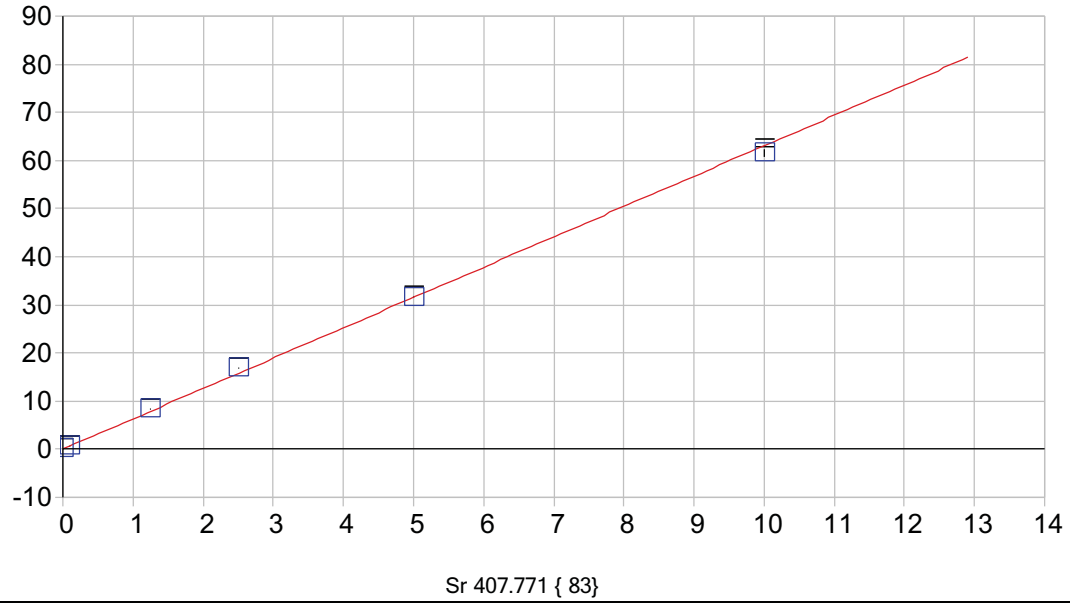
ln 230.606 {446}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



Date of Fit:	9/24/2014 03:54:48	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001053	Re-Slope:	1.000000
A1 (Gain):	6.305634	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999457	Status:	OK.
Std Error of Est:	0.011048		
Predicted MDL:	0.000078		
Predicted MQL:	0.000259		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	-.00114	.000	1
S1	.10000	.10346	.003	3.46	.65132	.001	1
S2	1.2500	1.3163	.066	5.30	8.2990	.018	1
S3	2.5000	2.6640	.164	6.56	16.797	.044	1
S4	5.0000	5.0126	.013	.251	31.606	.085	1
S5	10.000	9.7537	-.246	-2.46	61.502	.817	1

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: S0 Acquired: 9/23/2014 10:28:06 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00011	-.00007	-.00019	.00016	.00002	-.00031	.00960	.00006
Stddev	.00005	.00007	.00010	.00007	.00010	.00018	.00150	.00012
%RSD	46.984	106.69	51.067	42.522	582.45	57.638	15.596	197.15
#1	-.00014	-.00005	-.00027	.00014	-.00008	-.00015	.00990	.00012
#2	-.00005	-.00001	-.00008	.00011	.00012	-.00027	.00797	-.00007
#3	-.00013	-.00014	-.00023	.00024	.00001	-.00050	.01091	.00013

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00013	.00256	-.00005	-.00006	.00056	-.00009	.00000	-.00003
Stddev	.00011	.00004	.00002	.00005	.00012	.00014	.00009	.00019
%RSD	82.262	1.5991	35.069	82.724	21.038	159.50	3016.5	658.23
#1	.00001	.00254	-.00007	-.00005	.00046	.00003	.00007	-.00011
#2	.00019	.00261	-.00004	-.00001	.00054	-.00005	-.00009	-.00016
#3	.00019	.00254	-.00005	-.00011	.00069	-.00024	.00003	.00018

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00002	-.00068	-.01168	-.00007	-.00262	.07556	-.00222	.00014
Stddev	.00003	.00005	.00137	.00037	.00604	.00084	.00006	.00013
%RSD	138.74	6.7216	11.750	496.88	230.23	1.1064	2.7394	93.035
#1	-.00001	-.00062	-.01161	-.00050	-.00756	.07512	-.00217	.00029
#2	.00006	-.00070	-.01034	.00019	-.00442	.07503	-.00229	.00008
#3	.00003	-.00070	-.01308	.00008	.00411	.07652	-.00220	.00005

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00004	.00219	.00054	-.00002	.00106	.00376	-.00114
Stddev	.00006	.00005	.00003	.00006	.00009	.00054	.00006
%RSD	167.96	2.3914	5.0925	224.32	8.7218	14.478	5.6356
#1	-.00010	.00221	.00056	-.00005	.00115	.00411	-.00113
#2	-.00003	.00222	.00056	.00004	.00096	.00313	-.00120
#3	.00002	.00213	.00051	-.00006	.00106	.00405	-.00107

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: S0 Acquired: 9/23/2014 10:28:06 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	94.861	5519.8	81758.	11366.	6154.8
Stddev	2.571	11.1	229.	29.	11.7
%RSD	2.7107	.20111	.28056	.25693	.19076
#1	97.006	5510.6	81545.	11390.	6150.8
#2	95.568	5532.1	82001.	11374.	6168.0
#3	92.011	5516.8	81727.	11334.	6145.5

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: S1 Acquired: 9/23/2014 10:32:12 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00036	.00213	.00173	.00217	.00687	.01037	.70474	.00115
Stddev	.00000	.00008	.00034	.00005	.00001	.00026	.00299	.00009
%RSD	1.0736	3.5807	19.703	2.3655	.15315	2.5035	.42426	7.3759
#1	.00036	.00208	.00150	.00213	.00688	.01019	.70807	.00125
#2	.00036	.00221	.00212	.00217	.00686	.01066	.70229	.00112
#3	.00037	.00209	.00157	.00223	.00687	.01025	.70385	.00109

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01500	.24181	.00189	.04298	.00373	.00194	.00514	.04370
Stddev	.00002	.00027	.00004	.00021	.00004	.00005	.00007	.00025
%RSD	.13335	.11027	1.9291	.48983	1.1372	2.8140	1.4076	.57119
#1	.01498	.24153	.00186	.04275	.00378	.00191	.00515	.04396
#2	.01502	.24182	.00193	.04314	.00371	.00190	.00521	.04346
#3	.01500	.24206	.00188	.04307	.00369	.00200	.00507	.04368

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02453	.00242	.01724	.00442	.08189	.15619	-.00220	.00027
Stddev	.00015	.00009	.00065	.00021	.01024	.00108	.00001	.00009
%RSD	.59317	3.6343	3.7810	4.7329	12.499	.69248	.52101	33.380
#1	.02470	.00245	.01653	.00443	.09265	.15719	-.00221	.00029
#2	.02444	.00232	.01736	.00420	.08074	.15635	-.00220	.00017
#3	.02445	.00248	.01782	.00462	.07228	.15504	-.00219	.00034

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00598	.00522	.00209	.00093	.03071	.04589	.65132
Stddev	.00006	.00009	.00010	.00008	.00003	.00024	.00111
%RSD	.96957	1.8057	5.0012	8.8467	.10196	.53129	.17099
#1	.00591	.00523	.00196	.00101	.03069	.04564	.65233
#2	.00601	.00532	.00214	.00092	.03069	.04591	.65150
#3	.00602	.00513	.00215	.00085	.03074	.04613	.65013

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: S1 Acquired: 9/23/2014 10:32:12 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	94.546	5562.2	80995.	11172.	5990.4
Stddev	1.377	14.1	372.	60.	2.7
%RSD	1.4563	.25331	.45885	.53643	.04570
#1	94.130	5547.1	80870.	11108.	5987.2
#2	93.425	5564.5	81412.	11181.	5991.5
#3	96.083	5575.0	80701.	11226.	5992.4

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: S2 Acquired: 9/23/2014 10:36:17 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.06293	.12202	1.3740	.07081	.15230	2.0995	8.9225	.02888	1.9597
Stddev	.00028	.00026	.0030	.00020	.00040	.0084	.0194	.00012	.0032
%RSD	.45277	.21644	.21630	.28210	.26264	.39986	.21740	.41878	.16320
#1	.06282	.12191	1.3707	.07087	.15219	2.1040	8.9413	.02888	1.9577
#2	.06272	.12183	1.3746	.07059	.15196	2.0898	8.9026	.02875	1.9579
#3	.06325	.12232	1.3766	.07098	.15274	2.1048	8.9235	.02899	1.9634

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.0742	.78300	.57861	.51958	.71728	1.2972	.54337	.40215	.09841
Stddev	.0077	.00308	.00098	.00026	.00188	.0047	.00013	.00160	.00023
%RSD	.25110	.39353	.16931	.05020	.26224	.36402	.02421	.39874	.23514
#1	3.0831	.78081	.57768	.51978	.71903	1.3012	.54347	.40116	.09816
#2	3.0698	.78168	.57852	.51928	.71529	1.2920	.54342	.40130	.09861
#3	3.0697	.78653	.57964	.51966	.71751	1.2984	.54322	.40400	.09847

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.20584	.05443	4.9998	.68352	.07445	.02767	.77034	.04521	.02191
Stddev	.00057	.00022	.1005	.00115	.00007	.00033	.00161	.00021	.00009
%RSD	.27457	.40752	2.0094	.16837	.09309	1.1816	.20854	.46990	.40226
#1	.20580	.05448	4.9952	.68422	.07453	.02804	.76968	.04520	.02200
#2	.20530	.05463	5.1025	.68219	.07439	.02744	.76917	.04500	.02182
#3	.20643	.05419	4.9018	.68416	.07444	.02752	.77217	.04543	.02192

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.19350	.37721	1.0947	8.2990
Stddev	.00062	.00049	.0021	.0178
%RSD	.32104	.12878	.19571	.21408
#1	.19298	.37740	1.0953	8.3062
#2	.19333	.37666	1.0923	8.2787
#3	.19419	.37758	1.0965	8.3120

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: S2 Acquired: 9/23/2014 10:36:17 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	91.545	5330.7	74444.	11033.	5294.4
Stddev	1.745	7.3	334.	25.	6.2
%RSD	1.9065	.13621	.44812	.22265	.11705
#1	90.846	5323.8	74696.	11011.	5295.3
#2	90.258	5338.3	74571.	11059.	5300.1
#3	93.532	5330.0	74066.	11029.	5287.8

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: S3 Acquired: 9/23/2014 10:40:09 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.12126	.23078	2.6362	.13455	.29278	4.2381	18.089	.05809	3.7224
Stddev	.00059	.00083	.0145	.00041	.00140	.0108	.056	.00028	.0124
%RSD	.48548	.35797	.54922	.30639	.47888	.25412	.30723	.48871	.33196
#1	.12094	.22983	2.6242	.13423	.29258	4.2488	18.148	.05842	3.7120
#2	.12090	.23121	2.6322	.13439	.29150	4.2272	18.038	.05791	3.7191
#3	.12194	.23131	2.6523	.13501	.29428	4.2382	18.083	.05794	3.7361

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6.1076	1.5065	1.1048	1.0465	1.4124	2.5807	1.0867	.76252	.19389
Stddev	.0178	.0596	.0034	.0018	.0028	.0156	.0016	.00183	.00549
%RSD	.29080	3.9545	.30855	.17288	.19868	.60466	.14667	.24029	2.8331
#1	6.1245	1.5753	1.1013	1.0480	1.4154	2.5982	1.0883	.76052	.20023
#2	6.1093	1.4714	1.1050	1.0445	1.4098	2.5683	1.0851	.76295	.19087
#3	6.0891	1.4727	1.1081	1.0470	1.4120	2.5756	1.0868	.76411	.19058

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.42709	.10902	9.9905	1.3006	.14523	.05493	1.4452	.08638	.04405
Stddev	.00253	.00065	.1913	.0014	.00046	.00022	.0034	.00030	.00006
%RSD	.59158	.59494	1.9152	.10902	.31564	.39611	.23483	.35078	.14209
#1	.42901	.10976	9.7696	1.3020	.14477	.05489	1.4437	.08604	.04404
#2	.42423	.10871	10.105	1.2992	.14525	.05473	1.4428	.08663	.04399
#3	.42804	.10858	10.097	1.3005	.14568	.05516	1.4491	.08647	.04412

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.36964	.74995	2.2268	16.797
Stddev	.00114	.00079	.0019	.044
%RSD	.30801	.10569	.08607	.26385
#1	.36898	.75049	2.2289	16.844
#2	.36899	.74904	2.2252	16.755
#3	.37096	.75031	2.2263	16.792

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: S3 Acquired: 9/23/2014 10:40:09 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	89.127	5392.3	73752.	10781.	5228.6
Stddev	1.477	18.2	3244.	40.	20.2
%RSD	1.6567	.33775	4.3986	.36990	.38660
#1	90.762	5397.8	70007.	10742.	5240.0
#2	87.890	5407.1	75552.	10778.	5240.6
#3	88.730	5371.9	75697.	10822.	5205.3

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: S4 Acquired: 9/23/2014 10:43:59 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.24947	.45899	5.3628	.27381	.60487	8.1093	34.167	.10879	7.4678
Stddev	.00049	.00088	.0140	.00108	.00127	.0062	.553	.00014	.0127
%RSD	.19769	.19139	.26092	.39577	.20934	.07645	1.6194	.13071	.16954
#1	.24922	.45836	5.3498	.27315	.60502	8.1092	34.250	.10895	7.4595
#2	.24915	.45862	5.3609	.27323	.60354	8.1031	33.576	.10873	7.4615
#3	.25004	.46000	5.3776	.27507	.60606	8.1155	34.673	.10868	7.4824

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	11.386	2.9693	2.2387	1.9880	2.6018	4.7825	2.0463	1.5299	.40070
Stddev	.027	.0085	.0056	.0061	.0068	.0086	.0075	.0035	.00137
%RSD	.23892	.28563	.24884	.30749	.26102	.18007	.36647	.23138	.34140
#1	11.355	2.9640	2.2344	1.9873	2.5940	4.7744	2.0381	1.5285	.40137
#2	11.399	2.9791	2.2366	1.9822	2.6049	4.7815	2.0527	1.5272	.40161
#3	11.405	2.9649	2.2450	1.9944	2.6065	4.7916	2.0482	1.5339	.39913

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.82320	.20476	19.498	2.4182	.30056	.10287	2.8919	.17945	.08201
Stddev	.00230	.00079	.118	.0021	.00083	.00030	.0056	.00052	.00032
%RSD	.27955	.38530	.60615	.08562	.27698	.28834	.19184	.29181	.38694
#1	.82203	.20414	19.567	2.4174	.30008	.10283	2.8937	.17918	.08194
#2	.82172	.20450	19.361	2.4167	.30008	.10318	2.8857	.17912	.08173
#3	.82585	.20565	19.565	2.4206	.30152	.10259	2.8963	.18005	.08235

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.74250	1.4007	4.2997	31.606
Stddev	.00126	.0044	.0068	.085
%RSD	.17019	.31497	.15811	.26777
#1	.74114	1.3971	4.3016	31.676
#2	.74272	1.4056	4.2922	31.512
#3	.74364	1.3995	4.3054	31.632

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: S4 Acquired: 9/23/2014 10:43:59 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	87.264	5094.5	71460.	11188.	4846.9
Stddev	.683	12.4	78.	36.	9.3
%RSD	.78302	.24329	.10870	.32622	.19264
#1	87.028	5092.6	71499.	11194.	4853.1
#2	88.034	5107.8	71371.	11221.	4851.4
#3	86.730	5083.2	71511.	11149.	4836.2

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: S5 Acquired: 9/23/2014 10:48:04 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.51616	.89498	10.652	.56061	1.2546	16.270	67.779	.21289	14.529
Stddev	.00189	.00352	.036	.00095	.0036	.015	1.028	.00069	.038
%RSD	.36698	.39333	.33463	.17010	.28977	.09187	1.5166	.32351	.25969
#1	.51515	.89414	10.631	.56026	1.2523	16.278	68.238	.21263	14.513
#2	.51498	.89195	10.631	.55989	1.2528	16.253	66.602	.21238	14.502
#3	.51834	.89884	10.693	.56169	1.2588	16.279	68.498	.21367	14.573

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	22.059	5.6943	4.4361	3.9627	4.9935	9.3055	4.0045	3.0089	.83628
Stddev	.059	.0419	.0143	.0051	.0151	.0115	.0121	.0105	.00279
%RSD	.26601	.73585	.32192	.12776	.30307	.12395	.30296	.34980	.33421
#1	22.086	5.6469	4.4290	3.9600	5.0007	9.3179	4.0125	3.0044	.83320
#2	21.991	5.7266	4.4268	3.9596	4.9761	9.2951	3.9906	3.0014	.83699
#3	22.098	5.7092	4.4525	3.9686	5.0037	9.3035	4.0105	3.0210	.83866

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.6527	.40021	38.464	4.7567	.62025	.20116	5.7629	.36875	.16269
Stddev	.0021	.00092	.488	.0167	.00312	.00072	.0174	.00174	.00013
%RSD	.12388	.22970	1.2689	.35096	.50338	.35617	.30122	.47214	.08168
#1	1.6549	.40123	38.994	4.7492	.61850	.20156	5.7513	.36748	.16269
#2	1.6522	.39996	38.363	4.7452	.61840	.20034	5.7545	.36803	.16256
#3	1.6509	.39944	38.034	4.7759	.62386	.20159	5.7829	.37073	.16283

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.4588	2.7331	8.7537	61.502
Stddev	.0066	.0088	.0155	.817
%RSD	.45469	.32316	.17728	1.3286
#1	1.4561	2.7360	8.7371	62.006
#2	1.4538	2.7231	8.7564	60.559
#3	1.4663	2.7400	8.7678	61.941

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: S5 Acquired: 9/23/2014 10:48:04 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	31.931	4664.8	67036.	10901.	4427.2
Stddev	.968	15.4	430.	55.	14.9
%RSD	1.1816	.33011	.64152	.50015	.33586
#1	80.825	4677.0	67532.	10870.	4435.9
#2	82.343	4669.9	66795.	10964.	4435.7
#3	82.625	4647.5	66780.	10870.	4410.0

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: S6 Acquired: 9/23/2014 10:52:19 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	Al3961	Ca3736	Fe2598	Mg2790	Na8183
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	43.192	35.136	13.523	6.6810	4.7551
Stddev	.204	.450	.024	.0129	.0227
%RSD	.47119	1.2812	.17547	.19357	.47729
#1	42.992	34.618	13.497	6.6662	4.7552
#2	43.186	35.433	13.528	6.6866	4.7323
#3	43.399	35.356	13.543	6.6901	4.7777

Int. Std.	Y_3710
Units	Cts/S
Avg	10248.
Stddev	45.
%RSD	.43827
#1	10299.
#2	10230.
#3	10214.

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: ICV56 Acquired: 9/23/2014 11:14:17 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICV56 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9144181	1.054166	.9829437	.9367724	.9107627	2.335018
Stddev	.0036368	.003259	.0044455	.0026192	.0022991	.011106
%RSD	.3977178	.3091449	.4522631	.2795997	.2524399	.4756353
#1	.9116243	1.052229	.9793007	.9381104	.9090391	2.343811
#2	.9130998	1.052340	.9816333	.9384524	.9098758	2.322537
#3	.9185302	1.057928	.9878971	.9337545	.9133732	2.338706

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5239393	.4808469	.4708105	10.05041	.5259072	.4807260
Stddev	.0022446	.0015668	.0007530	.00719	.0010878	.0011629
%RSD	.4284164	.3258491	.1599411	.0715058	.2068325	.2419093
#1	.5263804	.4818311	.4703966	10.05737	.5264409	.4806720
#2	.5219642	.4816695	.4703552	10.04302	.5266251	.4795910
#3	.5234734	.4790400	.4716797	10.05086	.5246557	.4819149

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5149053	5.198804	.5330419	5.800583	.4827951	.5265151
Stddev	.0023676	.013314	.0011750	.025699	.0008537	.0026193
%RSD	.4598123	.2560925	.2204264	.4430462	.1768266	.4974797
#1	.5161685	5.208303	.5341858	5.830256	.4820200	.5253598
#2	.5163734	5.204522	.5318381	5.786028	.4837101	.5295135
#3	.5121740	5.183586	.5331018	5.785465	.4826553	.5246721

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.725059	.5159228	.9383060	9.633647	F .0258109	F .0074641
Stddev	.053526	.0029600	.0166461	.034826	.0003603	.0076008
%RSD	.5503925	.5737274	1.774060	.3615041	1.395907	101.8309
#1	9.665450	.5192616	.9194501	9.607781	.0253961	.0063389
#2	9.769009	.5148863	.9509642	9.619915	.0259903	.0155648
#3	9.740718	.5136203	.9445038	9.673246	.0260463	.0004887

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: ICV56 Acquired: 9/23/2014 11:14:17 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICV56 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .000200	.0018946	-.026976	F .000504	-.000415	-.000605
Stddev	.000180	.0016225	.004215	.000792	.001006	.000237
%RSD	89.98435	85.63503	15.62483	157.1088	242.3525	39.22106
#1	-.000005	.0023539	-.024004	-.001329	-.000250	-.000879
#2	-.000359	.0000920	-.025125	-.000435	-.001494	-.000474
#3	-.000235	.0032379	-.031800	.000251	.000498	-.000462

Elem	Sr4077
Units	ppm
Avg	.0124466
Stddev	.0000936
%RSD	.7521640
#1	.0125457
#2	.0123596
#3	.0124345

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	95.46239	5791.966	74104.71	11213.25	5926.834
Stddev	1.75459	4.757	111.21	33.43	6.278
%RSD	1.837991	.0821281	.1500709	.2980883	.1059262
#1	96.95912	5786.500	74194.96	11187.99	5919.589
#2	93.53147	5795.163	73980.47	11251.15	5930.657
#3	95.89656	5794.237	74138.70	11200.60	5930.257

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: ICB56 Acquired: 9/23/2014 11:18:12 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICB56 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005877	-.000519	-.000007	.0007646	.0009536	.0087043	.0002261
Stddev	.0023441	.000253	.000842	.0023663	.0004888	.0007908	.0002190
%RSD	398.9030	48.76900	11277.09	309.4651	51.26066	9.085640	96.87127
#1	.0006905	-.000672	-.000074	-.000796	.0014260	.0078135	.0003535
#2	-.001806	-.000657	.000866	-.000398	.0009852	.0089757	.0003515
#3	.002879	-.000227	-.000814	.003487	.0004498	.0093236	-.000027

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000605	.0000284	.0023285	-.000107	.0000041	.0009329	.0048427
Stddev	.000353	.0000349	.0055173	.000220	.0001338	.0028008	.0004789
%RSD	58.32624	123.0605	236.9490	206.2192	3289.846	300.2048	9.888507
#1	-.000247	-.000011	.0022589	-.000359	.0001261	-.000132	.0051192
#2	-.000953	.000055	-.003154	.000046	.0000252	-.001179	.0051192
#3	-.000615	.000041	.007880	-.000007	-.000139	.004110	.0042897

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000025	-.004922	-.000118	.0003880	-.189894	.0011589	-.008144
Stddev	.000137	.009416	.000104	.0002320	.034946	.0010115	.002396
%RSD	559.4657	191.3019	87.77156	59.80527	18.40304	87.28180	29.42206
#1	-.000107	-.012459	.000001	.0004872	-.227938	.0001790	-.009835
#2	.000134	-.007941	-.000187	.0001228	-.182521	.0010983	-.005402
#3	-.000101	.005633	-.000169	.0005539	-.159222	.0021993	-.009195

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2069795	-.002847	.0004464	-.000150	-.002664	-.004993	-.000322
Stddev	.0454709	.000736	.0047620	.000038	.001164	.006744	.000775
%RSD	21.96881	25.85524	1066.842	25.57382	43.71275	135.0785	240.7300
#1	.1993539	-.002483	.0050071	-.000112	-.001924	-.008948	.000358
#2	.1658035	-.003695	-.004494	-.000188	-.002061	.002794	-.001166
#3	.2557812	-.002364	.000826	-.000151	-.004006	-.008825	-.000158

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: ICB56 Acquired: 9/23/2014 11:18:12 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICB56 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0016029	.0001796	.000132
Stddev	.0009023	.0007751	.000025
%RSD	56.29043	431.4547	19.10742
#1	.0010253	.0010745	-.000142
#2	.0011407	-.000258	-.000152
#3	.0026426	-.000278	-.000104

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	92.68580	5643.290	71027.25	10651.71	5909.037
Stddev	.49581	14.023	315.72	69.63	11.176
%RSD	.5349356	.2484935	.4444988	.6537321	.1891285
#1	92.26547	5656.238	70738.06	10693.94	5921.381
#2	93.23259	5628.395	71364.07	10689.86	5899.607
#3	92.55935	5645.239	70979.60	10571.34	5906.123

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: ICSA56 Acquired: 9/23/2014 11:22:19 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSA56 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016053	-.000910	-.003555	.0034543	.0037694	241.8404
Stddev	.0014765	.000687	.003298	.0019274	.0014153	.3921
%RSD	91.97355	75.53143	92.77661	55.79781	37.54788	.1621468
#1	.0027381	-.001113	-.004248	.0055849	.0040945	241.3886
#2	-.000065	-.000144	-.006452	.0029461	.0049938	242.0934
#3	.002142	-.001472	.000035	.0018319	.0022198	242.0390

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0071692	.0003940	.0016055	240.0744	.0592147	-.000313
Stddev	.0003809	.0000792	.0000437	.2105	.0003898	.000079
%RSD	5.313454	20.10757	2.719637	.0876665	.6582542	25.32368
#1	.0071687	.0003031	.0015600	240.3055	.0595970	-.000225
#2	.0075504	.0004303	.0016095	240.0243	.0588179	-.000335
#3	.0067885	.0004485	.0016471	239.8936	.0592291	-.000378

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000692	98.96251	.0148910	248.7121	.0007026	-.000600
Stddev	.000858	.19438	.0002919	.1977	.0000221	.000215
%RSD	123.8718	.1964200	1.960428	.0794957	3.141863	35.74380
#1	-.000854	99.06653	.0146863	248.4921	.0007259	-.000626
#2	.000235	98.73826	.0152253	248.7696	.0006996	-.000801
#3	-.001458	99.08276	.0147614	248.8748	.0006821	-.000374

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0032644	.0014304	.0168488	.0251576	.0031230	F.0795152
Stddev	.0828708	.0006598	.0096889	.0395359	.0015372	.0022860
%RSD	2538.581	46.12724	57.50483	157.1530	49.22245	2.874881
#1	.0396440	.0007057	.0099178	.0509628	.0021139	.0787360
#2	-.091574	.0015892	.0127087	.0448688	.0048922	.0820889
#3	.061723	.0019962	.0279200	-.020359	.0023629	.0777207

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: ICSA56 Acquired: 9/23/2014 11:22:19 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSA56 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0139851	-.016979	-.002193	F .0243913	.0207187	.0035352
Stddev	.0001890	.001772	.001641	.0011946	.0002562	.0006862
%RSD	1.351449	10.43388	74.84033	4.897461	1.236565	19.40994
#1	.0137915	-.015380	-.003769	.0257687	.0205096	.0039132
#2	.0141691	-.018883	-.000494	.0237661	.0206420	.0039492
#3	.0139948	-.016673	-.002316	.0236391	.0210044	.0027431

Elem	Sr4077
Units	ppm
Avg	.1098907
Stddev	.0002789
%RSD	.2538376
#1	.1096086
#2	.1101664
#3	.1098971

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	90.48816	5416.803	67675.19	10862.58	5003.631
Stddev	.23012	14.015	216.36	31.92	4.587
%RSD	.2543079	.2587272	.3197027	.2938924	.0916759
#1	90.70929	5429.952	67468.13	10852.60	5007.797
#2	90.50519	5418.398	67657.66	10836.84	5004.380
#3	90.25000	5402.059	67899.78	10898.30	4998.715

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: ICSAB56 Acquired: 9/23/2014 11:26:22 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSAB56 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0948957	.0989375	.0484809	.0528456	.5701622	246.2339
Stddev	.0028932	.0020514	.0019236	.0020688	.0039196	.7299
%RSD	3.048796	2.073444	3.967759	3.914871	.6874559	.2964109
#1	.0929705	.0994857	.0493866	.0541388	.5663532	245.5704
#2	.0982228	.0966677	.0462716	.0539386	.5699496	246.1157
#3	.0934939	.1006591	.0497845	.0504595	.5741838	247.0157

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5511651	.5119381	.9971069	244.8299	.5886227	.5071357
Stddev	.0018294	.0009012	.0025147	.6548	.0020660	.0018159
%RSD	.3319132	.1760363	.2521962	.2674654	.3509846	.3580668
#1	.5493508	.5116780	.9943322	244.1831	.5862714	.5050485
#2	.5511354	.5111955	.9977530	244.8142	.5901473	.5080055
#3	.5530092	.5129407	.9992355	245.4925	.5894494	.5083531

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5247845	100.9094	.5514595	253.6928	.9971554	.2138279
Stddev	.0048821	.1177	.0014305	.7446	.0026310	.0008514
%RSD	.9303127	.1165898	.2594011	.2935056	.2638514	.3981788
#1	.5192354	100.9099	.5531004	252.9076	.9945959	.2137474
#2	.5266981	100.7915	.5508035	253.7819	.9970178	.2130196
#3	.5284199	101.0268	.5504747	254.3887	.9998526	.2147167

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0864936	.5242994	.9885849	-.706042	.0332299	F .0681890
Stddev	.2155597	.0023716	.0071373	.030689	.0018843	.0094692
%RSD	249.2204	.4523360	.7219707	4.346674	5.670492	13.88665
#1	.2730982	.5245406	.9895662	-.709156	.0317427	.0734019
#2	-.149462	.5218164	.9951808	-.735055	.0325980	.0572588
#3	.135845	.5265412	.9810078	-.673914	.0353489	.0739063

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: ICSAB56 Acquired: 9/23/2014 11:26:22 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSAB56 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002514	-.010850	-.020472	-.001664	-.002395	.0009272
Stddev	.0000760	.001388	.004728	.000778	.000956	.0007169
%RSD	30.23416	12.79406	23.09752	46.78004	39.90653	77.31828
#1	.0001659	-.010210	-.025912	-.001848	-.001423	.0002868
#2	.0002769	-.012443	-.018156	-.002334	-.002428	.0017017
#3	.0003113	-.009898	-.017348	-.000810	-.003334	.0007931

Elem	Sr4077
Units	ppm
Avg	.1112870
Stddev	.0003045
%RSD	.2736024
#1	.1109515
#2	.1113635
#3	.1115459

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	90.54129	5392.829	68589.12	10923.29	5000.341
Stddev	.10210	7.811	117.44	78.69	3.840
%RSD	.1127711	.1448476	.1712234	.7203597	.0768032
#1	90.42500	5397.724	68542.89	10999.28	5001.947
#2	90.61626	5396.944	68501.83	10928.44	5003.117
#3	90.58260	5383.821	68722.64	10842.15	4995.958

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCV73 Acquired: 9/23/2014 11:57:56 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV73 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.723457	4.849177	25.06504	4.571687	4.774096	378.6097	10.49382
Stddev	.018462	.009866	.01420	.014386	.011184	.6785	.01646
%RSD	.3908549	.2034530	.0566595	.3146805	.2342605	.1792160	.1568939
#1	4.709652	4.851626	25.05570	4.561561	4.768295	378.4744	10.48785
#2	4.716291	4.838317	25.05803	4.565345	4.767003	378.0090	10.48117
#3	4.744427	4.857587	25.08138	4.588154	4.786988	379.3457	10.51244

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4826912	2.378501	376.2934	16.43399	2.465552	15.45194	367.7693
Stddev	.0011450	.005423	.6631	.05189	.004315	.00830	.8705
%RSD	.2372024	.2279941	.1762174	.3157320	.1749993	.0537379	.2366981
#1	.4814346	2.379345	375.8392	16.40134	2.463825	15.46031	367.3732
#2	.4829636	2.372706	375.9867	16.49382	2.462368	15.45180	367.1673
#3	.4836753	2.383452	377.0543	16.40681	2.470462	15.44370	368.7675

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.18937	368.6805	2.372293	1.347677	378.7503	2.501807	14.08338
Stddev	.02540	1.1664	.007405	.003034	.6913	.005553	.20987
%RSD	.1671901	.3163794	.3121339	.2251190	.1825184	.2219511	1.490212
#1	15.20504	368.1215	2.371545	1.348714	378.2028	2.506648	14.22388
#2	15.16007	367.8988	2.365291	1.350057	378.5211	2.495746	13.84213
#3	15.20300	370.0212	2.380044	1.344261	379.5271	2.503026	14.18412

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	148.7698	4.943785	4.903902	4.515014	4.943478	5.071975	4.723784
Stddev	.4025	.004745	.031058	.015807	.000419	.012722	.011855
%RSD	.2705292	.0959745	.6333424	.3500957	.0084708	.2508259	.2509677
#1	148.3065	4.938540	4.886742	4.508310	4.943424	5.079231	4.726863
#2	149.0322	4.945037	4.885209	4.503663	4.943089	5.057285	4.710694
#3	148.9708	4.947778	4.939754	4.533068	4.943921	5.079408	4.733796

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCV73 Acquired: 9/23/2014 11:57:56 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV73 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.757649	5.276650	5.334913
Stddev	.015750	.005803	.013592
%RSD	.3310542	.1099772	.2547742
#1	4.748737	5.274052	5.343598
#2	4.748375	5.283298	5.319249
#3	4.775835	5.272600	5.341891

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	81.94278	4886.644	61902.62	10337.94	4397.199
Stddev	1.26497	13.098	219.44	21.04	6.696
%RSD	1.543723	.2680449	.3544892	.2034895	.1522770
#1	80.73541	4890.334	62075.83	10318.45	4400.253
#2	83.25839	4897.501	61655.85	10360.24	4401.824
#3	81.83453	4872.096	61976.18	10335.13	4389.521

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCB73 Acquired: 9/23/2014 12:01:59 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB73 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007353	.0018957	.0000076	-.000498	-.000769	.0166418	.0008920
Stddev	.0016281	.0007546	.0010051	.001740	.000721	.0073694	.0000715
%RSD	221.4188	39.80658	13287.67	349.4870	93.80304	44.28236	8.016965
#1	.0025546	.0021780	.0011669	-.000428	-.001490	.0235586	.0009727
#2	.0002362	.0010406	-.000525	-.002271	-.000047	.0174760	.0008667
#3	-.000585	.0024685	-.000619	.001206	-.000770	.0088908	.0008365

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000389	.0000225	.0207670	.0006481	.0000297	-.000213	.0251211
Stddev	.000283	.0000224	.0124078	.0001008	.0001682	.001932	.0109619
%RSD	72.81992	99.58317	59.74781	15.54632	566.7498	906.3432	43.63622
#1	-.000077	.0000188	.0304676	.0006574	.0002009	.001118	.0339637
#2	-.000631	.0000022	.0250478	.0007439	-.000135	.000671	.0285433
#3	-.000460	.0000466	.0067856	.0005431	.000024	-.002429	.0128564

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007168	.0079138	-.000071	-.001365	.1042836	.0006947	-.001286
Stddev	.0003051	.0147554	.000181	.000113	.1591402	.0013635	.003640
%RSD	42.56919	186.4506	253.5451	8.281765	152.6033	196.2828	283.0254
#1	.0009910	-.006206	.000137	-.001330	.2874020	-.000730	.001600
#2	.0003881	.006715	-.000170	-.001274	.0260039	.000826	-.005376
#3	.0007711	.023232	-.000181	-.001491	-.000555	.001988	-.000083

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3488644	-.001765	.0022031	.0004191	-.006664	-.006520	-.000293
Stddev	.0367009	.000795	.0009844	.0001216	.003318	.001416	.000163
%RSD	10.52010	45.06683	44.68321	29.02222	49.79438	21.71161	55.49152
#1	.3900769	-.002587	.0029366	.0002796	-.002929	-.005080	-.000347
#2	.3197081	-.000999	.0025884	.0005026	-.009272	-.007910	-.000111
#3	.3368082	-.001708	.0010843	.0004752	-.007789	-.006571	-.000423

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCB73 Acquired: 9/23/2014 12:01:59 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB73 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0022281	.0034398	.0001230
Stddev	.0003780	.0012676	.0000768
%RSD	16.96516	36.85189	62.41018
#1	.0025215	.0039697	.0002097
#2	.0018015	.0019932	.0000638
#3	.0023613	.0043565	.0000954

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	93.38823	5880.606	72368.60	10742.75	6100.958
Stddev	2.75025	12.278	549.09	9.67	10.293
%RSD	2.944968	.2087901	.7587449	.0900409	.1687130
#1	92.85928	5881.328	71744.79	10732.01	6109.417
#2	90.94087	5892.507	72582.31	10745.48	6103.958
#3	96.36454	5867.983	72778.71	10750.77	6089.498

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCV74 Acquired: 9/23/2014 13:27:18 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV74 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.729012	4.812422	24.73303	4.614487	4.775605	373.7158	10.33822
Stddev	.020555	.018492	.06233	.012179	.016870	.7736	.11837
%RSD	.4346636	.3842646	.2520239	.2639398	.3532637	.2069937	1.144999
#1	4.720295	4.800742	24.68553	4.621039	4.779204	372.8781	10.20482
#2	4.714251	4.802783	24.70994	4.600434	4.757226	373.8661	10.37910
#3	4.752489	4.833743	24.80361	4.621988	4.790386	374.4032	10.43073

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4727333	2.362426	372.6789	16.09333	2.439083	15.12365	363.7447
Stddev	.0021929	.005975	1.2644	.03113	.003850	.03889	.7017
%RSD	.4638884	.2529320	.3392835	.1934189	.1578469	.2571738	.1929180
#1	.4704021	2.359468	371.3862	16.11783	2.438819	15.08006	363.1318
#2	.4747551	2.358507	372.7373	16.10386	2.435372	15.13609	363.5922
#3	.4730428	2.369304	373.9130	16.05831	2.443058	15.15480	364.5102

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.82246	364.0298	2.362501	1.319957	372.1615	2.457877	13.93547
Stddev	.05302	1.6330	.004352	.002721	1.0536	.003422	.07778
%RSD	.3576895	.4485866	.1842146	.2061332	.2831160	.1392312	.5581265
#1	14.77232	362.6726	2.361699	1.321199	371.2553	2.453929	13.84838
#2	14.81711	363.5746	2.358605	1.321835	371.9114	2.459999	13.99802
#3	14.87796	365.8420	2.367198	1.316836	373.3176	2.459703	13.96001

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	147.0324	4.949273	4.843218	4.530340	4.932058	4.942712	4.712642
Stddev	.3083	.018045	.008060	.012567	.007653	.032214	.011624
%RSD	.2097126	.3645935	.1664181	.2774064	.1551664	.6517544	.2466615
#1	146.6794	4.940320	4.840044	4.531934	4.923518	4.926327	4.706133
#2	147.2492	4.937455	4.837228	4.517051	4.934362	4.921984	4.705731
#3	147.1685	4.970043	4.852382	4.542033	4.938295	4.979825	4.726063

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCV74 Acquired: 9/23/2014 13:27:18 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV74 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.738672	5.169858	5.206669
Stddev	.005870	.016588	.071304
%RSD	.1238745	.3208625	1.369477
#1	4.732654	5.152442	5.128113
#2	4.744382	5.185471	5.267300
#3	4.738979	5.171663	5.224595

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	81.67427	4889.532	63012.94	10563.70	4427.503
Stddev	.35371	11.254	155.38	43.48	5.654
%RSD	.4330736	.2301603	.2465869	.4115757	.1276911
#1	81.84583	4883.126	62835.69	10596.63	4423.317
#2	81.26749	4902.526	63125.64	10580.04	4433.934
#3	81.90947	4882.944	63077.49	10514.41	4425.256

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCB74 Acquired: 9/23/2014 13:31:17 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB74 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000070	.0005542	.0001421	-.000355	-.000712	.0149270	.0006613
Stddev	.000378	.0007348	.0004910	.000181	.000675	.0027966	.0000615
%RSD	542.0590	132.5944	345.6523	50.94480	94.75194	18.73521	9.300802
#1	.000307	.0011747	-.000165	-.000404	-.000153	.0167471	.0006559
#2	-.000449	.0007450	-.000117	-.000155	-.000522	.0117069	.0006027
#3	-.000067	-.000257	.000708	-.000507	-.001461	.0163270	.0007254

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000154	.0000344	.0123603	.0004309	.0000149	.0009613	.0237173
Stddev	.000119	.0000288	.0094233	.0002152	.0000804	.0012215	.0055720
%RSD	77.38391	83.69127	76.23877	49.93777	538.7222	127.0688	23.49347
#1	-.000161	.0000091	.0081586	.0002882	.0000283	-.000439	.0299877
#2	-.000031	.0000658	.0057687	.0003262	-.000071	.001808	.0193335
#3	-.000269	.0000284	.0231535	.0006785	.000088	.001515	.0218308

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002585	-.010419	.0000647	-.001385	-.083726	.0003443	-.004833
Stddev	.0001956	.015994	.0001726	.000247	.089457	.0017517	.004408
%RSD	75.67690	153.5069	266.7450	17.81274	106.8444	508.6964	91.22316
#1	.0004529	.006202	-.000123	-.001318	-.022977	.0007380	-.004703
#2	.0000617	-.025703	.000217	-.001658	-.041750	-.001571	-.000491
#3	.0002609	-.011757	.000100	-.001179	-.186452	.001866	-.009305

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7938027	-.003783	.0061703	.0001951	-.005535	-.029838	.0002074
Stddev	.0572423	.000497	.0018611	.0001710	.002644	.003371	.0006906
%RSD	7.211144	13.12649	30.16218	87.63657	47.77234	11.29805	332.9441
#1	.7996897	-.004284	.0047600	.0002009	-.008430	-.033600	.0002549
#2	.8478739	-.003774	.0082798	.0000213	-.004930	-.027090	.0008730
#3	.7338444	-.003291	.0054713	.0003631	-.003247	-.028825	-.000506

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCB74 Acquired: 9/23/2014 13:31:17 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB74 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0014987	.0014562	.000005
Stddev	.0000611	.0020759	.000050
%RSD	4.073541	142.5558	942.4732
#1	.0014352	.0038381	-.000043
#2	.0015569	.0004984	.000051
#3	.0015040	.0000322	-.000024

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	39.59071	5668.369	70567.39	10575.46	5918.156
Stddev	.79921	4.817	570.56	7.06	9.361
%RSD	.8920675	.0849810	.8085350	.0667126	.1581680
#1	88.94758	5673.824	70749.25	10568.92	5924.768
#2	89.33912	5664.699	69928.07	10582.93	5922.256
#3	90.48545	5666.584	71024.85	10574.54	5907.445

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCV75 Acquired: 9/23/2014 15:04:26 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV75 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.960228	5.021388	25.85767	4.852227	4.998132	378.2805	10.57005
Stddev	.021037	.019246	.05319	.029502	.017186	.7682	.18296
%RSD	.4241184	.3832827	.2057012	.6080046	.3438573	.2030886	1.730957
#1	4.945796	5.022712	25.88682	4.840587	4.987582	378.6623	10.70003
#2	4.950522	5.001514	25.79627	4.830322	4.988849	377.3962	10.36082
#3	4.984366	5.039938	25.88990	4.885774	5.017964	378.7831	10.64929

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4858988	2.474579	382.0922	16.84354	2.547113	15.63387	369.6038
Stddev	.0007163	.008340	.3903	.06489	.004718	.07637	.1757
%RSD	.1474109	.3370447	.1021391	.3852345	.1852421	.4884660	.0475289
#1	.4853239	2.473422	382.3589	16.76902	2.547776	15.59065	369.7711
#2	.4856714	2.466877	381.6443	16.88754	2.542098	15.58891	369.4208
#3	.4867012	2.483437	382.2733	16.87407	2.551465	15.72204	369.6195

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.10396	372.0153	2.474157	1.366865	376.9976	2.512433	14.58581
Stddev	.06091	.4288	.008780	.003195	1.6712	.013119	.31957
%RSD	.4032439	.1152747	.3548864	.2337548	.4432807	.5221651	2.190975
#1	15.08816	372.5082	2.471477	1.363320	377.5775	2.506581	14.69882
#2	15.05252	371.8102	2.467028	1.369521	375.1137	2.503258	14.83351
#3	15.17121	371.7276	2.483965	1.367757	378.3015	2.527459	14.22508

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	152.4259	5.207289	4.995915	4.761871	5.163525	5.037953	4.943674
Stddev	.3022	.018186	.006874	.019411	.012721	.024026	.006833
%RSD	.1982837	.3492363	.1375945	.4076260	.2463715	.4768973	.1382125
#1	152.2320	5.203594	5.003841	4.750098	5.152589	5.016124	4.945878
#2	152.2715	5.191235	4.991589	4.751241	5.160499	5.034042	4.936012
#3	152.7741	5.227038	4.992314	4.784275	5.177486	5.063695	4.949133

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCV75 Acquired: 9/23/2014 15:04:26 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV75 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.869306	5.322045	5.346123
Stddev	.006519	.021408	.049147
%RSD	.1338843	.4022569	.9193089
#1	4.875168	5.305083	5.326814
#2	4.862285	5.314952	5.309563
#3	4.870465	5.346100	5.401993

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	80.20619	4825.751	62664.52	10623.46	4382.873
Stddev	1.52798	12.508	50.47	69.21	8.317
%RSD	1.905059	.2591842	.0805351	.6514733	.1897668
#1	79.33653	4827.160	62718.89	10600.69	4377.087
#2	79.31155	4837.495	62655.47	10701.19	4392.405
#3	81.97048	4812.599	62619.18	10568.51	4379.129

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCB75 Acquired: 9/23/2014 15:14:19 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB75 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005521	.0007744	-.000347	-.000535	-.000175	.0053300	.0004486
Stddev	.0011413	.0009093	.000874	.000774	.000674	.0096762	.0001432
%RSD	206.6946	117.4299	251.5736	144.4511	385.0698	181.5427	31.91508
#1	.0013495	-.000219	-.001059	-.001334	.000127	.0089406	.0005640
#2	-.000755	.001566	.000628	-.000482	.000296	-.005632	.0004934
#3	.001062	.000976	-.000611	.000210	-.000948	.012682	.0002884

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000207	-.000000	-.006606	-.000104	.0000075	.0008804	.0122604
Stddev	.000074	.000023	.004673	.000319	.0001046	.0010991	.0009298
%RSD	35.69974	308892.5	70.73382	306.3624	1385.703	124.8354	7.584082
#1	-.000228	.000027	-.011954	-.000245	.0000410	-.000239	.0119253
#2	-.000125	-.000017	-.004550	-.000328	-.000110	.000922	.0115445
#3	-.000269	-.000009	-.003314	.000261	.000091	.001958	.0133113

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001364	-.003490	.0002025	.0002031	.0015710	.0007148	-.000745
Stddev	.0002330	.013156	.0001102	.0005588	.0679186	.0018998	.003347
%RSD	170.8424	376.9718	54.40672	275.2092	4323.347	265.7719	449.3033
#1	-.000096	.010885	.0002210	.0005904	-.062371	.0014655	-.004024
#2	.000135	-.006421	.0003024	.0004563	-.005784	-.001446	-.000876
#3	.000370	-.014933	.0000843	-.000438	.072868	.002125	.002666

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2841275	-.002151	.0074670	.0002617	-.009879	-.019937	-.000080
Stddev	.0845682	.000421	.0040268	.0001198	.001129	.005412	.000148
%RSD	29.76417	19.56858	53.92760	45.78142	11.42487	27.14466	185.7884
#1	.2754614	-.002496	.0034044	.0002001	-.009043	-.026041	-.000248
#2	.3726951	-.002275	.0075395	.0003998	-.011163	-.015723	-.000023
#3	.2042260	-.001682	.0114570	.0001853	-.009431	-.018048	.000032

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCB75 Acquired: 9/23/2014 15:14:19 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB75 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0015748	.0031591	-.000093
Stddev	.0000965	.0001698	.000034
%RSD	6.126194	5.373857	36.62871
#1	.0014854	.0029689	-.000064
#2	.0016771	.0032132	-.000130
#3	.0015619	.0032953	-.000085

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	90.31490	5787.568	74137.48	11185.56	6167.452
Stddev	.72957	14.527	49.09	62.63	15.952
%RSD	.8078115	.2509997	.0662165	.5598952	.2586534
#1	90.36926	5789.196	74113.14	11171.66	6152.056
#2	89.55967	5801.213	74193.98	11131.05	6183.908
#3	91.01578	5772.296	74105.31	11253.97	6166.394

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: F3940-04A Acquired: 9/23/2014 16:14:54 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD7A Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.126031	-.011619	.5315621	.0086878	.1923696	150.1703	1.240579
Stddev	.026846	.000524	.0030506	.0017339	.0016451	.3973	.004199
%RSD	.3303642	4.505945	.5738979	19.95719	.8551572	.2645989	.3384650
#1	8.100526	-.011986	.5297050	.0106468	.1911863	149.7687	1.236567
#2	8.123526	-.011853	.5298984	.0073506	.1916743	150.1790	1.240228
#3	8.154042	-.011020	.5350829	.0080661	.1942482	150.5633	1.244943

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0096154	.0097209	44.69526	10.35640	.2421013	4.825171	334.9413
Stddev	.0006274	.0001663	.06247	.00176	.0009101	.009596	.3073
%RSD	6.525352	1.711043	.1397719	.0170366	.3758949	.1988699	.0917581
#1	.0103289	.0096692	44.67852	10.35757	.2410717	4.816089	334.5904
#2	.0091494	.0095865	44.64286	10.35437	.2424343	4.824217	335.1626
#3	.0093681	.0099069	44.76439	10.35725	.2427980	4.835209	335.0710

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.318292	11.76600	.1555787	-.002341	1.117714	.3944657	1.646313
Stddev	.016541	.03706	.0005721	.000258	.080550	.0035497	.028476
%RSD	.2617972	.3149900	.3677468	11.02590	7.206685	.8998663	1.729699
#1	6.302988	11.74439	.1552658	-.002240	1.104956	.3905672	1.674960
#2	6.316047	11.74482	.1552313	-.002148	1.203882	.3953189	1.645968
#3	6.335841	11.80880	.1562391	-.002634	1.044305	.3975111	1.618011

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.451273	7.375290	.2625264	.0205004	4.404093	4.477002	.0250193
Stddev	.028221	.033039	.0037103	.0003927	.025205	.037578	.0003681
%RSD	.3787430	.4479711	1.413294	1.915730	.5723071	.8393604	1.471468
#1	7.435003	7.337826	.2592384	.0209537	4.375089	4.442206	.0254425
#2	7.434956	7.387780	.2617918	.0202636	4.416498	4.471948	.0248423
#3	7.483860	7.400263	.2665490	.0202839	4.420691	4.516851	.0247731

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: F3940-04A Acquired: 9/23/2014 16:14:54 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AD7A Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.803263	.1134587	.3194190
Stddev	.000849	.0004663	.0009637
%RSD	.0470647	.4109907	.3017030
#1	1.802352	.1133787	.3183248
#2	1.803408	.1130376	.3197908
#3	1.804030	.1139599	.3201414

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	97.45298	5976.788	78670.32	12680.88	5417.560
Stddev	1.49075	5.982	244.98	50.88	9.959
%RSD	1.529709	.1000859	.3114049	.4011977	.1838370
#1	95.85415	5980.951	78388.87	12684.44	5425.649
#2	97.70000	5979.480	78786.43	12729.87	5420.594
#3	98.80478	5969.933	78835.66	12628.31	5406.436

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCV76 Acquired: 9/23/2014 16:55:36 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV76 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.841738	4.803020	24.33181	4.797880	4.881631	F 357.5271
Stddev	.013340	.010073	.05820	.012949	.009793	1.0031
%RSD	.2755150	.2097221	.2391783	.2698851	.2006175	.2805663
#1	4.827496	4.791445	24.27328	4.785825	4.870324	357.4938
#2	4.853941	4.809796	24.33249	4.811568	4.887161	356.5411
#3	4.843778	4.807820	24.38967	4.796247	4.887409	358.5465

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.07031	.4569012	2.382056	416.4274	15.99421	2.432967
Stddev	.13980	.0017073	.006020	1.2951	.03179	.006356
%RSD	1.388226	.3736735	.2527035	.3110109	.1987569	.2612248
#1	9.95397	.4558403	2.375143	416.6606	15.96390	2.426171
#2	10.03157	.4559927	2.386144	415.0315	16.02730	2.433964
#3	10.22539	.4588707	2.384880	417.5901	15.99142	2.438764

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.90270	F 352.1634	14.15306	F 359.5106	2.397715	1.304513
Stddev	.00802	.5804	.04007	.9486	.007421	.005039
%RSD	.0537852	.1648111	.2831440	.2638523	.3094854	.3862930
#1	14.91102	352.3288	14.14577	358.9885	2.389149	1.304034
#2	14.89503	351.5182	14.11713	358.9377	2.402171	1.309774
#3	14.90207	352.6432	14.19627	360.6055	2.401825	1.299730

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 356.3284	2.368172	13.87840	148.5608	5.034429	4.778439
Stddev	1.1828	.012497	.32250	.1984	.017071	.023562
%RSD	.3319463	.5276903	2.323755	.1335475	.3390810	.4930954
#1	355.8299	2.357852	13.52583	148.7246	5.014987	4.759473
#2	355.4763	2.364597	14.15850	148.6175	5.046966	4.771028
#3	357.6788	2.382066	13.95085	148.3402	5.041333	4.804816

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCV76 Acquired: 9/23/2014 16:55:36 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV76 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.729276	4.980114	4.678235	4.791745	4.675946	5.085100
Stddev	.016368	.006329	.018520	.013817	.010351	.002959
%RSD	.3461039	.1270871	.3958769	.2883446	.2213613	.0581905
#1	4.710915	4.973278	4.686731	4.776068	4.681795	5.086179
#2	4.742339	4.985770	4.656992	4.802149	4.663995	5.081753
#3	4.734575	4.981294	4.690983	4.797017	4.682048	5.087368

Elem	Sr4077
Units	ppm
Avg	5.149442
Stddev	.020349
%RSD	.3951746
#1	5.137314
#2	5.138077
#3	5.172935

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	77.73501	4823.645	64837.36	10903.85	4474.465
Stddev	1.34457	4.854	203.80	70.39	5.327
%RSD	1.729678	.1006282	.3143280	.6455247	.1190552
#1	79.20323	4828.609	64946.58	10892.58	4477.002
#2	76.56375	4823.418	64602.23	10979.19	4478.049
#3	77.43805	4818.909	64963.28	10839.78	4468.343

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCB76 Acquired: 9/23/2014 17:06:51 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB76 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008590	.0005314	-.000119	-.000263	-.000137	-.000723	.0003105
Stddev	.0004522	.0013030	.000637	.000057	.000193	.004917	.0001480
%RSD	52.63567	245.2034	533.8775	21.69928	140.9460	679.9122	47.65975
#1	.0009397	.0018865	-.000827	-.000197	-.000354	.004468	.0001899
#2	.0003720	-.000712	.000062	-.000298	-.000068	-.005311	.0002660
#3	.0012655	.000420	.000407	-.000293	.000012	-.001327	.0004756

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000393	.0000039	-.002081	.0000026	-.000113	-.001658	.0071515
Stddev	.000166	.0000346	.007896	.0003085	.000120	.001574	.0033121
%RSD	42.18145	883.4891	379.4696	11894.92	106.3166	94.95311	46.31410
#1	-.000393	.0000395	-.008832	.0001833	-.000234	-.003473	.0039319
#2	-.000227	-.000030	-.004012	-.000354	.000007	-.000682	.0105490
#3	-.000559	.000002	.006602	.000178	-.000114	-.000818	.0069736

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000208	-.009413	.0000471	.0004528	.0079040	.0003676	-.000188
Stddev	.0001349	.002838	.0001541	.0001273	.0589713	.0005894	.001807
%RSD	648.7108	30.15084	327.4251	28.10871	746.0903	160.3622	961.5788
#1	.0001218	-.010289	-.000008	.0005869	-.024492	-.000304	.001833
#2	.0000728	-.006240	-.000072	.0004379	.075972	.000607	-.001649
#3	-.000132	-.011709	.000221	.0003336	-.027767	.000799	-.000748

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4007245	-.003585	.0031951	.0002288	-.010480	-.021576	-.000008
Stddev	.0293630	.000634	.0009032	.0001196	.001385	.008350	.000136
%RSD	7.327486	17.67822	28.26866	52.25080	13.21205	38.70085	1744.630
#1	.3866661	-.003184	.0040656	.0002991	-.009007	-.020870	.000148
#2	.4344737	-.003255	.0022624	.0000908	-.011754	-.013602	-.000102
#3	.3810338	-.004316	.0032572	.0002966	-.010680	-.030257	-.000070

Reviewed By:BIN
On:9/24/2014 10:27:43 AM
Inst Id :P5

Sample Name: CCB76 Acquired: 9/23/2014 17:06:51 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v555) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB76 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0011625	.0011783	-.000093
Stddev	.0009926	.0005417	.000045
%RSD	85.38011	45.97479	47.97132
#1	.0017774	.0016408	-.000145
#2	.0016928	.0013119	-.000063
#3	.0000175	.0005823	-.000072

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	87.28824	5626.890	73422.77	11051.18	6022.786
Stddev	.80956	17.470	103.05	31.66	18.150
%RSD	.9274552	.3104744	.1403457	.2864451	.3013622
#1	86.50200	5622.581	73358.47	11084.33	6018.963
#2	87.24348	5646.111	73368.22	11021.27	6042.543
#3	88.11926	5611.978	73541.63	11047.94	6006.851

CHEMTECH

Instrument ID: P5

284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Daily Analysis Runlog For Sequence/QCBatch ID # LB72877

Review By BIN Review On 9/24/2014 10:27:43 AM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

Sr#	SampleId	ClientID	QcType	Date	Comment	Status
1	S0	S0	CAL1	09/23/14 10:28		OK
2	S1	S1	CAL2	09/23/14 10:32		OK
3	S2	S2	CAL3	09/23/14 10:36		OK
4	S3	S3	CAL4	09/23/14 10:40		OK
5	S4	S4	CAL5	09/23/14 10:43		OK
6	S5	S5	CAL6	09/23/14 10:48		OK
7	S6	S6	CAL7	09/23/14 10:52		OK
8	ICV56	ICV56	ICV	09/23/14 11:14		OK
9	ICB56	ICB56	ICB	09/23/14 11:18		OK
10	ICSA56	ICSA56	ICSA	09/23/14 11:22		OK
11	ICSAB56	ICSAB56	ICSAB	09/23/14 11:26		OK
12	CCV73	CCV73	CCV	09/23/14 11:57		OK
13	CCB73	CCB73	CCB	09/23/14 12:01		OK
14	F3847-08A	ME4300A	PS	09/23/14 12:06	Not required	Not Ok
15	F4000-01	MC0J90	SAM	09/23/14 12:10		OK
16	F4000-02	MC0J90D	DUP	09/23/14 12:14		OK
17	F4000-03	MC0J90S	MS	09/23/14 12:18		OK
18	F4000-01L	MC0J90L	SD	09/23/14 12:22		OK
19	F4000-04	MC0J92	SAM	09/23/14 12:26		OK
20	F4000-05	MC0J94	SAM	09/23/14 12:30		OK
21	F4000-06	MC0J96	SAM	09/23/14 12:34		OK

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ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

22	F4000-07	MC0J98	SAM	09/23/14 12:38		OK
23	F4000-08	MC0JA0	SAM	09/23/14 12:42		OK
24	F4000-09	MC0JA2	SAM	09/23/14 12:46		OK
25	PB79099BL	PBW01	MB	09/23/14 12:50	Contamination for Fe,K(Below RL)	OK
26	PB79099BS	LCS01	LCS	09/23/14 12:54		OK
27	F3884-01	MBBRC1	SAM	09/23/14 12:58		OK
28	F3884-02	MBBRC2	SAM	09/23/14 13:02		OK
29	F3884-03	MBBRC3	SAM	09/23/14 13:07		OK
30	F3884-04	MBBRC3D	DUP	09/23/14 13:11		OK
31	F3884-05	MBBRC3S	MS	09/23/14 13:15		OK
32	F3884-03L	MBBRC3L	SD	09/23/14 13:19		OK
33	F3884-06	MBBRC4	SAM	09/23/14 13:23		OK
34	CCV74	CCV74	CCV	09/23/14 13:27		OK
35	CCB74	CCB74	CCB	09/23/14 13:31		OK
36	F3884-07	MBBRC5	SAM	09/23/14 13:35		OK
37	F3884-08	MBBRC6	SAM	09/23/14 13:39		OK
38	F3884-09	MBBRC7	SAM	09/23/14 13:43		OK
39	F3884-10	MBBRC8	SAM	09/23/14 13:47		OK
40	F3884-11	MBBRC9	SAM	09/23/14 13:51		OK
41	F3884-12	MBBRD0	SAM	09/23/14 13:55		OK
42	F3884-13	MBBRD1	SAM	09/23/14 13:59		OK
43	F3884-14	MBBRD2	SAM	09/23/14 14:03		OK
44	F3884-15	MBBRD3	SAM	09/23/14 14:07		OK

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ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

45	F3978-07	MB0AA3	SAM	09/23/14 14:11		OK
46	F3978-08	MB0AA4	SAM	09/23/14 14:15		OK
47	F3978-09	MB0AA4D	DUP	09/23/14 14:19	RPD fail for Al	OK
48	F3978-08L	MB0AA4L	SD	09/23/14 14:23		OK
49	F3978-10	MB0AA4S	MS	09/23/14 14:28	MS fail for Al(4192.589)	OK
50	F3978-11	MB0AA5	SAM	09/23/14 14:31		OK
51	F3978-15	MB0AA6	SAM	09/23/14 14:35		OK
52	F3978-20	MB0AR4	SAM	09/23/14 14:40		OK
53	PB79102BL	PBS01	MB	09/23/14 14:44	Contamination for Ni(Below RL)	OK
54	PB79102BS	LCS01	LCS	09/23/14 14:48		OK
55	F3978-01	MB0AR2	SAM	09/23/14 14:52		OK
56	F3978-02	MB0AA0	SAM	09/23/14 14:56		OK
57	CCV75	CCV75	CCV	09/23/14 15:04		OK
58	CCB75	CCB75	CCB	09/23/14 15:14		OK
59	F3978-03	MB0AA1	SAM	09/23/14 15:18	CCV fail for Al,Fe,Na	ReRun
60	F3978-04	MB0AA1D	DUP	09/23/14 15:22	CCV fail for Al,Fe,Na	ReRun
61	F3978-05	MB0AA1S	MS	09/23/14 15:26	CCV fail for Al,Fe,Na	ReRun
62	F3978-03L	MB0AA1L	SD	09/23/14 15:30	CCV fail for Al,Fe,Na	ReRun
63	F3978-06	MB0AA2	SAM	09/23/14 15:34	CCV fail for Al,Fe,Na	ReRun
64	F3978-12	MB0AA9	SAM	09/23/14 15:38	CCV fail for Al,Fe,Na	ReRun
65	F3978-13	MB0AB0	SAM	09/23/14 15:42	CCV fail for Al,Fe,Na	ReRun
66	F3978-14	MB0AB1	SAM	09/23/14 15:46	CCV fail for Al,Fe,Na	ReRun
67	F3978-16	MB0AB2	SAM	09/23/14 15:50	CCV fail for Al,Fe,Na	ReRun

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ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

68	F3978-17	MB0AB2D	DUP	09/23/14 15:54	CCV fail for Al,Fe,Na	ReRun
69	F3978-18	MB0AB2S	MS	09/23/14 15:58	MS fail for Sb(Below RL),CCV fail for Al,Fe,Na	ReRun
70	F3978-16L	MB0AB2L	SD	09/23/14 16:02	SD fail for Zn,CCV fail for Al,Fe,Na	ReRun
71	F3978-19	MB0AB3	SAM	09/23/14 16:06	CCV fail for Al,Fe,Na	ReRun
72	F3940-04A	MC0AD7A	PS	09/23/14 16:14	PS for Sb	OK
73	PB79144BL	PB79144BL	MB	09/23/14 16:18	CCV fail for Al,Fe,Na	Not Ok
74	PB79144BS	PB79144BS	LCS	09/23/14 16:22	CCV fail for Al,Fe,Na	Not Ok
75	F3932-01	MBBEZ7	SAM	09/23/14 16:39	CCV fail for Al,Fe,Na	Not Ok
76	F3932-02	MBBEZ8	SAM	09/23/14 16:43	CCV fail for Al,Fe,Na	Not Ok
77	F3932-03	MBBEZ9	SAM	09/23/14 16:47	CCV fail for Al,Fe,Na	Not Ok
78	CCV76	CCV76	CCV	09/23/14 16:55	Fail for Al,Fe,Na	OK
79	CCB76	CCB76	CCB	09/23/14 17:06		OK

Prep Standard - Chemical Standard Summary

Order ID : F3940

Test : Metals CLP Full

Prepbatch ID : PB78988

Sequence ID/Qc Batch ID: LB72877

Standard ID :
MP23410,MP23559,MP23642,MP23639,MP23643,MP23655,MP23656,MP23658,MP23654,MP23660,MP23661,MP23662,MP23663,MP23664,MP23665,MP23666,MP23667,MP23668,MP23410,MP23559,MP23639,MP23642,MP23643,MP23654,MP23655,MP23656,MP23658,MP23660,MP23661,MP23662,MP23663,MP23664,MP23665,MP23666,MP23667,MP23668,

Chemical ID :
M3245,M3207,M3218,M2942,V1456,M3215,W1152,M2995,M3227,M3047,M3218,M3057,M3156,M2988,M2961,M3081,M3187,M2782,M3151,M3096,M3099,M3100,M3102,M3115,M3224,M2979,M3112,M3124,M3122,M3110,M3185,M3225,M2975,M2991,M3113,M3118,M3098,M3117,M3106,M3121,M3101,M3097,M3108,M2987,M3111,M3104,M3123,M2962,M3145,M3148,M2782,M2942,M2961,M2962,M2975,M2979,M2987,M2988,M2991,M2995,M3047,M3057,M3081,M3096,M3097,M3098,M3099,M3100,M3101,M3102,M3104,M3106,M3108,M3110,M3111,M3112,M3113,M3115,M3117,M3118,M3121,M3122,M3123,M3124,M3145,M3148,M3151,M3156,M3185,M3187,M3207,M3215,M3218,M3224,M3225,M3227,M3245,V1456,W1152,

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
169	1:1HNO3	MP23410	09/02/2014	03/02/2015	BHUPENDRA

FROM 1250.000ml of M3215 + 1250.000ml of V1456 = Final Quantity: 2500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1346	Hg ICV SOLUTION	MP23559	09/09/2014	09/10/2014	Julles

FROM 2.500ml of M2995 + 2.500ml of M3227 + 245.000ml of W1152 = Final Quantity: 250.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23639	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
904	ICP AES ICSA SOLN	MP23642	09/17/2014	09/30/2014	BIN

FROM 25.000ml of M3047 + 225.000ml of MP23639 = Final Quantity: 250.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
905	ICP AES ICSAB SOLN	MP23643	09/17/2014	09/30/2014	BIN

FROM 25.000ml of M3047 + 25.000ml of M3057 + 200.000ml of MP23639 = Final Quantity: 250.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23654	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
903	ICP AES RINSE SOLN	MP23655	09/17/2014	09/30/2014	BIN

FROM 200.000ml of M3227 + 9800.000ml of W1152 = Final Quantity: 10000.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
919	ICP AES INTERNAL STD	MP23656	09/17/2014	09/30/2014	BIN

FROM 1.000ml of M2988 + 10.000ml of M3156 + 1969.000ml of W1152 + 20.000ml of M3227 = Final Quantity: 2000.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
2054	ICV-ICPAES	MP23658	09/17/2014	09/30/2014	BIN

FROM 0.500ml of M2961 + 0.500ml of M3187 + 10.000ml of M3081 + 89.000ml of MP23654 = Final Quantity: 100.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
994	ICPAES ISM01.2 S1 (CONC.)	MP23660	09/17/2014	09/30/2014	BIN

FROM 0.100ml of M3100 + 0.100ml of M3112 + 0.100ml of M3115 + 0.140ml of M2987 + 0.200ml of M2979 + 0.200ml of M2991 + 0.200ml of M3096 + 0.200ml of M3102 + 0.200ml of M3106 + 0.200ml of M3110 + 0.200ml of M3122 + 0.300ml of M2975 + 0.300ml of M3187 + 0.400ml of M2782 + 0.500ml of M3108 + 0.500ml of M3124 + 0.700ml of M3098 + 0.800ml of M3113 + 1.000ml of M3104 + 1.000ml of M3185 + 1.200ml of M3123 + 1.200ml of M3151 + 10.000ml of M3118 + 10.000ml of M3121 + 10.000ml of M3224 + 10.000ml of M3225 + 2.000ml of M3097 + 2.000ml of M3101 + 2.000ml of M3111 + 2.000ml of M3117 + 4.000ml of M3099 + 37.360ml of MP23654 = Final Quantity: 100.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1003	ICPAES ISM01.2 S1	MP23661	09/17/2014	09/18/2014	BIN

FROM 1.000ml of MP23660 + 199.000ml of MP23654 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1004	ICPAES ISM01.2 (S5)	MP23662	09/17/2014	09/30/2014	BIN

FROM 0.375ml of M3100 + 18.750ml of M2975 + 18.750ml of M3118 + 18.750ml of M3121 + 18.750ml of M3123 + 20.625ml of M3124 + 21.750ml of M2782 + 21.750ml of M2979 + 21.750ml of M3122 + 30.000ml of M3110 + 33.750ml of M3224 + 33.750ml of M3225 + 7.500ml of M2962 + 7.500ml of M3097 + 7.500ml of M3101 + 7.500ml of M3145 + 7.500ml of M3148 + 7.500ml of M3151 + 7.500ml of M3185 + 7.500ml of M3187 + 431.250ml of MP23654 = Final Quantity: 750.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1119	ICPAES ISM01.2(CCV)	MP23663	09/17/2014	09/30/2014	BIN

FROM 12.250ml of M2782 + 12.500ml of M3121 + 12.500ml of M3122 + 7.500ml of M3224 + 7.500ml of M3225 + 197.750ml of MP23654 + 250.000ml of MP23662 = Final Quantity: 500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1005	ICPAES ISM01.2(S4)	MP23664	09/17/2014	09/30/2014	BIN

FROM 100.000ml of MP23654 + 100.000ml of MP23662 = Final Quantity: 200.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1007	ICPAES ISM01.2(S3)	MP23665	09/17/2014	09/30/2014	BIN

FROM 150.000ml of MP23654 + 50.000ml of MP23662 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1008	ICPAES ISM01.2(S2)	MP23666	09/17/2014	09/30/2014	BIN

FROM 175.000ml of MP23654 + 25.000ml of MP23662 = Final Quantity: 200.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
2480	ICP AES STD 6 ISM01.3	MP23667	09/17/2014	09/30/2014	BIN

FROM 16.000ml of M2782 + 16.000ml of M3121 + 16.000ml of M3122 + 16.000ml of M3224 + 16.000ml of M3225 + 120.000ml of MP23654 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23668	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Aluminum (Al) 10,000PPM	082812	08/28/2015	12/28/2012 / Janet	12/28/2012 / Janet	M2782

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Labpure	0919120 / Boiling Stones	4368-7F031	08/22/2018	08/22/2013 / bhupendra	08/22/2013 / bhupendra	M2942

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CHEM-QC-4 / CHEM-QC-4, Second Source, 1000 ug/ml, B, Mo, Si, Sn, Ti	F2-MEB452072	10/01/2014	09/03/2013 / aesha	08/26/2013 / aesha	M2961

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	G2-MEB491013	10/01/2014	09/03/2013 / aesha	08/26/2013 / aesha	M2962

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58025 / Manganese, Mn, 500 ml, 1000 PPM	070313	07/03/2016	09/25/2013 / jaswal	09/25/2013 / jaswal	M2975

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58024 / Chromium, Cr, 500 ml, 1000 PPM	072913	07/29/2016	09/25/2013 / jaswal	09/25/2013 / jaswal	M2979

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSNCL1-1 / TIN/HCL 125mL 1000ug/mL	G2-SN02062	11/01/2014	10/21/2013 / BIN	10/18/2013 / BIN	M2987

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	F2-Y02004	11/01/2014	10/21/2013 / BIN	10/18/2013 / BIN	M2988

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57042 / Molybdeum, Mo, 100 ml, 1000 PPM	080913	08/09/2016	10/30/2013 / BIN	09/25/2013 / BIN	M2991

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV5-0508	10/09/2018	08/21/2014 / mohan	10/09/2013 / Julles	M2995

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3047

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3057

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV1-0307	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3081

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGAS1-1 / ARSENIC 125mL 1000ug/mL	G2-AS02102	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3096

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGS1-1 / SULFUR 125mL 1000ug/mL	G2-S02007	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3097

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSE(4)1-1 / SELENIUM 125mL 1000ug/mL	E2-SE02033	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3098

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGBA1-1 / BARIUM 125mL 1000ug/mL	F2-BA02076	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3099

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGBE1-1 / BERYLLIUM 125mL 1000ug/mL	F2-BE02021	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3100

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSR1-1 / Strontium, 125 ml, 1000 PPM	F2-SR02036	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3101

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGB1-1 / BORON 125mL 1000ug/mL	F2-B02109	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3102

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGV1-1 / VANADIUM 125mL 1000ug/mL	G2-V02081	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3104

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGAG1-1 / SILVER 125mL 1000ug/mL	G2-AG03035	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3106

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTL1-1 / THALLIUM 125mL 1000ug/mL	F2-TL02003	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3108

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGPB1-1 / LEAD 125mL 1000ug/mL	G2-PB03044	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3110

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	F2-TI02094	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3111

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCO1-1 / COBALT 125mL 1000ug/mL	F2-CO02052	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3112

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGNI1-1 / NICKEL 125mL 1000ug/mL	G2-NI02086	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3113

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCD1-1 / CADMIUM, 125mL 1000ug/mL	G2-CD02043	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3115

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSI1-1 / SILICON 125mL 1000ug/mL	G2-SI03023	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3117

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGK10-5 / Potassium, 500 ml, 10000 PPM	F2-K03033	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3118

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGNA10-5 / Sodium, 500 ml, 10000 PPM	G2-NA03110	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3121

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGFE10-5 / Iron, 500 ml, 10000 PPM	G2-FE04029	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3122

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGZN1-5 / Zinc, 500 ml, 1000 PPM	F2-ZN02088	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3123

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCU1-5 / Copper, 500 ml, 1000 PPM	F2-CU02147	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3124

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	G2-MEB479124	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3145

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	G2-MEB467069	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3148

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSBF1-1 / Antimony, Sb, 125 ml	G2-SB03021	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3151

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGIN10-1 / INDIUM 125mL 10,000ug/mL	F2-IN01095	04/01/2015	03/07/2014 / jaswal	03/07/2014 / jaswal	M3156

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57003 / Lithium, Li, 100 ml, 1000 PPM	122713	12/27/2016	05/19/2014 / BIN	05/09/2014 / jaswal	M3185

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGP1-1 / Phosphorus, 125 ml	G2-P02048	06/01/2015	09/02/2014 / BIN	05/09/2014 / jaswal	M3187

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-2186-03 / Hydrogen Peroxide (cs/4x4L)	0000064775	05/27/2015	07/15/2014 / bhupendra	07/03/2014 / bhupendra	M3207

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000077192	04/15/2019	08/22/2014 / bhupendra	08/12/2014 / bhupendra	M3215

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	0000075649	03/25/2019	09/02/2014 / BHUPENDRA	08/20/2014 / bhupendra	M3218

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCA10-5 / Calcium, 500 ml, 10000 PPM	G2-CA04095	09/01/2015	09/02/2014 / BIN	08/12/2014 / jaswal	M3224

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGMG10-5 / Magnesium, 500 ml, 10000 PPM	G2-MG03120	09/01/2015	09/02/2014 / BIN	08/12/2014 / jaswal	M3225

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000077192	04/15/2019	09/05/2014 / bhupendra	09/03/2014 / bhupendra	M3227

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000084115	07/01/2019	09/23/2014 / bhupendra	09/12/2014 / BHUPENDRA	M3245

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Res-Kem General water	DIW / DI Water	DAILY	12/31/2019	03/01/2010 / apatel	03/02/2010 / apatel	V1456

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Res-Kem General water	DIW / DI Water	Lab certified	02/23/2015	02/23/2010 /	02/23/2010 / divya	W1152

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Standard ID : M2782

CERTIFIED WEIGHT REPORT:

D: 12/28/12
R: 12/28/12

Part Number: 58113
Lot Number: 082812
Description: Aluminum (Al)
Expiration Date: 082815
Storage: 20 °C
Nominal Concentration (µg/mL): 10000
Weight shown below was diluted to (mL): 1999.68

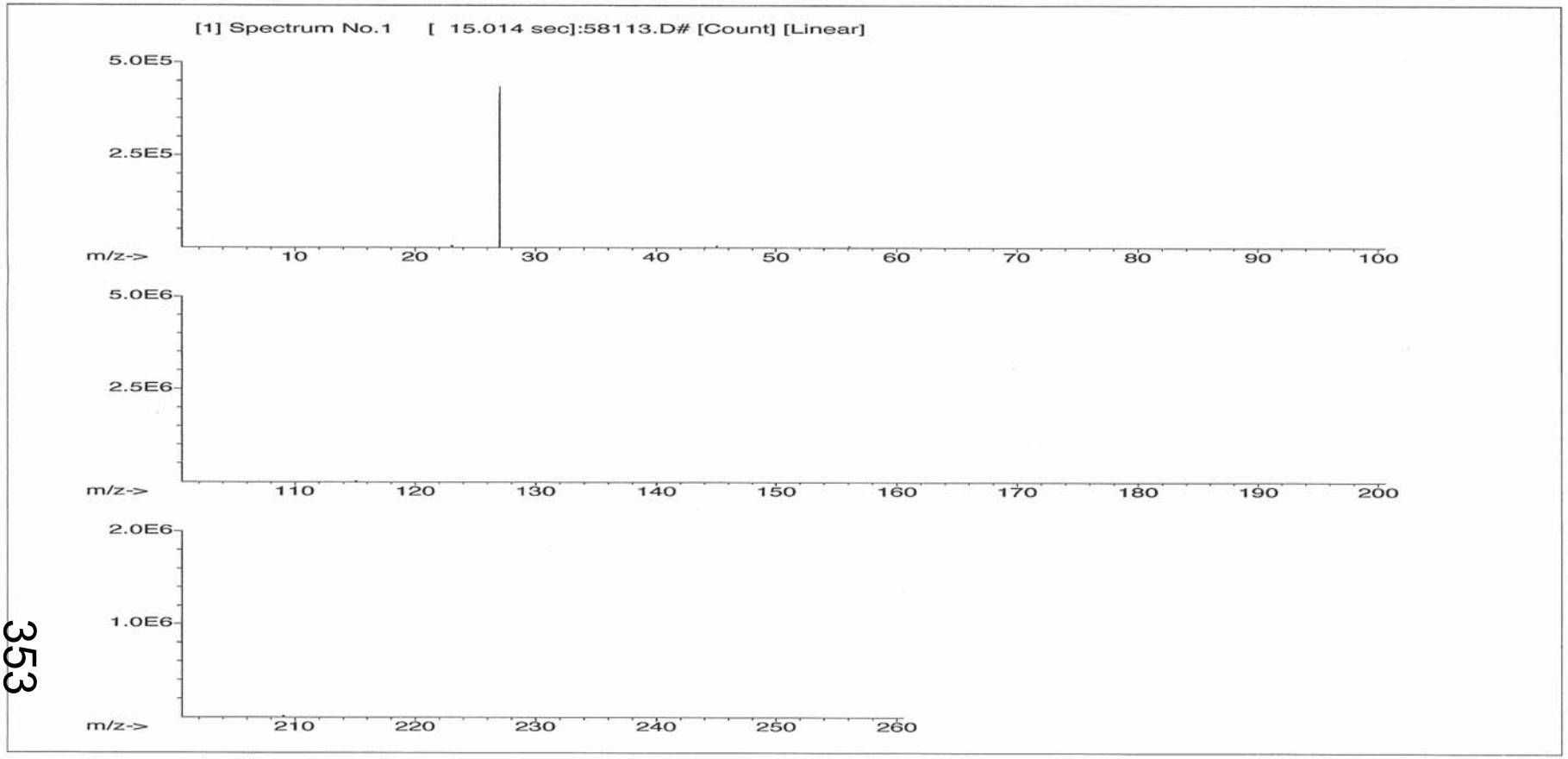
	Lot #		
Solvent:	C142199	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.100 Flask Uncertainty

M2782

Formulated By:	Lawrence Barry	082812
Reviewed By:	Pedro L. Rentas	082812

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity	Uncertainty Purity	Assay (%)	Target Weight (g)	Actual Weight (g)	**Actual Conc. (µg/mL)**	Expanded Uncertainty (+/-)	CAS#	MSDS Information (Solvent Safety Info. On Attached pg.) OSHA PEL (TWA)	LD50	NIST SRM
1. Aluminum Nitrate Nonahydrate (Al)	IN022	D312ALA1	10000.0	99.999	0.10	7.10	281.6484	281.6803	**10001.1**	0.00200	07784-27-2	5 mg/m3	orl-rat 264 mg/kg	3101a



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INORGANIC VENTURES™
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CERTIFICATE OF ANALYSIS

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M2961

R: 08/26/13

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Custom Second Source Solution**

Catalog No.: CHEM-QC-4

Lot Number: **F2-MEB452072**

Matrix: 3% HNO3(v/v), 2.7% HF(v/v)

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

1,000 µg/mL ea:
B, Mo, Si, Sn, Ti

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Boron, B	1,000 ± 7 µg/mL	Molybdenum, Mo	1,000 ± 6 µg/mL	Silicon, Si	1,000 ± 5 µg/mL
Tin, Sn	1,000 ± 5 µg/mL	Titanium, Ti	1,000 ± 7 µg/mL		

Certified Density: 1.033 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2 [\Sigma(s_i)^2]^{½}$ 2 = the coverage factor.

$[\Sigma(s_i)^2]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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Standard ID : M2962

CERTIFICATE OF ANALYSIS

M2962

R: 08/26/13

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Custom Solution**

Catalog No.: CHEM-CLP-4

Lot Number: **G2-MEB491013**

Matrix: 3% HNO3(v/v), 2.7% HF(v/v)

1,000 µg/mL ea:
B, Mo, Si, Sn, Ti

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Boron, B	1,000 ± 7 µg/mL	Molybdenum, Mo	1,000 ± 5 µg/mL	Silicon, Si	1,000 ± 7 µg/mL
Tin, Sn	1,001 ± 7 µg/mL	Titanium, Ti	1,000 ± 7 µg/mL		

Certified Density: 1.035 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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Certified Reference Material CRM

RD: 09/25/13
M2975

ISO 9001 QS Registered
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Scopes: http://Absolute ndards.com

Standard ID : M2975

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58025**	C257285	Nitric Acid	
Lot Number:	**070313**			
Description:	**Manganese (Mn)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	070316			
	Storage: 20 °C			
Nominal Concentration (µg/mL):	**1000**			
		5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty	

Gabriel Helland

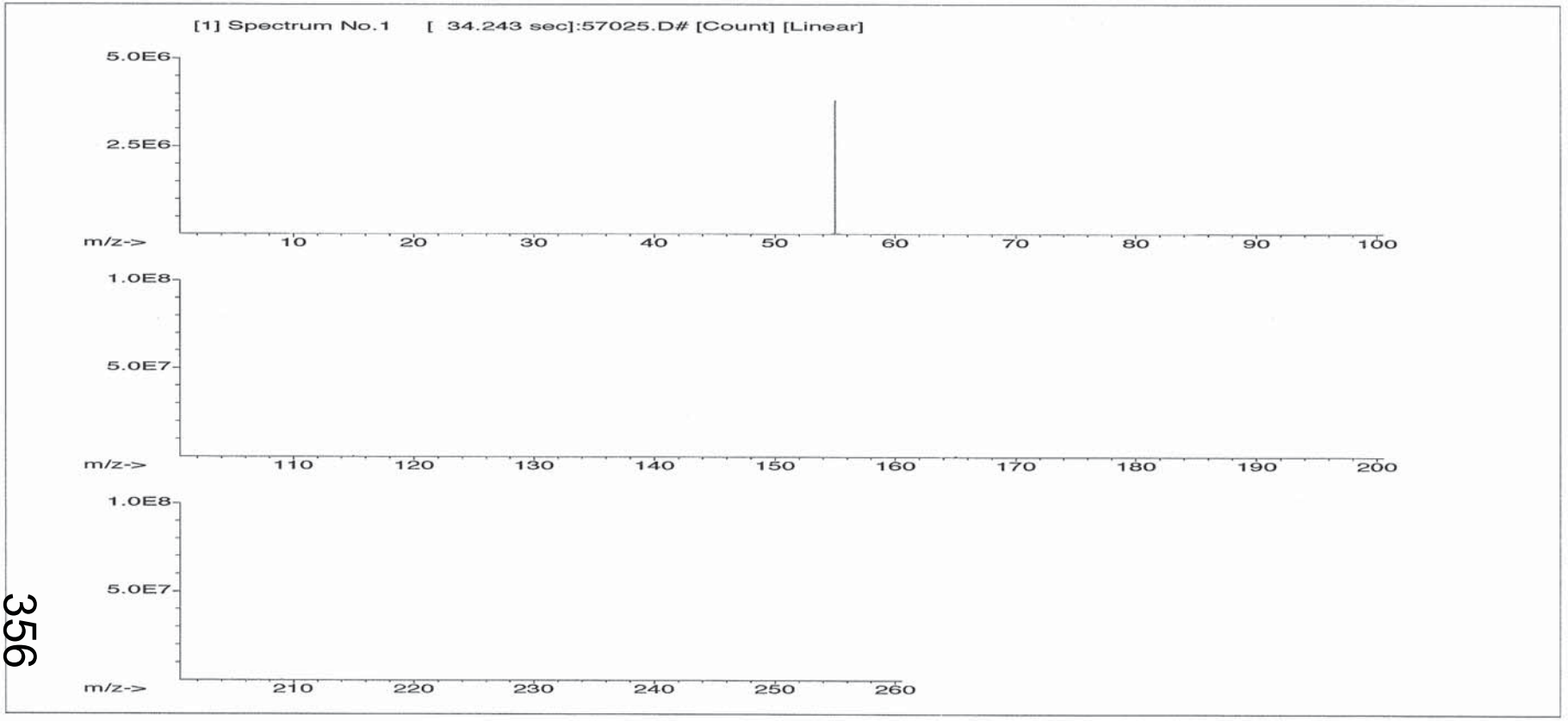
Formulated By:	Gabriel Helland	070313

Pedro Rentas

Reviewed By:	Pedro L. Rentas	070313

MSDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	ty Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Manganese (II) nitrate Hydrate (Mn)	58125	122712	0.1000	200.0	0.013	10000.9	**1000.2**	0.00201	15710-66-4	5 mg/m3	N/A	3132



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Certified Reference Material CRM

RD: 09/25/13
M2979

ISO 9001 QS Registered
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Scopes: http://Absolute[illegible]andards.com

Standard ID : M2979

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**58024**		C257285	Nitric Acid	
Lot Number:	**072913**				
Description:	**Chromium (Cr)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	072916				
	Storage:	20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty		

Gabriel Helland

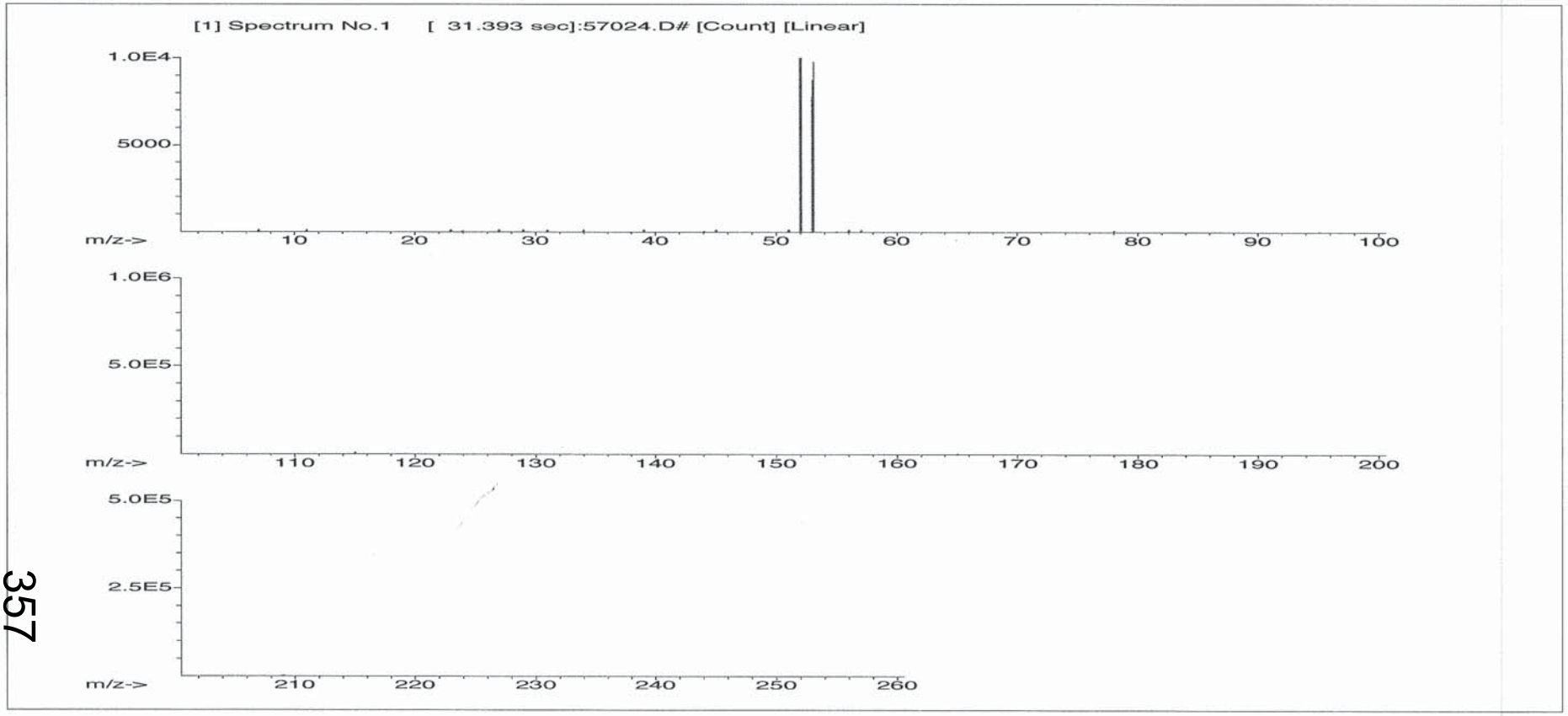
Formulated By:	Gabriel Helland	072913

Pedro Rentas

Reviewed By:	Pedro L. Rentas	072913

MSDS Information
(Solvent Safety Info. On Attached pg.)

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	**Final Conc. (µg/mL)**	Expanded Uncertainty (+/-)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Chromium (III) nitrate nonahydrate (Cr)	58124	022213	0.100	200.0	0.013	10000.9	**1000.2**	0.00201	07789-02-8	0.5 mg(Cr)/m3	orl-rat 3250 mg/kg	3112a



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M2987

Standard ID : M2987

RV: 10/18/2013

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CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Tin HCl in 20% (v/v) HCl**

Catalog Number:	CGSNCL1-1, CGSNCL1-2, and CGSNCL1-5
Lot Number:	**G2-SN02062**
Starting Material:	Sn shot
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1744
Matrix:	20% (v/v) HCl

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 3 µg/mL -weighted mean-
Certified Density:	1.042 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

RD : 10/18/2013

Standard ID : M2988

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CERTIFICATE OF ANALYSIS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Yttrium in 2% (v/v) HNO3**

Catalog Number:	CGY10-1, CGY10-2, and CGY10-5
Lot Number:	**F2-Y02004**
Starting Material:	Y2O3
Starting Material Purity (%):	99.9999
Starting Material Lot No:	0623052
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,006 ± 53 µg/mL - weighted mean
Certified Density:	1.034 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Absolute Standards, Inc.
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M2991

RD : 09/25/13

Certified Reference Material CRM

ISO 9001 QS R
ISO 17025 34-35-43 A
Scopes: http:/ soluteStan

Standard ID : M2991

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:
Part Number:	**57042**	Y47057	Ammonium hydroxide
Lot Number:	**080913**		
Description:	**Molybdenum (Mo)**		
		0.5%	10.0 (mL) Ammonium hydroxide
Expiration Date:	080916		
	Storage: 20 °C		
Nominal Concentration (µg/mL):	**1000**		
		5E-05	Balance Uncertainty
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty

Gabriel Helland

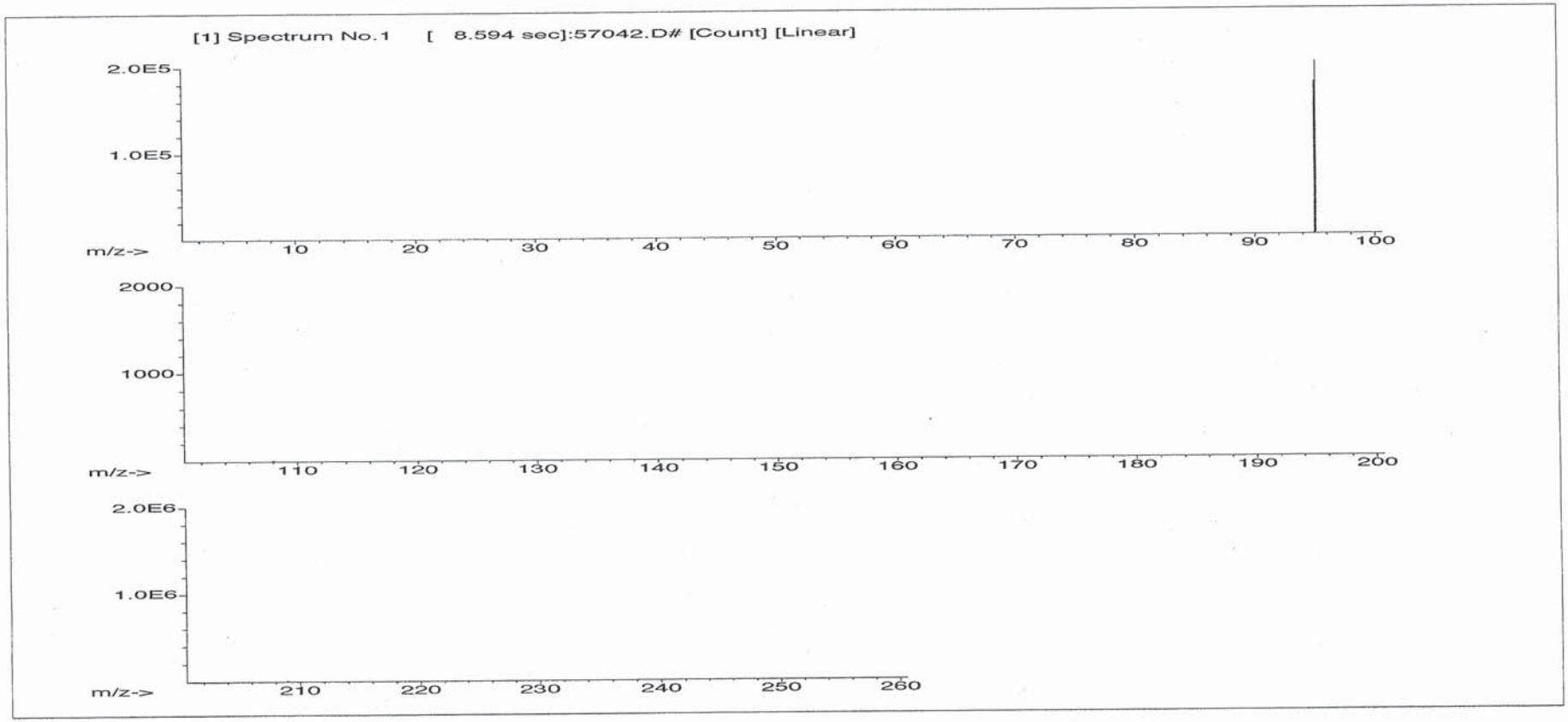
Formulated By:	Gabriel Helland	080913

Pedro Rentas

Reviewed By:	Pedro L. Rentas	080913

MSDS Information
(Solvent Safety Info. On Attached pg.)

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium molybdate (Mo)	58142	072613	0.1000	200.0	0.013	10001.3	**1000.3**	0.00201	12054-85-2	5 mg(Mo)/m3	orl-rat 333 mg/kg	3134



360

Page 389 of 454

Standard ID : M2995

QATS LABORATORY INORGANIC REFERENCE MATERIAL INITIAL CALIBRATION VERIFICATION SOLUTIONS (ICV1, ICV5, AND ICV6)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with CLP SOWs and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

JR 10/31/13

~~M2986~~ M2992
~~M2987~~ M2993
~~M2988~~ M2994
~~M2989~~ M2995
~~M2990~~ M2996

Recv'd: 10/9/13 MB

May Contain Metals in Dilute Acidic or Cyanide in Basic Aqueous Solutions
Hazardous Material

Material Safety Data Sheets Available Upon Request

(A) *SAMPLE DESCRIPTION*

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. **For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-0307", "ICV5-0508", and "ICV6-0400", respectively.**

(B) *BREAKAGE OR MISSING ITEMS*

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain-of-custody record. Report any problems to Mr. Keith Strout, Shaw Environmental, Inc. at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
Shaw Environmental, Inc.
2700 Chandler Avenue - Bldg. C
Las Vegas, NV 89120

(C) *ANALYSIS OF SAMPLES*

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in µg/L (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

ICV1-0307 For ICP-AES use: dilute the ICV1 concentrate 10-fold with 2% (v/v) nitric acid; pipet 10 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.

For ICP-MS use: dilute the ICV1 concentrate 50-fold with 1% (v/v) nitric acid; pipet 2 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.

ICV5-0508 For the cold vapor analysis of mercury by AA: dilute the ICV5 concentrate 100-fold with 2% (v/v) nitric acid; pipet 1 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) $K_2Cr_2O_7$ and 5% (v/v) nitric acid.

ICV6-0400 For the analysis of cyanide: dilute the ICV6 concentrate 100-fold with Type II water; pipet 1 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from $K_3Fe(CN)_6$, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

NOTE: USE TYPE II WATER AND HIGH-PURITY ACIDS FOR ALL DILUTIONS.

(D) *CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS*

ICV1-0307		
Element	**Concentration (µg/L) (after 10-fold dilution)**	**Concentration (µg/L) (after 50-fold dilution)**
Al	2521	504
Sb	994	199
As	999	200
Ba	497	99
Be	495	99
Cd	496	99
Ca	10026	2005
Cr	490	98
Co	499	100
Cu	492	98
Fe	5082	1016
Pb	1002	200
Mg	6074	1215
Mn	499	100
Ni	503	101
K	10021	2004
Se	1029	206
Ag	501	100
Na	10097	2019
Tl	1028	206
V	501	100
Zn	1025	205

ICV5-0508		ICV6-0400	
Element	**Concentration (µg/L) (after 100-fold dilution)**	**Analyte**	**Concentration (µg/L) (after 100-fold dilution)**
Hg	4.0	**CN^-**	99

interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:
ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSA solution by ICP-AES.
ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSAB solution by ICP-AES.

(D) *"CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)*

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB) events, CLP pre-award events, and external referee laboratories.

ICSA M3046 ↓ to M3055

ICSB M3056 ↓ to M3065

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	254900	203920	305880	246800	197440	296160
Sb	60	(0)*	-60	60	618	494	742
As	10	(0)	-10	10	104	83	125
Ba	200	(6)	-194	206	(537)	337	737
Be	5	(0)	-5	5	495	396	594
Cd	5	(1)	-4	6	972	778	1166
Ca	5000	244500	195600	293400	234900	187920	281880
Cr	10	52	42	62	542	434	650
Co	50	(0)	-50	50	476	381	571
Cu	25	(2)	-23	27	511	409	613
Fe	100	100700	80560	120840	99320	79456	119184
Pb	10	(0)	-10	10	(49)	39	59
Mg	5000	255400	204320	306480	248000	198400	297600
Mn	15	(7)	-8	22	507	406	608
Ni	40	(2)	-38	42	954	763	1145
Se	35	(0)	-35	35	(46)	11	81
Ag	10	(0)	-10	10	201	161	241
Tl	25	(0)	-25	25	(108)	83	133
V	50	(0)	-50	50	491	393	589
Zn	60	(0)	-60	60	952	762	1142

* The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 20 percent of the listed certified value.

R: 10/09/13

Standard ID : M3081

(D) *CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS*

M3081 To M3090

ICV1-0307		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2521	504
Sb	994	199
As	999	200
Ba	497	99
Be	495	99
Cd	496	99
Ca	10026	2005
Cr	490	98
Co	499	100
Cu	492	98
Fe	5082	1016
Pb	1002	200
Mg	6074	1215
Mn	499	100
Ni	503	101
K	10021	2004
Se	1029	206
Ag	501	100
Na	10097	2019
Tl	1028	206
V	501	100
Zn	1025	205

ICV5-0508		ICV6-0400	
Element	Concentration (µg/L) (after 100-fold dilution)	Analyte	Concentration (µg/L) (after 100-fold dilution)
Hg	4.0	CN^-	99

Standard ID : M3096

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R: 011717JM

M3096-

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Arsenic in 2% (v/v) HNO3**

Catalog Number:	CGAS1-1, CGAS1-2, and CGAS1-5
Lot Number:	**G2-AS02102**
Starting Material:	As Lump
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1814
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 5 µg/mL -weighted mean-

Certified Density: 1.012 (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2);$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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Standard ID : M3097

R1: 01/17/14

M3097

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Sulfur in H2O**

Catalog Number:	CGS1-1, CGS1-2, and CGS1-5
Lot Number:	**G2-S02007**
Starting Material:	H2SO4
Starting Material Purity (%):	100.0000
Starting Material Lot No:	H44F03
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,005 ± 5 µg/mL -weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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M3098

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ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Selenium(+4) in 2% (v/v) HNO3**

Catalog Number:	CGSE(4)1-1, CGSE(4)1-2, and CGSE(4)1-5
Lot Number:	**E2-SE02033**
Starting Material:	Se shot
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1616
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 6 µg/mL - weighted mean

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1	**Assay Method #1**	**1,002 ± 4 µg/mL** ICP Assay NIST SRM 3149 Lot Number: 100901
	Assay Method #2	**1,000 ± 3 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

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M3099-

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Barium in 0.1%(v/v) HNO3**

Catalog Number:	CGBA1-1, CGBA1-2, and CGBA1-5
Lot Number:	**F2-BA02076**
Starting Material:	Ba(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	BAE42012A1
Matrix:	0.1%(v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	996 ± 5 µg/mL -No weighted mean-
Certified Density:	1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements

Uncertainty (±) = $2\ [\ \Sigma(s_i)^2\ ]^{½}$

2 = the coverage factor.
$[\ \Sigma(s_i)^2\ ]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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Standard ID : M3100

R : 01/17/14

CERTIFICATE OF ANALYSIS

M3100

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Beryllium in 3% (v/v) HNO3**

Catalog Number:	CGBE1-1, CGBE1-2, and CGBE1-5
Lot Number:	**F2-BE02021**
Starting Material:	Be4O(OOCCH3)6
Starting Material Purity (%):	99.9999
Starting Material Lot No:	1772
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,003 ± 4 µg/mL - weighted mean

Certified Density: 1.022 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M3101

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ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Strontium in 0.1% (v/v) HNO3**

Catalog Number:	CGSR1-1, CGSR1-2, and CGSR1-5
Lot Number:	**F2-SR02036**
Starting Material:	SrCO3
Starting Material Purity (%):	99.9988
Starting Material Lot No:	1610
Matrix:	0.1% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,000 ± 5 µg/mL - weighted mean

Certified Density: 1.001 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Standard ID : M3102

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M3102

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Boron in H2O**

Catalog Number:	CGB1-1, CGB1-2, and CGB1-5
Lot Number:	**F2-B02109**
Starting Material:	H3BO3
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1631
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 999 ± 5 µg/mL -weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Standard ID : M3104

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M3104

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Vanadium in 2% (v/v) HNO3**

Catalog Number:	CGV1-1, CGV1-2, and CGV1-5
Lot Number:	**G2-V02081**
Starting Material:	V2O5
Starting Material Purity (%):	99.9991
Starting Material Lot No:	1782
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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M3106

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Silver in 5% (v/v) HNO3**

Catalog Number:	CGAG1-1, CGAG1-2, and CGAG1-5
Lot Number:	**G2-AG03035**
Starting Material:	Ag shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1641
Matrix:	5% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,002 ± 6 µg/mL -weighted mean-
Certified Density:	1.026 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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Standard ID : M3108

R : 01)17)14

M3108

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Thallium in 0.7% (v/v) HNO3**

Catalog Number:	CGTL1-1, CGTL1-2, and CGTL1-5
Lot Number:	**F2-TL02003**
Starting Material:	TlNO3
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1576
Matrix:	0.7% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 5 µg/mL - weighted mean

Certified Density: 1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Standard ID : M3110

CERTIFICATE OF ANALYSIS

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M3110

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Lead in 0.5%(v/v) HNO3**

Catalog Number:	CGPB1-1, CGPB1-2, and CGPB1-5
Lot Number:	**G2-PB03044**
Starting Material:	Pb(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1717
Matrix:	0.5%(v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 3 µg/mL -weighted mean-
Certified Density:	1.002 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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M3111

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Titanium in 2% (v/v) HNO3 / tr. HF**

Catalog Number:	CGTI1-1, CGTI1-2, and CGTI1-5
Lot Number:	**F2-TI02094**
Starting Material:	Ti powder
Starting Material Purity (%):	99.9948
Starting Material Lot No:	1769
Matrix:	2% (v/v) HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 6 µg/mL - weighted mean
Certified Density:	1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M3112

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Cobalt in 3% (v/v) HNO3**

Catalog Number:	CGCO1-1, CGCO1-2, and CGCO1-5
Lot Number:	**F2-CO02052**
Starting Material:	Co powder
Starting Material Purity (%):	99.9982
Starting Material Lot No:	1749
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,003 ± 5 µg/mL - weighted mean
Certified Density:	1.018 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Standard ID : M3113

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M3113

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Nickel in 2% (v/v) HNO3**

Catalog Number:	CGNI1-1, CGNI1-2, and CGNI1-5
Lot Number:	**G2-NI02086**
Starting Material:	Ni pieces
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1559
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,002 ± 4 µg/mL -weighted mean-

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2 [\Sigma(s_i)^2]^{1/2}$ 2 = the coverage factor.

$[\Sigma(s_i)^2]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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4.1 **Assay Method #1** **1,001 ± 3 µg/mL**
ICP Assay NIST SRM 3136 Lot Number: 000612

Assay Method #2 **1,002 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Cadmium in 3% (v/v) HNO3**

Catalog Number:	CGCD1-1, CGCD1-2, and CGCD1-5
Lot Number:	**G2-CD02043**
Starting Material:	Cd shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1714
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,004 ± 5 µg/mL -weighted mean-

Certified Density: 1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2\,[\,\Sigma(s_i)^2\,]^{1/2}$ 2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Standard ID : M3117

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CERTIFICATE OF ANALYSIS

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M3117

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Silicon in tr. HNO3 / tr. HF**

Catalog Number:	CGSI1-1, CGSI1-2, and CGSI1-5
Lot Number:	**G2-SI03023**
Starting Material:	SiO2
Starting Material Purity (%):	99.9993
Starting Material Lot No:	1551
Matrix:	tr. HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 5 µg/mL -weighted mean-
Certified Density:	1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Potassium in 2% (v/v) HNO3**

Catalog Number:	CGK10-1, CGK10-2, and CGK10-5
Lot Number:	**F2-K03033**
Starting Material:	KNO3
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1727
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 10,022 ± 60 µg/mL - weighted mean

Certified Density: 1.025 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Sodium in 2% (v/v) HNO3**

Catalog Number:	CGNA10-1, CGNA10-2, and CGNA10-5
Lot Number:	**G2-NA03110**
Starting Material:	Na2CO3
Starting Material Purity (%):	99.9992
Starting Material Lot No:	1628
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,008 ± 17 µg/mL -weighted mean-
Certified Density:	1.033 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

Standard ID : M3122

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M3122

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Iron in 5 % (v/v) HNO3**

Catalog Number:	CGFE10-1, CGFE10-2, and CGFE10-5
Lot Number:	**G2-FE04029**
Starting Material:	Fe pieces
Starting Material Purity (%):	99.9977
Starting Material Lot No:	1762
Matrix:	5 % (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	9,977 ± 24 µg/mL -weighted mean-
Certified Density:	1.035 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

Standard ID : M3123

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Zinc in 2% (v/v) HNO3**

Catalog Number:	CGZN1-1, CGZN1-2, and CGZN1-5
Lot Number:	**F2-ZN02088**
Starting Material:	Zn shot
Starting Material Purity (%):	99.9999
Starting Material Lot No:	1689
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	998 ± 5 µg/mL -weighted mean-
Certified Density:	1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	**Characterization of CRM by one method**
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Copper in 3% (v/v) HNO3**

Catalog Number:	CGCU1-1, CGCU1-2, and CGCU1-5
Lot Number:	**F2-CU02147**
Starting Material:	Cu shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1718
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Stock Solution**

Catalog No.: CLPP-CAL-1

Lot Number: **G2-MEB479124**

Matrix: 5% HNO3(v/v)

5,000 µg/mL ea:
Ca, K, Mg, Na,

2,000 µg/mL ea:
Al, Ba,

1,000 µg/mL ea:
Fe,

500 µg/mL ea:
Co, Mn, Ni, V, Zn,

250 µg/mL ea:
Ag, Cu,

200 µg/mL ea:
Cr3,

50 µg/mL ea:
Be

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	2,002 ± 13 µg/mL	Barium, Ba	2,002 ± 13 µg/mL	Beryllium, Be	50.03 ± 0.28 µg/mL
Calcium, Ca	5,004 ± 35 µg/mL	Chromium+3, Cr3	200.2 ± 1.3 µg/mL	Cobalt, Co	500.5 ± 3.3 µg/mL
Copper, Cu	250.2 ± 1.6 µg/mL	Iron, Fe	1,001 ± 6 µg/mL	Magnesium, Mg	5,004 ± 33 µg/mL
Manganese, Mn	500.4 ± 3.2 µg/mL	Nickel, Ni	500.5 ± 3.3 µg/mL	Potassium, K	5,004 ± 22 µg/mL
Silver, Ag	250.2 ± 1.6 µg/mL	Sodium, Na	5,004 ± 33 µg/mL	Vanadium, V	500.4 ± 3.4 µg/mL
Zinc, Zn	500.4 ± 3.3 µg/mL				

Certified Density: 1.117 g/mL (measured at 20 ± 1° C)

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM

	Stock Solution
Catalog No.:	CLPP-CAL-3
Lot Number:	**G2-MEB467069**
Matrix:	7% HNO3(v/v)

1,000 µg/mL ea:
As, Pb, Se, Tl,

500 µg/mL ea:
Cd

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Arsenic, As	1,000 ± 7 µg/mL	Cadmium, Cd	500.0 ± 3.2 µg/mL	Lead, Pb	1,000 ± 7 µg/mL
Selenium, Se	1,000 ± 7 µg/mL	Thallium, Tl	1,000 ± 7 µg/mL		

Certified Density: 1.043 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Antimony in HF in 2% (v/v) HNO3 / tr. HF**

Catalog Number:	CGSBF1-1, CGSBF1-2, and CGSBF1-5
Lot Number:	**G2-SB03021**
Starting Material:	Sb shot
Starting Material Purity (%):	99.9997
Starting Material Lot No:	1647
Matrix:	2% (v/v) HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,006 ± 5 µg/mL -No weighted mean-
Certified Density:	1.010 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. **w_a and w_b** = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

INORGANIC VENTURES™
300 Technology Drive
urg, VA 24073 · USA
inorganicventures.com

Standard ID : M3156

R : 03/07/14

CERTIFICATE OF ANALYSIS

M3156 TO M3160

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Indium in 5% (v/v) HNO3**

Catalog Number:	CGIN10-1, CGIN10-2, and CGIN10-5
Lot Number:	**F2-IN01095**
Starting Material:	In shot
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1775, 1777
Matrix:	5% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,050 ± 51 µg/mL -weighted mean-
Certified Density:	1.033 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M3185

R : 05/08/14

ISO 9001 QS Registered
ISO 17025-34-35-43 Accredited
Scopes: http://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**57003**		C363101	Nitric Acid	
Lot Number:	**122713**				
Description:	**Lithium (Li)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	122716				
	Storage:	20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.98	0.090	Flask Uncertainty		

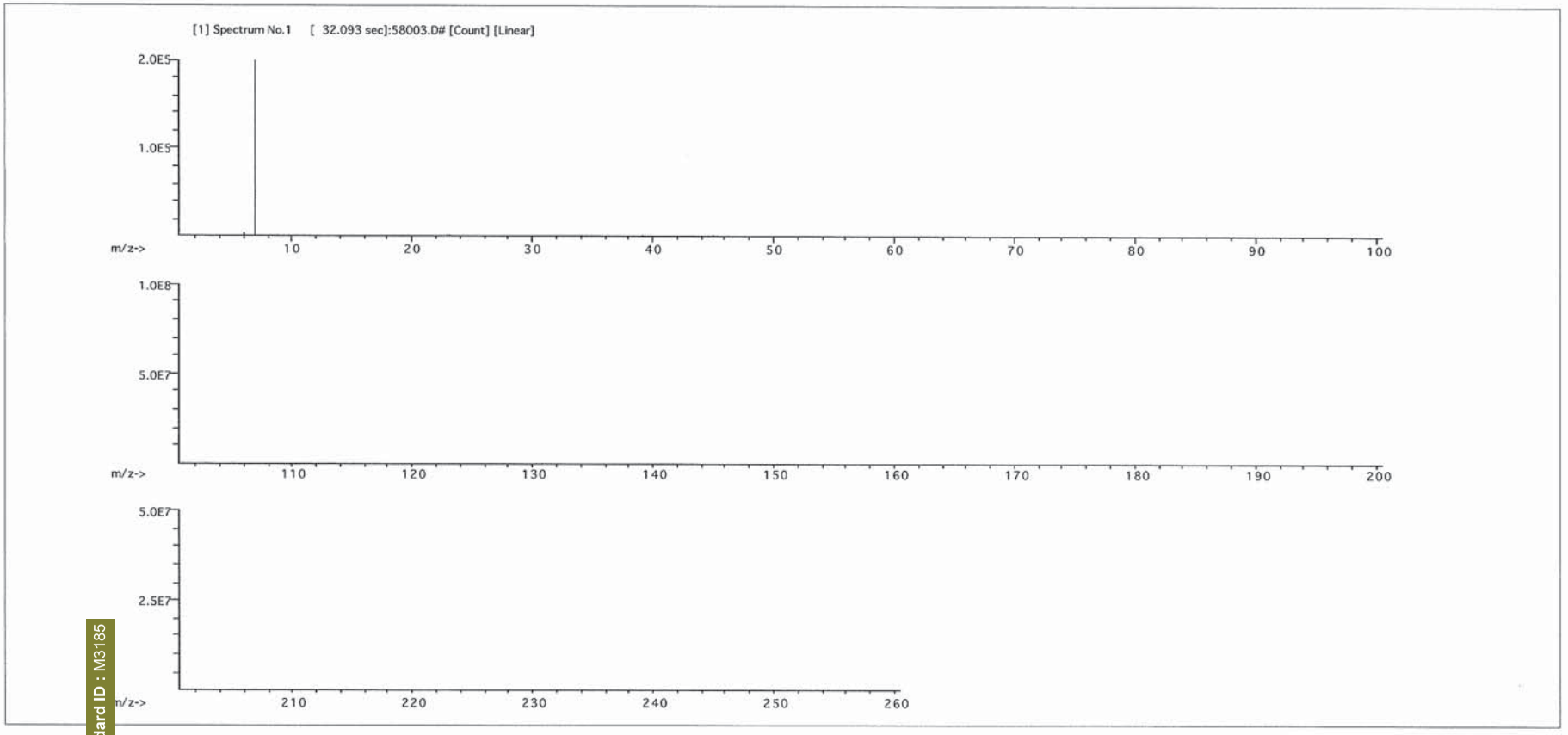
Gabriel Helland

Formulated By:	Gabriel Helland	122713

Pedro Rentas

Reviewed By:	Pedro L. Rentas	122713

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	MSDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lithium nitrate (Li)	58103	111412	0.1000	200.0	0.013	10001.5	**1000.2**	0.00201	07790-69-4	5 mg/m3	N/A	N/A



Standard ID : M3185

INORGANIC VENTURES™

Standard ID : M3187

R: 05/09/19

CERTIFICATE OF ANALYSIS

M3187

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM

1000 µg/mL Phosphorus in H2O

Catalog Number:	CGP1-1, CGP1-2, and CGP1-5
Lot Number:	**G2-P02048**
Starting Material:	H3PO4
Starting Material Purity (%):	99.9997
Starting Material Lot No:	1704
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,001 ± 4 µg/mL -weighted mean-
Certified Density:	1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	**Characterization of CRM by one method**
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$ CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$ $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results: X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$ $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

Standard ID : M3207

Hydrogen Peroxide, 30%
BAKER ANALYZED® A.C.S. Reagent
(Stabilized)

M3207.
Received Date 7/3/14
Exp. Date 5/27/15 7/3/14.

Material No.: 2186-03
Batch No.: 0000064775
Manufactured Date: 2013/11/26
Expiration Date: 2015/05/27

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay (H_2O_2)	30.0 - 32.0 %	31.7
Color (APHA)	<= 10	5
Residue after Evaporation	<= 0.0020 %	0.0002
Titrable Acid (meq/g)	<= 0.0006	< 0.0001
Chloride (Cl)	<= 3 ppm	< 1
Nitrate (NO_3)	<= 2 ppm	< 2
Phosphate (PO_4)	<= 2 ppm	< 1
ACS - Sulfate (SO_4)	<= 5 ppm	< 3
Ammonium (NH_4)	<= 5 ppm	< 3
Trace Impurities - Copper (Cu)	<= 50.0 ppb	< 1.0
Trace Impurities - Iron (Fe)	<= 100.0 ppb	4.1
Heavy Metals (as Pb)	<= 1000 ppb	< 250
Trace Impurities - Lead (Pb)	<= 100.0 ppb	< 10.0
Trace Impurities - Nickel (Ni)	<= 50.0 ppb	< 5.0

For Laboratory, Research or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs

Country of Origin: US
Packaging Site: Paris Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Nitric Acid, 69.0-70.0%
Standard ID : M3215 ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

M 3215
Received D. 08/12/14
Exp. D. 04/15/19.

Material No.: 9598-34
Batch No.: 0000077192
Manufactured Date: 2014/04/16
Retest Date: 2019/04/15

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.7
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.419
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	< 0.7
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.3
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	2.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	< 1.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000077192

Test	Specification	Result
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	< 1.0
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.3
Trace Impurities - Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities - Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities - Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities - Silicon (Si)	<= 20.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 200.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Standard ID : M3218

Hydrochloric Acid, 36.5-38.0%
[redacted]ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

M 3218
Received d. 8/20/14
Exp. D. 25/03/19
By

Material No.: 9530-33
Batch No.: 0000075649
Manufactured Date: 2014/03/26
Retest Date: 2019/03/25

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	< 1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.190
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	< 1
ACS - Free Chlorine (as Cl_2)	<= 0.5 ppm	< 0.5
Phosphate (PO_4)	<= 0.05 ppm	< 0.03
Sulfate (SO_4)	<= 0.5 ppm	< 0.3
Sulfite (SO_3)	<= 0.8 ppm	0.2
Ammonium (NH_4)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	9.3
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9530-33
Batch No.: 0000075649

Test	Specification	Result
Trace Impurities - Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 15.0 ppb	< 1.0
Trace Impurities - Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 10.0 ppb	0.2
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.1
Trace Impurities - Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities - Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.2
Trace Impurities - Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities - Selenium (Se), For Information Only	ppb	1.0
Trace Impurities - Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Titanium (Ti)	<= 1.0 ppb	0.5
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

INORGANIC VENTURES

Standard ID : M3224

CERTIFICATE OF ANALYSIS

M3224

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number (010105).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.03

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGCA10
Lot Number:	G2-CA04095
Matrix:	2% (v/v) HNO3
Value/Analyte(s):	10,000 µg/mL Calcium
Starting Material:	CaO
Starting Material Lot#:	Multiple Lots
Starting Material Purity:	99.9990%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10,027 ± 23 µg/mL weighted mean

Certified Density: 1.040 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	**10031 ± 41 µg/mL** ICP Assay NIST SRM 3109a Lot Number: 050825
Assay Method #2	**10025 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

INORGANIC VENTURES

Standard ID : M3225

CERTIFICATE OF ANALYSIS

M3225

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number (010105).

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGMG10
Lot Number:	G2-MG03120
Matrix:	2% (v/v) HNO3
Value/Analyte(s):	10,000 µg/mL Magnesium
Starting Material:	Mg chips
Starting Material Lot#:	1484
Starting Material Purity:	99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9,973 ± 20 µg/mL -weighted mean-

Certified Density: 1.053 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	**9,955 ± 29 µg/mL** ICP Assay NIST SRM 3131a Lot Number: 050302
Assay Method #2	**9,986 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Standard ID : M3227 0-70.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

SEIDLER CHEMICAL COMPANY
537 Raymond Boulevard
Newark, NJ 07105

Material No.: 9598-34
Batch No.: 0000077192
Manufactured Date: 2014/04/16
Retest Date: 2019/04/15

M3227.
Received D. 9/3/14
Expired d. 4/15/19.
B 9/3/14.

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.7
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.419
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	< 0.7
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.3
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	2.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	< 1.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000077192

Test	Specification	Result
Trace Impurities – Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities – Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities – Magnesium (Mg)	<= 7.0 ppb	< 1.0
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities – Mercury (Hg)	<= 0.5 ppb	0.3
Trace Impurities – Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities – Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities – Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities – Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities – Silicon (Si)	<= 20.0 ppb	< 10.0
Trace Impurities – Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities – Sodium (Na)	<= 200.0 ppb	< 5.0
Trace Impurities – Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities – Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities – Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities – Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities – Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities – Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities – Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600

Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Standard ID : M3245 -70.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

M3245
Received 9/12/14
Exp. 07/01/19.
BS

Material No.: 9598-34
Batch No.: 0000084115
Manufactured Date: 2014/07/02
Retest Date: 2019/07/01

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.5
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	< 1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.420
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	0.5
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	0.8
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.0
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	3.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 0.2
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	0.5

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000084115

Test	Specification	Result
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	0.2
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	< 0.1
Trace Impurities - Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities - Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities - Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities - Silicon (Si)	<= 20.0 ppb	2.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 200.0 ppb	< 0.5
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	0.2

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

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Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

ISM01.3 AES
3050B.

Sop:- m ISM01.3- Trace metals-02

CHEMTECH

IEP AES
Soil/Sludge Preparation Sheet

F 3940
NOMA.

PB78988

PrepBatch ID :	PB78988	Batch#	PB78988
SDG No :		ICP Digest Date:	9 / 17 / 14 Time : 11:30 AM
Matrix :	Solid	Sample Received By :	Bin He
Final Volume :	100 ML	Acceptance Range: +/- 1%	N/A
① Wt Balance Calibration Check(1.00g):	1.00g ② Wt- 10.0g - 10.00g	Dig Technician Signature:	Bhuleewha Catel figueroa
Method :	ISM01.3 AES	Supervisor Signature:	
Hot Plate Temp :	① 95°C. 2. 3.	Prep Code:	CR1 [illegible] 9/17/14.

End TIME FOR HOT BLOCK 1:30 PM

Standared Name	MLS USED	STD REF. # FROM LOG
LCSS	1.00ml	MP 23660.
Spike Sol 6	2.00ml	MP23659.
BOILING STONE PTFE	1.00gm	M2942
	[illegible] 9/17/14.	

Chemical Used	ML/SAMPLE USED	Lot Number
1:1 HNO3	10.00ml	MP 23410.
CONC: HNO3	5.00ml	M 3245.
30% H2O2	3.00ml	M3207.
CONC: HCL	10.00ml	M3218 [illegible] 9/17/14

Date / Time	Received By	Relinquished By	Location
9/17/14. 2:30PM	Bin He	Bhuleewha	IEP-Lab.
	Analysis Group	Digestion Group	
	tr	BP, JP	

CHEMTECH Soil/Sludge Sample Preparation Workshee PrepBatch ID : **PB78988**

Lab Sample	Client Sample ID	Weight gm.	Color Before	Color After	Texture	Artifact	Comments	Prep Pos
F3940-01	MC0AD4	1.32	BR	Y	M.	NO		
F3940-02	MC0AD5	1.44	BR	Y	M.			
F3940-03	MC0AD6	1.40	BR	Y	M.			
F3940-04	MC0AD7	1.30	BR.	Y	M			
F3940-05	MC0AD7D	1.28	BR	Y	M.		8/19/14	
F3940-06	MC0AD7S	1.06	BR	Y	M.		MP23659.	
F3940-07	MC0AD8	1.37	BR	Y	M.			
F3940-08	MC0AD9	1.40	BR	Y	M.			
F3940-09	MC0AE0	1.33	BR	Y	M.			
F3940-10	MC0AE1	1.27	BR	Y	M.			
F3940-11	MC0AE2	1.43	BR	Y	M.			
F3940-12	MC0AE3	1.44	BR	Y	M.			
F3940-13	MC0AE4	1.43	BR	Y	M.			
F3940-14	MC0AE5	1.37	BR	Y	M.			
F3940-15	MC0AE6	1.41	BR.	Y	M.			
F3940-16	MC0AE7	1.28	BR	Y	M.			
F3940-17	MC0AE8	1.45	BR	Y	M.			
F3940-18	MC0AE9	1.43	BR	Y	M.			
F3940-19	MC0AF0	1.31	BR	Y	M.			
F3940-20	MC0AG4	1.33	BR	Y	M.			
F3940-21	MC0AG5	1.38	BR	Y	M.			
F3940-22	MC0AG6	1.48	BR	Y	M.		8/19/14.	
PB78988BL	PBS01	1.00	C	C	F			
PB78988BS	LCS01	1.00	C	C	F		MP23660	

* BL=Blank BS=Blank Spike TB=TCLP Blank
* COLOR: R=Red BU=Blue Y=Yellow GR=Green O=Orange V=Violet W=White C=Colorless BR=Brown GY=Grey BL=Black
* CLARITY: CL=Clear CD=Cloudy O=Opaque
* TEXTURE: F=Fine M=Medium C=Coarse

CHEMTECH Soil/Sludge Sample Preparation Workshee PrepBatch ID : **PB78988**

Lab Sample ID	Client Sample ID	Weight	Color Before	Color After	Texture	Artifact	Comments	Prep Pos
F3940-01	MC0AD4	1.32	Brown	Yellow	Medium	No		
F3940-02	MC0AD5	1.44	Brown	Yellow	Medium	No		
F3940-03	MC0AD6	1.40	Brown	Yellow	Medium	No		
F3940-04	MC0AD7	1.30	Brown	Yellow	Medium	No		
F3940-05	MC0AD7D	1.28	Brown	Yellow	Medium	No		
F3940-06	MC0AD7S	1.06	Brown	Yellow	Medium	No		
F3940-07	MC0AD8	1.37	Brown	Yellow	Medium	No		
F3940-08	MC0AD9	1.40	Brown	Yellow	Medium	No		
F3940-09	MC0AE0	1.33	Brown	Yellow	Medium	No		
F3940-10	MC0AE1	1.27	Brown	Yellow	Medium	No		
F3940-11	MC0AE2	1.43	Brown	Yellow	Medium	No		
F3940-12	MC0AE3	1.44	Brown	Yellow	Medium	No		
F3940-13	MC0AE4	1.43	Brown	Yellow	Medium	No		
F3940-14	MC0AE5	1.37	Brown	Yellow	Medium	No		
F3940-15	MC0AE6	1.41	Brown	Yellow	Medium	No		
F3940-16	MC0AE7	1.28	Brown	Yellow	Medium	No		
F3940-17	MC0AE8	1.45	Brown	Yellow	Medium	No		
F3940-18	MC0AE9	1.43	Brown	Yellow	Medium	No		
F3940-19	MC0AF0	1.31	Brown	Yellow	Medium	No		
F3940-20	MC0AG4	1.33	Brown	Yellow	Medium	No		
F3940-21	MC0AG5	1.38	Brown	Yellow	Medium	No		
F3940-22	MC0AG6	1.48	Brown	Yellow	Medium	No		
PB78988BL	PBS01	1.00	Colorless	Colorless	Fine	No		
PB78988BS	LCS01	1.00	Colorless	Colorless	Fine	No		

BZ 9/17/14.

* BL=Blank BS=Blank Spike TB=TCLP Blank
* COLOR: R=Red BU=Blue Y=Yellow GR=Green O=Orange V=Violet W=White C=Colorless BR=Brown GY=Grey BL=Black
* CLARITY: CL=Clear CD=Cloudy O=Opaque
* TEXTURE: F=Fine M=Medium C=Coarse

CHEMTECH

PERCENT SOLIDS

Analyst Name: JIGNESH

Date: 9/17/2014

OVEN TEMP IN Celsius (°C) :	108	OVEN TEMP OUT Celsius (°C):	105
Time IN	5:30	Time OUT:	9:18
In Date:	09/16/2014	Out Date:	09/17/2014
Weight Check 1.0g=	1.00 g	Weight Check 1.0g=	1.00 g
Weight Check 10g=	10.00 g	Weight Check 10g=	10.00 g

QC: LB72738

Lab ID	Client Sample ID	Dish#	Dish Weight (g) (A)	Dish + Sample Wt. (g) (B)	Dish + Dry Sample Wt. (g) (C)	% Solid
F3940-01	MC0AD4	1	1.16	9.54	8.09	82.7
F3940-02	MC0AD5	2	1.16	9.6	6.23	60.1
F3940-03	MC0AD6	3	1.17	9.59	7.55	75.8
F3940-04	MC0AD7	4	1.17	9.53	7.12	71.2
F3940-04DUP	MC0AD7DUP	5	1.16	9.56	7.36	73.8
F3940-05	MC0AD7D	6	1.17	9.53	7.12	71.2
F3940-06	MC0AD7S	7	1.17	9.53	7.12	71.2
F3940-07	MC0AD8	8	1.17	9.65	8.78	89.7
F3940-08	MC0AD9	9	1.17	9.68	8.87	90.5
F3940-09	MC0AE0	10	1.16	9.73	8.69	87.9
F3940-10	MC0AE1	11	1.16	9.76	8.71	87.8
F3940-11	MC0AE2	12	1.16	9.64	7.62	76.2
F3940-12	MC0AE3	13	1.15	9.53	4.5	40
F3940-13	MC0AE4	14	1.14	9.88	8.62	85.6
F3940-14	MC0AE5	15	1.14	9.65	8.75	89.4
F3940-15	MC0AE6	16	1.12	9.6	3.68	30.2
F3940-16	MC0AE7	17	1.14	9.81	8.79	88.2
F3940-17	MC0AE8	18	1.15	9.74	8.77	88.7
F3940-18	MC0AE9	19	1.14	9.68	8.44	85.5
F3940-19	MC0AF0	20	1.17	9.65	8.71	88.9
F3940-20	MC0AG4	21	1.14	9.78	7.21	70.3
F3940-21	MC0AG5	22	1.16	9.55	7.06	70.3
F3940-22	MC0AG6	23	1.17	9.71	7.66	76

$$\% \text{ Solid} = \frac{(C-A) * 100}{(B-A)}$$

WORKLIST(Hardcopy Internal Chain)

LB72738

WorkList Name : %1-F3940 WorkList ID : 70530 Date : 9/16/2014 1:35:28 PM

Due Date	Matrix	Sample	Test	Preservative	Customer	Storage Location	Customer Sample	Collect Date	Method
09/20/2014	Solid	F3940-01	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AD4	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-02	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AD5	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-03	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AD6	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-04	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AD7	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-05	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AD7D	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-06	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AD7S	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-07	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AD8	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-08	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AD9	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-09	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AE0	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-10	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AE1	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-11	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AE2	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-12	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AE3	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-13	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AE4	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-14	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AE5	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-15	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AE6	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-16	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AE7	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-17	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AE8	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-18	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AE9	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-19	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AF0	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-20	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AG4	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3940-21	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AG5	09/10/2014	Chemtech -SO

408

Date/Time 09/16/14 2:38 PM
Received by: JV
Relinquished by: DP

Date/Time 09/16/14 3:38 PM
Received by: DP
Relinquished by: JV

WORKLIST(Hardcopy Internal Chain)

21372738

WorkList Name : %1-F3940 WorkList ID : 70530 Date : 9/16/2014 1:35:28 PM

Due Date	Matrix	Sample	Test	Preservative	Customer	Storage Location	Customer Sample	Collect Date	Method
09/20/2014	Solid	F3940-22	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AG6	09/10/2014	Chemtech -SO

409

Date/Time 09/16/14 2:38 PM
Received by: JP
Relinquished by: DP

Date/Time 09/16/14 3:38 PM
Received by: DP
Relinquished by: JP

From: (484) 213-8723
Erik Armistead
WESTON
1400 Weston Way

West Chester, PA 19380

Origin ID: BIGA

FedEx Express

J14201406190326

Ship Date: 12SEP14
ActWgt: 50.0 LB
CAD: 105266671/INET3550

Delivery Address Bar Code

Ref # 20403.016.003.0134.00
Invoice #
PO #
Dept #

Deepak Patel 9/12/14
10 CW

SHIP TO: (908) 789-8900 BILL SENDER

Sample Recieving
Chemtech
284 SHEFFIELD ST

MOUNTAINSIDE, NJ 07092

1 of 5

SATURDAY 12:00P
PRIORITY OVERNIGHT

TRK# 0201 7711 3242 4708

MASTER

07 CDWA

07092
NJ-US
EWR

522G1/CDB4/8AC9

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From: (484) 213-8723
Erik Armistead
WESTON
1400 Weston Way

West Chester, PA 19380

Origin ID: BIGA

FedEx Express

J1420140619032 6

Ship Date: 12SEP14
ActWgt: 50.0 LB
CAD: 105266671/INET3550

Dims: 30 X 16 X 16 IN

Delivery Address Bar Code

Ref # 20403.016.003.0134.00
Invoice #
PO #
Dept #

9/13/14
10:00

SHIP TO: (908) 789-8900

BILL SENDER

Sample Recieving
Chemtech
284 SHEFFIELD ST

MOUNTAINSIDE, NJ 07092

2 of 5

MPS# 7711 3242 5152
0263

Mstr# 7711 3242 4708 0201

SATURDAY 12:00P
PRIORITY OVERNIGHT

07 CDWA

07092
NJ-US
EWR

522G1/CDB4/8AC9

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Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Copy
Original Documents are included in CSF MCOAF1

Signature

09/15/2014
Date

Sample # MC0AG4 Case: 44664
Tag: 1113 Sampler: Matt Fisher
Date: 9/10/2014 Time: 15:50
Location: WS08 Matrix: Sediment
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AG6 Case: 44664
Tag: 1117 Sampler: Matt Fisher
Date: 9/10/2014 Time: 16:10
Location: WS10 Matrix: Sediment
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AE1 Case: 44664
Tag: 1067 Sampler: Matt Fisher
Date: 9/10/2014 Time: 09:45
Location: SS07 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AE0 Case: 44664
Tag: 1065 Sampler: Matt Fisher
Date: 9/10/2014 Time: 09:20
Location: SS06 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AD9 Case: 44664
Tag: 1063 Sampler: Matt Fisher
Date: 9/10/2014 Time: 08:38
Location: SS05 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AG5 Case: 44664
Tag: 1115 Sampler: Matt Fisher
Date: 9/10/2014 Time: 16:00
Location: WS09 Matrix: Sediment
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AD8 Case: 44664
Tag: 1061 Sampler: Matt Fisher
Date: 9/10/2014 Time: 08:45
Location: SS04 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AD4 Case: 44664
Tag: 1051 Sampler: Matt Fisher
Date: 9/10/2014 Time: 08:05
Location: SS02 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AD7 Case: 44664
Tag: 1059 Sampler: Matt Fisher
Date: 9/10/2014 Time: 09:15
Location: SS03 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AD6 Case: 44664
Tag: 1055 Sampler: Matt Fisher
Date: 9/10/2014 Time: 09:15
Location: SS03 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AE9 Case: 44664
Tag: 1083 Sampler: Matt Fisher
Date: 9/10/2014 Time: 10:55
Location: SS15 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AD5 Case: 44664
Tag: 1053 Sampler: Matt Fisher
Date: 9/10/2014 Time: 08:00
Location: SS01 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AE8 Case: 44664
Tag: 1081 Sampler: Matt Fisher
Date: 9/10/2014 Time: 10:45
Location: SS14 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

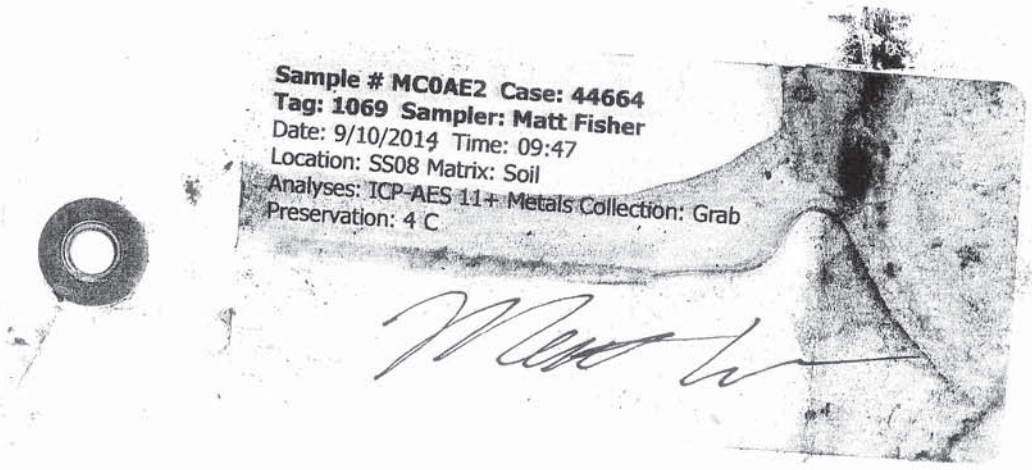
Sample # MC0AE4 Case: 44664
Tag: 1073 Sampler: Matt Fisher
Date: 9/10/2014 Time: 10:39
Location: SS13 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AE7 Case: 44664
Tag: 1079 Sampler: Matt Fisher
Date: 9/10/2014 Time: 10:30
Location: SS12 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AE6 Case: 44664
Tag: 1077 Sampler: Matt Fisher
Date: 9/10/2014 Time: 10:00
Location: SS10 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AE3 Case: 44664
Tag: 1071 Sampler: Matt Fisher
Date: 9/10/2014 Time: 09:55
Location: SS09 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AE5 Case: 44664
Tag: 1075 Sampler: Matt Fisher
Date: 9/10/2014 Time: 10:28
Location: SS11 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C



Sample # MC0AE2 Case: 44664
Tag: 1069 Sampler: Matt Fisher
Date: 9/10/2014 Time: 09:47
Location: SS08 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AF0 Case: 44664
Tag: 1085 Sampler: Matt Fisher
Date: 9/10/2014 Time: 10:58
Location: SS16 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Login Summary Report

Order ID :	F3940	Order Date :	9/13/2014 10:00:00 AM	Project Mgr :	Zhaleh
Client :	USEPA CLP SMO	Project :	44664	Report Type :	USEPA CLP
Contact :	Account Payable	Receive Date :	9/13/2014 10:00:00 AM	EDD Type :	EPA CLP
Date Sign Off :	9/15/2014 4:04:43 PM				

Sample ID	Client ID	Matrix	Sampling Date	Test	Test Group	Method	TAT Days	Fax Due Date	HC Due Date
F3940-01	MC0AD4	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-02	MC0AD5	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-03	MC0AD6	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-04	MC0AD7	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-05	MC0AD7D	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-06	MC0AD7S	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-07	MC0AD8	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-08	MC0AD9	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-09	MC0AE0	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-10	MC0AE1	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-11	MC0AE2	Solid	09/10/2014						

				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-12	MC0AE3	Solid	09/10/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-13	MC0AE4	Solid	09/10/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-14	MC0AE5	Solid	09/10/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-15	MC0AE6	Solid	09/10/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-16	MC0AE7	Solid	09/10/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-17	MC0AE8	Solid	09/10/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-18	MC0AE9	Solid	09/10/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-19	MC0AF0	Solid	09/10/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-20	MC0AG4	Solid	09/10/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-21	MC0AG5	Solid	09/10/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3940-22	MC0AG6	Solid	09/10/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014

From: Dean, Whitlee <wdean9@fedcsc.com>
Sent: Thursday, September 18, 2014 11:55
To: Himanshu Prajapati; Divya Mehta; Mohammad Ahmed
Cc: Slizys, Dan; Jarmael Burman; Elaine Stiles; Kevin Martin; Colleen Walling; Sharon Roberson
Subject: Region 03 | Case 44664 | Lab CHEM | SDG MC0AD4 | Issue Non-standard matrix | FINAL

Himanshu,

Issue: Several samples from SDG MC0AD4 have % solids results less than 50% but more than 30%.

EPA Sample ID	% Solids
MC0AE3	40
MC0AE6	30.2

Resolution: Per the ISM01.3 SOW, the laboratory will proceed with the analysis of the samples according to Exhibit D, sections 1.6.4 and 1.6.5.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your PO.

Thanks,

WHITLEE DEAN
Environmental Coordinator- Region 3
CSC

15000 Conference Center Drive, Chantilly, VA 20151
Civil Division | t: 703-818-4367 | f: 703-818-4602 | wdean9@fedcsc.com | www.csc.com
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From: Himanshu Prajapati [mailto:Himanshu@chemtech.net]
Sent: Thursday, September 18, 2014 10:30 AM
To: Dean, Whitlee; CCS SUPPORT
Cc: Divya Mehta; Mohammad Ahmed
Subject: REGION 3 | SDG MC0AD4 | CASE 44664 | EPW 09038 | ISSUE % SOLIDS | CHEMTECH ORDER ID F3940 |
Importance: High

Hello Whitlee,

We are sending this email with reference to % solids issue for SDG (MC0AD4) & Case (44664).

Some samples from SDG (MC0AD4) have % solids results less than 50% but more than 30%. Please see below table for detail.

EPA Sample ID	% Solids
MC0AE3	40
MC0AE6	30.2

Please advise.

Regards,

Himanshu Prajapati
QA/QC Director
Direct Line: (908)728-3152
General Number: (908)789-8900
Fax: (908)789-8922

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From: Dean, Whitlee <wdean9@fedcsc.com>
Sent: Monday, September 15, 2014 15:32
To: zhaleh@chemtech.net
Cc: Burman, Jarmael; Slizys, Dan; Stiles, Elaine; Martin, Kevin; Walling, Colleen; Sharon Roberson
Subject: Region 03 | Case 44664 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC | FINAL
Attachments: 44673 - Lab COCs.pdf; 44664 - Lab COCs.pdf

Zhaleh,

Issue 1:The laboratory received samples for Case 44673. The case number on the COC (attached), sample tag and label (attached) do not match.
Resolution 1: Per Region 3, the Case number on the sample tag and label are correct. The sample is for Case 44664. The COC contained an incorrect case number. The correct COC is attached for Case 44664 and Case 44673. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Issue 2: The sample IDs and tag numbers are missing from the sample tags and labels. The station location is listed in place of the sample number on both the sample tag and label.
Resolution 2: Per Region 3, MC0AJ3 is for Case 44664. The station location and collection time for sample MC0AJ3 match the sample tag and label per the attached corrected COC. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your PO.

Thanks,

WHITLEE DEAN
Environmental Coordinator- Region 3
CSC

15000 Conference Center Drive, Chantilly, VA 20151
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From: Burman, Jarmael [mailto:Burman.Jarmael@epa.gov]
Sent: Monday, September 15, 2014 3:19 PM
To: Dean, Whitlee; Slizys, Dan
Cc: Walling, Colleen; Stiles, Elaine; Martin, Kevin
Subject: RE: NEW ISSUE | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Hi Whitlee,

The response provided by Laura Matthews below is acceptable.

Jay

From: Dean, Whitlee [mailto:wdean9@fedcsc.com]
Sent: Monday, September 15, 2014 3:08 PM
To: Slizys, Dan
Cc: Burman, Jarmael; Walling, Colleen; Stiles, Elaine; Martin, Kevin
Subject: RE: NEW ISSUE | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Dan,

Could you confirm the sampler's response before I send the Final ROC?

For Issue 1: the case number on the sample tags and label are correct and are for Case 44664.

For Issue 2: per the corrected COC provided by the sampler, MC0AJ3 is for Case 44664. The station location and collection time for sample MC0AJ3 match the sample tag and label .

Please let me know if you have any questions.
Thanks!

WHITLEE DEAN
Environmental Coordinator- Region 3
CSC

15000 Conference Center Drive, Chantilly, VA 20151
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From: Mathew, Laura [mailto:mathewl@WestonSolutions.com]
Sent: Monday, September 15, 2014 1:52 PM
To: Slizys, Dan
Cc: Dean, Whitlee; Burman, Jarmael; Walling, Colleen; Stiles, Elaine; Martin, Kevin; Fisher, Matt; Shannon, Nancy; Armistead, Erik
Subject: RE: NEW ISSUE | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Dan,

The discrepancy of the case numbers was due to an incorrect case number on the chain of custody. I have attached corrected laboratory copies of the COCs for both RAS 44664 and RAS 44673. I hope this helps to clarify the issue, please let me know if you have additional questions.

Regards,
Laura

From: Slizys, Dan [mailto:Slizys.Dan@epa.gov]
Sent: Monday, September 15, 2014 11:26 AM
To: Mathew, Laura; Shannon, Nancy; fisher.mark@westonsolutions.com
Cc: Dean, Whitlee; Burman, Jarmael; Walling, Colleen; Stiles, Elaine; Martin, Kevin
Subject: RE: NEW ISSUE | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Whitlee,

The samples are for case 44673 Mark Fisher as collector. The TR/COC indicates in Station Location column NKWP-WS-11 This could be inorganic sample MC0AJ3.

Laura,

Please have Nancy and Mark try to resolve this issue.

Nancy Shannon is the sample collector for case 44664.

From: Dean, Whitlee [mailto:wdean9@fedcsc.com]
Sent: Monday, September 15, 2014 9:53 AM
To: Slizys, Dan; Burman, Jarmael; Stiles, Elaine; Martin, Kevin; Walling, Colleen
Subject: NEW ISSUE | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Good Morning,

CHEM is reporting the following issues. Please advise as to how the laboratory should proceed.

Issue 1:The laboratory received samples for Case 44673. The case number on the COC (attached), sample tag and label (attached) do not match.

Issue 2: The sample IDs and tag numbers are missing from the sample tags and labels. The station location is listed in place of the sample number on both the sample tag and label.

Please let me know if you have any questions.
Thanks,

WHITLEE DEAN
Environmental Coordinator- Region 3
CSC

15000 Conference Center Drive, Chantilly, VA 20151
Civil Division | t: 703-818-4367 | f: 703-818-4602 | wdean9@fedcsc.com | www.csc.com

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From: Zhaleh Rohani [mailto:zhaleh@chemtech.net]
Sent: Monday, September 15, 2014 8:50 AM
To: Dean, Whitlee
Subject: Region 03 | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

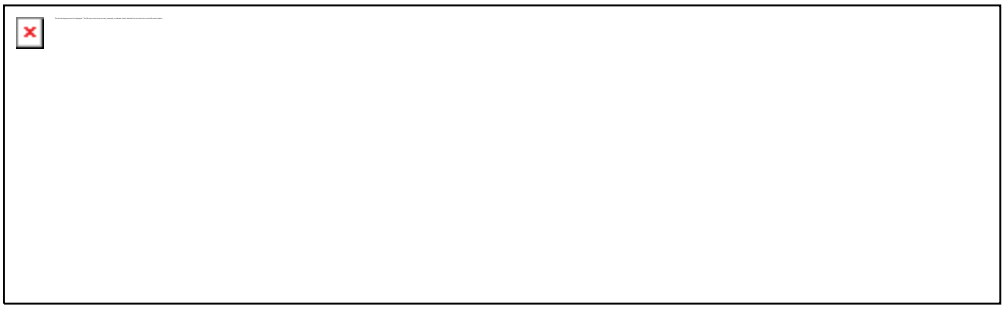
Good morning Whitlee,

Laboratory received samples for case 44673, however case number on COC, sample tag and label do not match; in addition all CLP sample IDs and tag numbers are missing in sample tags and labels as well.

Please let me know if you have any questions.
Thanks.

Regards,
Zhaleh Rohani
EPA CLP Program Manager

Direct Line: (908) 728-3158



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WORKLIST(Hardcopy Internal Chain)

WorkList Name : F3940AESS WorkList ID : 70545 Date : 9/17/2014 8:43:47 AM

Due Date	Matrix	Sample	Test	Preservative	Customer	Storage Location	Customer Sample	Collect Date	Method
09/10/2014	Solid	F3940-01	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AD4	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-02	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AD5	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-03	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AD6	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-04	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AD7	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-05	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AD7D	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-06	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AD7S	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-07	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AD8	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-08	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AD9	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-09	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AE0	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-10	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AE1	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-11	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AE2	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-12	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AE3	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-13	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AE4	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-14	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AE5	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-15	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AE6	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-16	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AE7	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-17	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AE8	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-18	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AE9	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-19	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AF0	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-20	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AG4	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3940-21	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AG5	09/10/2014	ISM01.3_AES

Date/Time 9/17/14 9:45AM
Received by: [signature]
Relinquished by: DP

Date/Time 9/17/14 1:45PM
Received by: DP
Relinquished by: [signature]

WORKLIST(Hardcopy Internal Chain)

WorkList Name : F3940AESS WorkList ID : 70545 Date : 9/17/2014 8:43:47 AM

Due Date	Matrix	Sample	Test	Preservative	Customer	Storage Location	Customer Sample	Collect Date	Method
09/10/2014	Solid	F3940-22	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AG6	09/10/2014	ISM01.3_AES

425

Date/Time 9/17/14 9:00 AM

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: October 21, 2014

SUBJECT: Region III Data QA Review

FROM: Brandon McDonald
Region III ESAT PO (3EA22)

TO: Ruth Scharr
On-Scene Coordinator (3HS31)

Attached is the inorganic data validation report for the New Kent Wood Preservatives, Inc. site for Case 44664; SDG#:MC0AF1 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Laura Mathew (WESTON)

TO: #0002 TDF: #1014017

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Date: October 17, 2014

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Kurt Roby
Data Reviewer

Lisa Penix
Oversight Chemist

Subject: Inorganic Data Validation (S4VEM)
Site: New Kent Wood Preservatives, Inc.
Case: 44664 SDG: MC0AF1

Overview

Case 44664, Sample Delivery Group (SDG) MC0AF1, consisted of five (5) soil and eight (8) sediment samples including one (1) field duplicate pair analyzed for metals by ICP-AES. Analyses were performed by ChemTech Consulting Group (CHEM) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM01.3 through the Routine Analytical Services (RAS) program.

Summary

Data were validated according to inorganic National Functional Guidelines, utilizing Environmental Data Exchange and Evaluation System (EXES) and is assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). The following validation narrative is an evaluation of laboratory reported data for the purpose of usability.

Minor Problems

Matrix spike recovery was low (<75% but >30%) for antimony (Sb). The post-digestion spike recovery was within control limits. Low recoveries may be attributed to matrix interferences or analyte lost during the digestion process. Positive results and quantitation limits for this analyte are estimated and have been qualified “J” and “UJ”, respectively.

Percent recovery for selenium (Se) in ICP interference check standard ICSAB exceeded the control limit (>120%). Positive results reported for this analyte may be estimated high due to possible elemental interferences and have been qualified “J+”.

Laboratory instrumentation reported a negative value for potassium (K) in ICP interference check standard ICSAB greater than the absolute value of the Method Detection Limit (MDL); however, this analyte was not included in this standard. Positive results reported for this analyte are attributed to blank contamination and have not been qualified due to this outlier. Quantitation limits for this analyte are estimated due to possible elemental interferences and have been qualified "UJ".

Notes

Analytes detected below Contract Required Quantitation Limits (CRQLs) not attributed to blank contamination are qualified "J".

Potassium has been positively identified in laboratory blanks associated with the samples in this SDG. Samples which reported positive results for this analyte less than CRQL have been reported at the CRQL and qualified "U".

Results reported for field duplicate pair MC0AF6/MC0AF7 were within twenty (20) Relative Percent Difference (RPD), ± CRQL for all analytes with the exception of chromium (Cr). No data were qualified based on these findings.

Glossary of Data Qualifier Codes (INORGANIC)

U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
B	The result is presumed a blank contaminant. This qualifier is used only for drinking water samples.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

DCN: R3ESAT-2014-V557

Sample Summary Report

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	LCS	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:	09/18/2014	Sample Time:	21:45:26
% Moisture :				% Solids :	100		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Spike	38.3		mg/kg	38.3		1	Yes	S4VEM
Antimony	Spike	11.0		mg/kg	10.97		1	Yes	S4VEM
Arsenic	Spike	1.6		mg/kg	1.64		1	Yes	S4VEM
Barium	Spike	42.8		mg/kg	42.82		1	Yes	S4VEM
Beryllium	Spike	1.0		mg/kg	1.010		1	Yes	S4VEM
Cadmium	Spike	0.99		mg/kg	0.9926		1	Yes	S4VEM
Chromium	Spike	2.1		mg/kg	2.107		1	Yes	S4VEM
Cobalt	Spike	9.8		mg/kg	9.790		1	Yes	S4VEM
Copper	Spike	5.4		mg/kg	5.40		1	Yes	S4VEM
Iron	Spike	24.5		mg/kg	24.5		1	Yes	S4VEM
Lead	Spike	2.0		mg/kg	1.98		1	Yes	S4VEM
Manganese	Spike	3.3		mg/kg	3.34		1	Yes	S4VEM
Nickel	Spike	7.9		mg/kg	7.89		1	Yes	S4VEM
Selenium	Spike	6.5		mg/kg	6.48		1	Yes	S4VEM
Silver	Spike	1.9		mg/kg	1.928		1	Yes	S4VEM
Thallium	Spike	5.1		mg/kg	5.10		1	Yes	S4VEM
Vanadium	Spike	10.7		mg/kg	10.65		1	Yes	S4VEM
Sodium	Spike	1010		mg/kg	1008.4		1	Yes	S4VEM
Zinc	Spike	11.7		mg/kg	11.7		1	Yes	S4VEM
Calcium	Spike	1080		mg/kg	1075.8		1	Yes	S4VEM
Magnesium	Spike	1000		mg/kg	1001.0		1	Yes	S4VEM
Potassium	Spike	985		mg/kg	985.1		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AF1	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-17	pH:	2	Sample Date:	09/10/2014	Sample Time:	11:18:00
% Moisture :				% Solids :	89.8		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	11000		mg/kg	11000		1	Yes	S4VEM
Antimony	Target	0.54	J	mg/kg	0.54	JN	1	Yes	S4VEM
Arsenic	Target	3.6		mg/kg	3.6		1	Yes	S4VEM
Barium	Target	66.2		mg/kg	66.2		1	Yes	S4VEM
Beryllium	Target	0.44	J	mg/kg	0.44	J	1	Yes	S4VEM
Cadmium	Target	0.29	J	mg/kg	0.29	J	1	Yes	S4VEM
Calcium	Target	3700		mg/kg	3700		1	Yes	S4VEM
Chromium	Target	19.5		mg/kg	19.5		1	Yes	S4VEM
Cobalt	Target	6.1		mg/kg	6.1		1	Yes	S4VEM
Copper	Target	22.9		mg/kg	22.9		1	Yes	S4VEM
Iron	Target	24400		mg/kg	24400		1	Yes	S4VEM
Lead	Target	7.4		mg/kg	7.4		1	Yes	S4VEM
Magnesium	Target	4740		mg/kg	4740		1	Yes	S4VEM
Manganese	Target	259		mg/kg	259		1	Yes	S4VEM
Nickel	Target	11.3		mg/kg	11.3		1	Yes	S4VEM
Potassium	Target	2870		mg/kg	2870		1	Yes	S4VEM
Selenium	Target	3.8	J+	mg/kg	3.8		1	Yes	S4VEM
Silver	Target	0.88	U	mg/kg	0.88	U	1	Yes	S4VEM
Sodium	Target	110	J	mg/kg	110	J	1	Yes	S4VEM
Thallium	Target	2.2	U	mg/kg	2.2	U	1	Yes	S4VEM
Vanadium	Target	41.1		mg/kg	41.1		1	Yes	S4VEM
Zinc	Target	35.8		mg/kg	35.8		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AF2	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-18	pH:	2	Sample Date:	09/10/2014	Sample Time:	11:20:00
% Moisture :				% Solids :	84.1		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	12700		mg/kg	12700		1	Yes	S4VEM
Antimony	Target	0.77	J	mg/kg	0.77	JN	1	Yes	S4VEM
Arsenic	Target	5.3		mg/kg	5.3		1	Yes	S4VEM
Barium	Target	52.4		mg/kg	52.4		1	Yes	S4VEM
Beryllium	Target	0.53		mg/kg	0.53		1	Yes	S4VEM
Cadmium	Target	0.39	J	mg/kg	0.39	J	1	Yes	S4VEM
Calcium	Target	2210		mg/kg	2210		1	Yes	S4VEM
Chromium	Target	23.4		mg/kg	23.4		1	Yes	S4VEM
Cobalt	Target	4.3	J	mg/kg	4.3	J	1	Yes	S4VEM
Copper	Target	14.2		mg/kg	14.2		1	Yes	S4VEM
Iron	Target	32500		mg/kg	32500		1	Yes	S4VEM
Lead	Target	12.3		mg/kg	12.3		1	Yes	S4VEM
Magnesium	Target	2520		mg/kg	2520		1	Yes	S4VEM
Manganese	Target	137		mg/kg	137		1	Yes	S4VEM
Nickel	Target	6.9		mg/kg	6.9		1	Yes	S4VEM
Potassium	Target	1660		mg/kg	1660		1	Yes	S4VEM
Selenium	Target	5.3	J+	mg/kg	5.3		1	Yes	S4VEM
Silver	Target	0.89	U	mg/kg	0.89	U	1	Yes	S4VEM
Sodium	Target	91.6	J	mg/kg	91.6	J	1	Yes	S4VEM
Thallium	Target	2.2	U	mg/kg	2.2	U	1	Yes	S4VEM
Vanadium	Target	50.5		mg/kg	50.5		1	Yes	S4VEM
Zinc	Target	23.5		mg/kg	23.5		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AF3	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-19	pH:	2	Sample Date:	09/10/2014	Sample Time:	13:22:00
% Moisture :				% Solids :	86.6		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	5580		mg/kg	5580		1	Yes	S4VEM
Antimony	Target	0.16	J	mg/kg	0.16	JN	1	Yes	S4VEM
Arsenic	Target	2.9		mg/kg	2.9		1	Yes	S4VEM
Barium	Target	34.1		mg/kg	34.1		1	Yes	S4VEM
Beryllium	Target	0.39	J	mg/kg	0.39	J	1	Yes	S4VEM
Cadmium	Target	0.088	J	mg/kg	0.088	J	1	Yes	S4VEM
Calcium	Target	160	J	mg/kg	160	J	1	Yes	S4VEM
Chromium	Target	8.1		mg/kg	8.1		1	Yes	S4VEM
Cobalt	Target	2.5	J	mg/kg	2.5	J	1	Yes	S4VEM
Copper	Target	4.1		mg/kg	4.1		1	Yes	S4VEM
Iron	Target	6200		mg/kg	6200		1	Yes	S4VEM
Lead	Target	16.5		mg/kg	16.5		1	Yes	S4VEM
Magnesium	Target	390	J	mg/kg	390	J	1	Yes	S4VEM
Manganese	Target	193		mg/kg	193		1	Yes	S4VEM
Nickel	Target	3.6		mg/kg	3.6		1	Yes	S4VEM
Potassium	Target	415	U	mg/kg	66.5	J	1	Yes	S4VEM
Selenium	Target	1.1	J+	mg/kg	1.1	J	1	Yes	S4VEM
Silver	Target	0.83	U	mg/kg	0.83	U	1	Yes	S4VEM
Sodium	Target	34.1	J	mg/kg	34.1	J	1	Yes	S4VEM
Thallium	Target	2.1	U	mg/kg	2.1	U	1	Yes	S4VEM
Vanadium	Target	12.8		mg/kg	12.8		1	Yes	S4VEM
Zinc	Target	16.0		mg/kg	16.0		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AF4	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-20	pH:	2	Sample Date:	09/10/2014	Sample Time:	13:20:00
% Moisture :				% Solids :	74		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	8700		mg/kg	8700		1	Yes	S4VEM
Antimony	Target	1.6	J	mg/kg	1.6	JN	1	Yes	S4VEM
Arsenic	Target	340		mg/kg	340		1	Yes	S4VEM
Barium	Target	105		mg/kg	105		1	Yes	S4VEM
Beryllium	Target	0.51		mg/kg	0.51		1	Yes	S4VEM
Cadmium	Target	0.65		mg/kg	0.65		1	Yes	S4VEM
Calcium	Target	4630		mg/kg	4630		1	Yes	S4VEM
Chromium	Target	519		mg/kg	519		1	Yes	S4VEM
Cobalt	Target	13.8		mg/kg	13.8		1	Yes	S4VEM
Copper	Target	327		mg/kg	327		1	Yes	S4VEM
Iron	Target	17200		mg/kg	17200		1	Yes	S4VEM
Lead	Target	30.4		mg/kg	30.4		1	Yes	S4VEM
Magnesium	Target	830		mg/kg	830		1	Yes	S4VEM
Manganese	Target	934		mg/kg	934		1	Yes	S4VEM
Nickel	Target	8.6		mg/kg	8.6		1	Yes	S4VEM
Potassium	Target	493	U	mg/kg	323	J	1	Yes	S4VEM
Selenium	Target	2.9	J+	mg/kg	2.9	J	1	Yes	S4VEM
Silver	Target	0.99	U	mg/kg	0.99	U	1	Yes	S4VEM
Sodium	Target	73.7	J	mg/kg	73.7	J	1	Yes	S4VEM
Thallium	Target	2.5	U	mg/kg	2.5	U	1	Yes	S4VEM
Vanadium	Target	21.3		mg/kg	21.3		1	Yes	S4VEM
Zinc	Target	115		mg/kg	115		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AF5	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SS-21	pH:	2	Sample Date:	09/10/2014	Sample Time:	13:30:00
% Moisture :				% Solids :	79.3		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	7550		mg/kg	7550		1	Yes	S4VEM
Antimony	Target	0.99	J	mg/kg	0.99	JN	1	Yes	S4VEM
Arsenic	Target	246		mg/kg	246		1	Yes	S4VEM
Barium	Target	70.8		mg/kg	70.8		1	Yes	S4VEM
Beryllium	Target	0.55		mg/kg	0.55		1	Yes	S4VEM
Cadmium	Target	0.55		mg/kg	0.55		1	Yes	S4VEM
Calcium	Target	2270		mg/kg	2270		1	Yes	S4VEM
Chromium	Target	340		mg/kg	340		1	Yes	S4VEM
Cobalt	Target	9.4		mg/kg	9.4		1	Yes	S4VEM
Copper	Target	169		mg/kg	169		1	Yes	S4VEM
Iron	Target	17900		mg/kg	17900		1	Yes	S4VEM
Lead	Target	25.7		mg/kg	25.7		1	Yes	S4VEM
Magnesium	Target	643		mg/kg	643		1	Yes	S4VEM
Manganese	Target	385		mg/kg	385		1	Yes	S4VEM
Nickel	Target	7.4		mg/kg	7.4		1	Yes	S4VEM
Potassium	Target	464	U	mg/kg	247	J	1	Yes	S4VEM
Selenium	Target	3.0	J+	mg/kg	3.0	J	1	Yes	S4VEM
Silver	Target	0.93	U	mg/kg	0.93	U	1	Yes	S4VEM
Sodium	Target	70.2	J	mg/kg	70.2	J	1	Yes	S4VEM
Thallium	Target	2.3	U	mg/kg	2.3	U	1	Yes	S4VEM
Vanadium	Target	20.3		mg/kg	20.3		1	Yes	S4VEM
Zinc	Target	117		mg/kg	117		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AF6	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-WS-01	pH:	2	Sample Date:	09/10/2014	Sample Time:	13:38:00
% Moisture :				% Solids :	55.1		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	6150		mg/kg	6150		1	Yes	S4VEM
Antimony	Target	0.75	J	mg/kg	0.75	JN	1	Yes	S4VEM
Arsenic	Target	99.5		mg/kg	99.5		1	Yes	S4VEM
Barium	Target	90.9		mg/kg	90.9		1	Yes	S4VEM
Beryllium	Target	0.37	J	mg/kg	0.37	J	1	Yes	S4VEM
Cadmium	Target	0.36	J	mg/kg	0.36	J	1	Yes	S4VEM
Calcium	Target	4290		mg/kg	4290		1	Yes	S4VEM
Chromium	Target	122		mg/kg	122		1	Yes	S4VEM
Cobalt	Target	4.7	J	mg/kg	4.7	J	1	Yes	S4VEM
Copper	Target	78.8		mg/kg	78.8		1	Yes	S4VEM
Iron	Target	11200		mg/kg	11200		1	Yes	S4VEM
Lead	Target	24.4		mg/kg	24.4		1	Yes	S4VEM
Magnesium	Target	810		mg/kg	810		1	Yes	S4VEM
Manganese	Target	522		mg/kg	522		1	Yes	S4VEM
Nickel	Target	5.3		mg/kg	5.3		1	Yes	S4VEM
Potassium	Target	617	U	mg/kg	96.0	J	1	Yes	S4VEM
Selenium	Target	2.3	J+	mg/kg	2.3	J	1	Yes	S4VEM
Silver	Target	1.2	U	mg/kg	1.2	U	1	Yes	S4VEM
Sodium	Target	131	J	mg/kg	131	J	1	Yes	S4VEM
Thallium	Target	3.1	U	mg/kg	3.1	U	1	Yes	S4VEM
Vanadium	Target	15.5		mg/kg	15.5		1	Yes	S4VEM
Zinc	Target	100		mg/kg	100		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AF7	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-WS-01-01	pH:	2	Sample Date:	09/10/2014	Sample Time:	13:38:00
% Moisture :				% Solids :	53.8		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	6850		mg/kg	6850		1	Yes	S4VEM
Antimony	Target	0.79	J	mg/kg	0.79	JN	1	Yes	S4VEM
Arsenic	Target	116		mg/kg	116		1	Yes	S4VEM
Barium	Target	90.8		mg/kg	90.8		1	Yes	S4VEM
Beryllium	Target	0.48	J	mg/kg	0.48	J	1	Yes	S4VEM
Cadmium	Target	0.37	J	mg/kg	0.37	J	1	Yes	S4VEM
Calcium	Target	4110		mg/kg	4110		1	Yes	S4VEM
Chromium	Target	151		mg/kg	151		1	Yes	S4VEM
Cobalt	Target	5.0	J	mg/kg	5.0	J	1	Yes	S4VEM
Copper	Target	90.4		mg/kg	90.4		1	Yes	S4VEM
Iron	Target	13400		mg/kg	13400		1	Yes	S4VEM
Lead	Target	22.4		mg/kg	22.4		1	Yes	S4VEM
Magnesium	Target	786		mg/kg	786		1	Yes	S4VEM
Manganese	Target	467		mg/kg	467		1	Yes	S4VEM
Nickel	Target	5.7	J	mg/kg	5.7	J	1	Yes	S4VEM
Potassium	Target	743	U	mg/kg	26.2	J	1	Yes	S4VEM
Selenium	Target	2.6	J+	mg/kg	2.6	J	1	Yes	S4VEM
Silver	Target	1.5	U	mg/kg	1.5	U	1	Yes	S4VEM
Sodium	Target	107	J	mg/kg	107	J	1	Yes	S4VEM
Thallium	Target	3.7	U	mg/kg	3.7	U	1	Yes	S4VEM
Vanadium	Target	17.8		mg/kg	17.8		1	Yes	S4VEM
Zinc	Target	98.3		mg/kg	98.3		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AF7A	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	F3941-07A	pH:	2	Sample Date:	09/10/2014	Sample Time:	13:38:00
% Moisture :				% Solids :	53.8		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Antimony	Spike	16.4		mg/kg	16.44		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AF7D	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	F3941-08	pH:	2	Sample Date:	09/10/2014	Sample Time:	13:38:00
% Moisture :				% Solids :	53.8		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	6890		mg/kg	6887.2620		1	Yes	S4VEM
Antimony	Target	1.0	J	mg/kg	1.0320	J	1	Yes	S4VEM
Arsenic	Target	116		mg/kg	115.6259		1	Yes	S4VEM
Barium	Target	91.3		mg/kg	91.2951		1	Yes	S4VEM
Beryllium	Target	0.45	J	mg/kg	0.4504	J	1	Yes	S4VEM
Cadmium	Target	0.44	J	mg/kg	0.4392	J	1	Yes	S4VEM
Calcium	Target	4140		mg/kg	4140.6020		1	Yes	S4VEM
Chromium	Target	149		mg/kg	148.9967		1	Yes	S4VEM
Cobalt	Target	5.1	J	mg/kg	5.0700	J	1	Yes	S4VEM
Copper	Target	91.1		mg/kg	91.1377		1	Yes	S4VEM
Iron	Target	13400		mg/kg	13411.2400		1	Yes	S4VEM
Lead	Target	23.2		mg/kg	23.2334		1	Yes	S4VEM
Magnesium	Target	801		mg/kg	801.3494		1	Yes	S4VEM
Manganese	Target	469		mg/kg	469.4642		1	Yes	S4VEM
Nickel	Target	5.8	J	mg/kg	5.7901	J	1	Yes	S4VEM
Potassium	Target	738	U	mg/kg	50.7637	J	1	Yes	S4VEM
Selenium	Target	2.6	J	mg/kg	2.6192	J	1	Yes	S4VEM
Silver	Target	1.5	U	mg/kg	1.4752	U	1	Yes	S4VEM
Sodium	Target	104	J	mg/kg	103.5387	J	1	Yes	S4VEM
Thallium	Target	3.7	U	mg/kg	3.6880	U	1	Yes	S4VEM
Vanadium	Target	17.6		mg/kg	17.6298		1	Yes	S4VEM
Zinc	Target	98.6		mg/kg	98.5581		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AF7S	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	F3941-09	pH:	2	Sample Date:	09/10/2014	Sample Time:	13:38:00
% Moisture :				% Solids :	53.8		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Antimony	Spike	23.8		mg/kg	23.8415	N	1	Yes	S4VEM
Arsenic	Spike	121		mg/kg	120.7277		1	Yes	S4VEM
Barium	Spike	849		mg/kg	848.8797		1	Yes	S4VEM
Beryllium	Spike	17.3		mg/kg	17.2554		1	Yes	S4VEM
Cadmium	Spike	16.9		mg/kg	16.9287		1	Yes	S4VEM
Chromium	Spike	220		mg/kg	220.3975		1	Yes	S4VEM
Cobalt	Spike	177		mg/kg	176.5351		1	Yes	S4VEM
Copper	Spike	180		mg/kg	180.2301		1	Yes	S4VEM
Lead	Spike	29.5		mg/kg	29.5125		1	Yes	S4VEM
Manganese	Spike	666		mg/kg	665.6997		1	Yes	S4VEM
Nickel	Spike	176		mg/kg	175.9753		1	Yes	S4VEM
Selenium	Spike	17.4		mg/kg	17.3563		1	Yes	S4VEM
Silver	Spike	16.1		mg/kg	16.1390		1	Yes	S4VEM
Thallium	Spike	15.4		mg/kg	15.3556		1	Yes	S4VEM
Vanadium	Spike	200		mg/kg	199.9883		1	Yes	S4VEM
Zinc	Spike	264		mg/kg	264.3530		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AF8	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-WS-02	pH:	2	Sample Date:	09/10/2014	Sample Time:	13:55:00
% Moisture :				% Solids :	45.7		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	10600		mg/kg	10600		1	Yes	S4VEM
Antimony	Target	0.34	J	mg/kg	0.34	JN	1	Yes	S4VEM
Arsenic	Target	9.7		mg/kg	9.7		1	Yes	S4VEM
Barium	Target	100		mg/kg	100		1	Yes	S4VEM
Beryllium	Target	1.3		mg/kg	1.3		1	Yes	S4VEM
Cadmium	Target	0.41	J	mg/kg	0.41	J	1	Yes	S4VEM
Calcium	Target	2370		mg/kg	2370		1	Yes	S4VEM
Chromium	Target	35.4		mg/kg	35.4		1	Yes	S4VEM
Cobalt	Target	7.2	J	mg/kg	7.2	J	1	Yes	S4VEM
Copper	Target	18.2		mg/kg	18.2		1	Yes	S4VEM
Iron	Target	13800		mg/kg	13800		1	Yes	S4VEM
Lead	Target	24.4		mg/kg	24.4		1	Yes	S4VEM
Magnesium	Target	577	J	mg/kg	577	J	1	Yes	S4VEM
Manganese	Target	119		mg/kg	119		1	Yes	S4VEM
Nickel	Target	7.8		mg/kg	7.8		1	Yes	S4VEM
Potassium	Target	760	U	mg/kg	131	J	1	Yes	S4VEM
Selenium	Target	2.7	J+	mg/kg	2.7	J	1	Yes	S4VEM
Silver	Target	1.5	U	mg/kg	1.5	U	1	Yes	S4VEM
Sodium	Target	87.2	J	mg/kg	87.2	J	1	Yes	S4VEM
Thallium	Target	3.8	U	mg/kg	3.8	U	1	Yes	S4VEM
Vanadium	Target	30.3		mg/kg	30.3		1	Yes	S4VEM
Zinc	Target	53.9		mg/kg	53.9		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AF9	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-WS-03	pH:	2	Sample Date:	09/10/2014	Sample Time:	13:45:00
% Moisture :				% Solids :	48.1		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	9940		mg/kg	9940		1	Yes	S4VEM
Antimony	Target	0.52	J	mg/kg	0.52	JN	1	Yes	S4VEM
Arsenic	Target	7.2		mg/kg	7.2		1	Yes	S4VEM
Barium	Target	90.3		mg/kg	90.3		1	Yes	S4VEM
Beryllium	Target	1.2		mg/kg	1.2		1	Yes	S4VEM
Cadmium	Target	0.45	J	mg/kg	0.45	J	1	Yes	S4VEM
Calcium	Target	1680		mg/kg	1680		1	Yes	S4VEM
Chromium	Target	16.7		mg/kg	16.7		1	Yes	S4VEM
Cobalt	Target	8.2		mg/kg	8.2		1	Yes	S4VEM
Copper	Target	7.4		mg/kg	7.4		1	Yes	S4VEM
Iron	Target	14200		mg/kg	14200		1	Yes	S4VEM
Lead	Target	27.6		mg/kg	27.6		1	Yes	S4VEM
Magnesium	Target	493	J	mg/kg	493	J	1	Yes	S4VEM
Manganese	Target	154		mg/kg	154		1	Yes	S4VEM
Nickel	Target	7.0		mg/kg	7.0		1	Yes	S4VEM
Potassium	Target	732	U	mg/kg	20.6	J	1	Yes	S4VEM
Selenium	Target	2.7	J+	mg/kg	2.7	J	1	Yes	S4VEM
Silver	Target	1.5	U	mg/kg	1.5	U	1	Yes	S4VEM
Sodium	Target	85.4	J	mg/kg	85.4	J	1	Yes	S4VEM
Thallium	Target	3.7	U	mg/kg	3.7	U	1	Yes	S4VEM
Vanadium	Target	27.9		mg/kg	27.9		1	Yes	S4VEM
Zinc	Target	36.7		mg/kg	36.7		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AG0	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-WS-04	pH:	2	Sample Date:	09/10/2014	Sample Time:	14:05:00
% Moisture :				% Solids :	65.5		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	9650		mg/kg	9650		1	Yes	S4VEM
Antimony	Target	1.5	J	mg/kg	1.5	JN	1	Yes	S4VEM
Arsenic	Target	504		mg/kg	504		1	Yes	S4VEM
Barium	Target	90.5		mg/kg	90.5		1	Yes	S4VEM
Beryllium	Target	0.65		mg/kg	0.65		1	Yes	S4VEM
Cadmium	Target	0.54	J	mg/kg	0.54	J	1	Yes	S4VEM
Calcium	Target	3270		mg/kg	3270		1	Yes	S4VEM
Chromium	Target	764		mg/kg	764		1	Yes	S4VEM
Cobalt	Target	17.8		mg/kg	17.8		1	Yes	S4VEM
Copper	Target	362		mg/kg	362		1	Yes	S4VEM
Iron	Target	21800		mg/kg	21800		1	Yes	S4VEM
Lead	Target	32.8		mg/kg	32.8		1	Yes	S4VEM
Magnesium	Target	941		mg/kg	941		1	Yes	S4VEM
Manganese	Target	835		mg/kg	835		1	Yes	S4VEM
Nickel	Target	9.5		mg/kg	9.5		1	Yes	S4VEM
Potassium	Target	565	U	mg/kg	489	J	1	Yes	S4VEM
Selenium	Target	3.6	J+	mg/kg	3.6	J	1	Yes	S4VEM
Silver	Target	1.1	U	mg/kg	1.1	U	1	Yes	S4VEM
Sodium	Target	90.4	J	mg/kg	90.4	J	1	Yes	S4VEM
Thallium	Target	2.8	U	mg/kg	2.8	U	1	Yes	S4VEM
Vanadium	Target	25.1		mg/kg	25.1		1	Yes	S4VEM
Zinc	Target	82.2		mg/kg	82.2		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AG1	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-WS-05	pH:	2	Sample Date:	09/10/2014	Sample Time:	14:20:00
% Moisture :				% Solids :	43.6		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	13200		mg/kg	13200		1	Yes	S4VEM
Antimony	Target	0.33	J	mg/kg	0.33	JN	1	Yes	S4VEM
Arsenic	Target	18.0		mg/kg	18.0		1	Yes	S4VEM
Barium	Target	119		mg/kg	119		1	Yes	S4VEM
Beryllium	Target	1.4		mg/kg	1.4		1	Yes	S4VEM
Cadmium	Target	0.53	J	mg/kg	0.53	J	1	Yes	S4VEM
Calcium	Target	2730		mg/kg	2730		1	Yes	S4VEM
Chromium	Target	43.6		mg/kg	43.6		1	Yes	S4VEM
Cobalt	Target	11.1		mg/kg	11.1		1	Yes	S4VEM
Copper	Target	19.6		mg/kg	19.6		1	Yes	S4VEM
Iron	Target	19300		mg/kg	19300		1	Yes	S4VEM
Lead	Target	30.7		mg/kg	30.7		1	Yes	S4VEM
Magnesium	Target	714	J	mg/kg	714	J	1	Yes	S4VEM
Manganese	Target	307		mg/kg	307		1	Yes	S4VEM
Nickel	Target	9.2		mg/kg	9.2		1	Yes	S4VEM
Potassium	Target	856	U	mg/kg	68.4	J	1	Yes	S4VEM
Selenium	Target	3.7	J+	mg/kg	3.7	J	1	Yes	S4VEM
Silver	Target	1.7	U	mg/kg	1.7	U	1	Yes	S4VEM
Sodium	Target	111	J	mg/kg	111	J	1	Yes	S4VEM
Thallium	Target	4.3	U	mg/kg	4.3	U	1	Yes	S4VEM
Vanadium	Target	36.1		mg/kg	36.1		1	Yes	S4VEM
Zinc	Target	55.2		mg/kg	55.2		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AG2	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-WS-06	pH:	2	Sample Date:	09/10/2014	Sample Time:	14:30:00
% Moisture :				% Solids :	32.5		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	13800		mg/kg	13800		1	Yes	S4VEM
Antimony	Target	12.7	UJ	mg/kg	12.7	UN	1	Yes	S4VEM
Arsenic	Target	15.9		mg/kg	15.9		1	Yes	S4VEM
Barium	Target	113		mg/kg	113		1	Yes	S4VEM
Beryllium	Target	1.4		mg/kg	1.4		1	Yes	S4VEM
Cadmium	Target	0.37	J	mg/kg	0.37	J	1	Yes	S4VEM
Calcium	Target	1720		mg/kg	1720		1	Yes	S4VEM
Chromium	Target	46.7		mg/kg	46.7		1	Yes	S4VEM
Cobalt	Target	5.9	J	mg/kg	5.9	J	1	Yes	S4VEM
Copper	Target	20.6		mg/kg	20.6		1	Yes	S4VEM
Iron	Target	12600		mg/kg	12600		1	Yes	S4VEM
Lead	Target	32.6		mg/kg	32.6		1	Yes	S4VEM
Magnesium	Target	707	J	mg/kg	707	J	1	Yes	S4VEM
Manganese	Target	68.1		mg/kg	68.1		1	Yes	S4VEM
Nickel	Target	8.3	J	mg/kg	8.3	J	1	Yes	S4VEM
Potassium	Target	1060	UJ	mg/kg	1060	U	1	Yes	S4VEM
Selenium	Target	2.6	J+	mg/kg	2.6	J	1	Yes	S4VEM
Silver	Target	2.1	U	mg/kg	2.1	U	1	Yes	S4VEM
Sodium	Target	103	J	mg/kg	103	J	1	Yes	S4VEM
Thallium	Target	5.3	U	mg/kg	5.3	U	1	Yes	S4VEM
Vanadium	Target	40.8		mg/kg	40.8		1	Yes	S4VEM
Zinc	Target	43.2		mg/kg	43.2		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	MC0AG3	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-WS-07	pH:	2	Sample Date:	09/10/2014	Sample Time:	15:40:00
% Moisture :				% Solids :	67.7		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	3240		mg/kg	3240		1	Yes	S4VEM
Antimony	Target	6.7	UJ	mg/kg	6.7	UN	1	Yes	S4VEM
Arsenic	Target	2.5		mg/kg	2.5		1	Yes	S4VEM
Barium	Target	41.4		mg/kg	41.4		1	Yes	S4VEM
Beryllium	Target	0.15	J	mg/kg	0.15	J	1	Yes	S4VEM
Cadmium	Target	0.27	J	mg/kg	0.27	J	1	Yes	S4VEM
Calcium	Target	3090		mg/kg	3090		1	Yes	S4VEM
Chromium	Target	7.0		mg/kg	7.0		1	Yes	S4VEM
Cobalt	Target	0.76	J	mg/kg	0.76	J	1	Yes	S4VEM
Copper	Target	5.4		mg/kg	5.4		1	Yes	S4VEM
Iron	Target	4710		mg/kg	4710		1	Yes	S4VEM
Lead	Target	10.7		mg/kg	10.7		1	Yes	S4VEM
Magnesium	Target	350	J	mg/kg	350	J	1	Yes	S4VEM
Manganese	Target	185		mg/kg	185		1	Yes	S4VEM
Nickel	Target	2.2	J	mg/kg	2.2	J	1	Yes	S4VEM
Potassium	Target	555	UJ	mg/kg	555	U	1	Yes	S4VEM
Selenium	Target	0.90	J+	mg/kg	0.90	J	1	Yes	S4VEM
Silver	Target	1.1	U	mg/kg	1.1	U	1	Yes	S4VEM
Sodium	Target	30.2	J	mg/kg	30.2	J	1	Yes	S4VEM
Thallium	Target	2.8	U	mg/kg	2.8	U	1	Yes	S4VEM
Vanadium	Target	11.5		mg/kg	11.5		1	Yes	S4VEM
Zinc	Target	15.8		mg/kg	15.8		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AF1	Lab Code:	CHEM
Sample Number:	PBS01	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:	09/18/2014	Sample Time:	21:41:19
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	mg/kg	20.000	U	1	Yes	S4VEM
Antimony	Target	6.0	U	mg/kg	6.000	U	1	Yes	S4VEM
Arsenic	Target	1.0	U	mg/kg	1.000	U	1	Yes	S4VEM
Barium	Target	20.0	U	mg/kg	20.000	U	1	Yes	S4VEM
Beryllium	Target	0.50	U	mg/kg	0.500	U	1	Yes	S4VEM
Cadmium	Target	0.50	U	mg/kg	0.5000	U	1	Yes	S4VEM
Calcium	Target	500	U	mg/kg	500.000	U	1	Yes	S4VEM
Chromium	Target	1.0	U	mg/kg	1.000	U	1	Yes	S4VEM
Cobalt	Target	5.0	U	mg/kg	5.000	U	1	Yes	S4VEM
Copper	Target	2.5	U	mg/kg	2.500	U	1	Yes	S4VEM
Iron	Target	10.0	U	mg/kg	10.000	U	1	Yes	S4VEM
Lead	Target	1.0	U	mg/kg	1.000	U	1	Yes	S4VEM
Magnesium	Target	500	U	mg/kg	500.000	U	1	Yes	S4VEM
Manganese	Target	1.5	U	mg/kg	1.500	U	1	Yes	S4VEM
Nickel	Target	4.0	U	mg/kg	4.000	U	1	Yes	S4VEM
Potassium	Target	500	U	mg/kg	12.015	J	1	Yes	S4VEM
Selenium	Target	3.5	U	mg/kg	3.500	U	1	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1.000	U	1	Yes	S4VEM
Sodium	Target	500	U	mg/kg	500.000	U	1	Yes	S4VEM
Thallium	Target	2.5	U	mg/kg	2.500	U	1	Yes	S4VEM
Vanadium	Target	5.0	U	mg/kg	5.000	U	1	Yes	S4VEM
Zinc	Target	6.0	U	mg/kg	6.000	U	1	Yes	S4VEM

FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

LABORATORY NAME :	CHEMTECH CONSULTING GROUP, INC.		
CITY / STATE :	MOUNTAINSIDE, NJ		
CASE NO :	44664	SDG NO :	MC0AF1
SDG NOs TO FOLLOW			
MOD. REF. NO :			
CONTRACT NO :	EPW09038		
SOW NO :	ISM01.3		

All documents delivered in the Complete SDG File must be original documents where possible. (Reference - Exhibit B Section 2.6)

		PAGE NOS: FROM	PAGE NOS: TO	CHECK LAB	CHECK REGION
1.	Inventory Sheet (DC-2)	1	2	✔	
2.	SDG Narrative	3	5	✔	
3.	Sample Log-In Sheet (DC-1)	6	6	✔	
4.	Traffic Report/Chain of Custody Record(s)	7	9	✔	
5.	Cover Page	10	10	✔	
	Inorganic Analysis				
6.	Data Sheet (Form IA-IN)	11	23	✔	
7.	Initial & Continuing Calibration Verification (Form IIA-IN)	24	29	✔	
8.	Blanks (Form III-IN)	30	33	✔	
9.	ICP-AES Interference Check Sample (Form IVA-IN)	34	35	✔	
10.	ICP-MS Interference Check Sample (Form IVB-IN)	NA	NA	✔	
11.	Matrix Spike Sample Recovery (Form VA-IN)	36	36	✔	
12.	Post-Digestion Spike Sample Recovery (Form VB-IN)	37	37	✔	
13.	Duplicates (Form VI-IN)	38	38	✔	
14.	Laboratory Control Sample (Form VII-IN)	39	39	✔	
15.	ICP-AES and ICP-MS Serial Dilutions (Form VIII-IN)	40	40	✔	
16.	Method Detection Limits (Annually) (Form IX-IN)	41	42	✔	
17.	ICP-AES Interelement Correction Factors (Annually) (Form XA-IN)	43	43	✔	
18.	ICP-AES Interelement Correction Factor (Annually) (Form XB-IN)	44	45	✔	
19.	Internal Standard Association (Form XI-IN)	NA	NA	✔	
20.	Preparation Log (Form XII-IN)	46	46	✔	
21.	Analysis Run Log (Form XIII-IN)	47	52	✔	
22.	ICP-MS Tune (Form XIV-IN)	NA	NA	✔	
23.	ICP-MS Internal Standards Relative Intensity Summary (Form XV-IN)	NA	NA	✔	
24.	Initial Calibration (Form XVI-IN)	53	57	✔	
25.	ICP-AES Raw Data	58	395	✔	
26.	ICP-MS Raw Data	NA	NA	✔	
27.	Mercury Raw Data	NA	NA	✔	

28.	Cyanide Raw Data	NA	NA	✔	
29.	Preparation Logs Raw Data	396	398	✔	
30.	Percent Solids Determination Log	399	400	✔	
31.	**USEPA Shipping/Receiving Documents**				
	Airbill (No. of Shipments) 1	401	401	✔	
	Sample Tags (***In a Plastic Bag w/ Page #***)	402	404	✔	
	Sample Log-In Sheet (Lab)	405	406	✔	
32.	Misc. Shipping/Receiving Records				
	(list all individual records)				
	Telephone log	407	412	✔	
	PE Instruction Page	NA	NA	✔	
	Modified Analysis Page	NA	NA	✔	
33.	Internal Lab Sample Transfer Records &				
	Tracking Sheets (describe or list)				
	Internal Lab COC	413	414	✔	
	Miscellaneous	NA	NA	✔	
34.	Internal Original Sample Prep &				
	Analysis Records (describe or list)				
	Prep Records	NA	NA	✔	
	Analysis Records	NA	NA	✔	
	Description	NA	NA	✔	
35.	Other Records (describe or list) Communications Log	NA	NA	✔	
36.	Comments : NA				

Completed By :

(CLP Lab) Zh. Rohen for (Signature) **Mildred V. Reyes,Document Control Officer** (Print Name & Title) 09/30/2014 (Date)

Audited By :

(USEPA) (Signature) (Print Name & Title) (Date)

CHEMTECH
284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # MC0AF1
CASE # 44664
CONTRACT # EPW09038
LAB NAME: CHEMTECH
LAB CODE: CHEM
CHEMTECH PROJECT #F3941

A. Number of Samples and Date of Receipt

13 soil samples were delivered to the laboratory intact on 09/13/2014.

B. Parameters

Test requested for Metals CLP Full = Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Silver, Selenium, Sodium, Thallium, Vanadium, Zinc.

C. Cooler Temp

Indicator Bottle: **Presence**/Absence
Cooler: 2°C

D. Detail Documentation (related to Sample Handling Shipping, Analytical Problem, Temp of Cooler etc):

Issue 1: Several samples from SDG MC0AF1 have % solids results less than 50% but more than 30%.

EPA Sample ID	% Solids
MC0AF8	45.7
MC0AF9	48.1
MC0AG1	43.6
MC0AG2	32.5

Issue 2:The laboratory received samples for Case 44673. The case number on the COC (attached), sample tag and label (attached) do not match.

Issue 3: The sample IDs and tag numbers are missing from the sample tags and labels. The station location is listed in place of the sample number on both the sample tag and label.

CHEMTECH
284 Sheffield Street
Mountainside, NJ 07092

E. Corrective Action taken for above:

Resolution 1: Per the ISM01.3 SOW, the laboratory will proceed with the analysis of the samples according to Exhibit D, sections 1.6.4 and 1.6.5. The laboratory will note the issue in the SDG Narrative.

Resolution 2: Per Region 3, the Case number on the sample tag and label are correct. The sample is for Case 44664. The COC contained an incorrect case number. The correct COC is attached for Case 44664 and Case 44673. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Resolution 3: Per Region 3, MC0AJ3 is for Case 44664. The station location and collection time for sample MC0AJ3 match the sample tag and label per the attached corrected COC. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

F. Analytical Techniques:

All analyses were based on CLP Methodology by method ISM01.3

G. Calculation:

Calculation for ICP-AES Soil Sample:

Conversion of Results from mg/L or ppm to mg/kg (Dry Weight Basis):

$$\text{Concentration (mg/kg)} = C \times \frac{Vf}{W \times S} \times DF$$

Where,

C = Instrument value in ppm (The average of all replicate exposures)
Vf = Final digestion volume (mL)
W = Initial aliquot amount (g) (Sample amount taken in prep)
S = % Solids / 100 (Fraction of Percent Solids)
DF = Dilution Factor

Example Calculation:

If C = 12.34 ppm
Vf = 100 ml
W = 1.20 g
S = 0.90 (90/100)
DF = 1

CHEMTECH
284 Sheffield Street
Mountainside, NJ 07092

Concentration (mg/kg) = $12.34 \times \frac{100}{1.2 \times 0.90} \times 1$

= 1142.6 mg/kg

= 1140 mg/kg (Reported Result with Signification)

H. QA/ QC

Calibrations met requirements. Interference check met requirements. Blank analyses did not indicate any presence of contamination. Laboratory Control sample was within control limits. Spike sample did meet requirements except for Antimony. Duplicate sample did meet requirements. Serial Dilution did meet requirements.

I certify that the data package is in compliance with the terms and conditions of the contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature Zh. Rohei for Name: Mildred V. Reyes

Date 09/30/2014 Title: Document Control Officer

SAMPLE LOG-IN SHEET

Lab Name CHEMTECH CONSULTING GROUP

Page 1 of 1

Received By (Print) DEEPAK PARMAR

Log-in Date 9/13/2014

Received By (Signature)

Case Number 44664

Sample Delivery Group No. MC0AF1

MOD.REF.NO N/A

Remarks:

1. Custody Seal(s) Present/Absent* Intact/Broken
2. Custody Seal Nos. N/A
3. Traffic Reports/Chain Of Custody Records Present/Absent*
4. Airbill Airbill/Sticker Present/Absent*
5. Airbill No. 771132425152
6. Sample Tags Present/Absent* Sample Tag # Listed/Not Listed On TR/ Chain-of-Custody
7. Sample Condition Intact/Broken*/Leaking
8. Cooler Temperature Indicator Bottle Present/Absent*
9. Cooler Temperature 2°C
10. Does information on custody records, traffic reports, and sample tags Yes/No*
11. Date Received at Lab 9/13/14
12. Time Received 10:00

Corresponding

EPA Sample #	Aqueous Sample pH	Sample Tag #	Assigned Lab#	Remarks: Condition of Sample shipment, etc.
MC0AF1	N/A	1087	F3941-01	Intact
MC0AF2		1089	F3941-02	
MC0AF3		1091	F3941-03	
MC0AF4		1093	F3941-04	
MC0AF5		1095	F3941-05	
MC0AF6		1097	F3941-06	
MC0AF7		1099	F3941-07	
MC0AF7D		~~1101~~ 1099	F3941-08	
MC0AF7S		~~1103~~ 1109	F3941-09	
MC0AF8		~~1105~~ 1101	F3941-10	
MC0AF9		~~1107~~ 1103	F3941-11	
MC0AG0		~~1~~ 1105	F3941-12	
MC0AG1		1107	F3941-13	
MC0AG2		1109	F3941-14	
MC0AG3		1111	F3941-15	

Sample Transfer

~~Fraction~~	Fraction Metals
Area #	Area # B51
By	By Deepak
On	On 9/15/14

* Contact SMO and attach record of

Reviewed By Zhaleh

Date 09/18/2014

Logbook ~~No.~~

Logbook Page

Sample Delivery Group (SDG) Cover Sheet

SDG Number	MC0AF1	Case Number	44664	Contract Number	EPW09038
Lab Code	CHEM	SDG Turnaround	21 days	Delivery CLIN(s)	

First Sample Received in SDG	MC0AF1	Last Sample Received in SDG	MC0AG3
First Sample Receipt Date	9/13/2014 10:00:00 AM	Last Sample Receipt Date	9/13/2014 10:00:00 AM

USEPA Sample Numbers in SDG (Listed in Numerical Order)

CLP Sample ID	Sample Type	Requested Analytical CLIN(s)/SubCLIN(s)	Solicitation Number	MA Number(s)
MC0AF1	Field Sample	0025C	Now	Now
MC0AF2	Field Sample	0025C		
MC0AF3	Field Sample	0025C		
MC0AF4	Field Sample	0025C		
MC0AF5	Field Sample	0025C		
MC0AF6	Field Sample	0025C		
MC0AF7	Field Sample	0025C		
MC0AF7D	Field Sample	0025C		
MC0AF7S	Field Sample	0025C		
MC0AF8	Field Sample	0025C		
MC0AF9	Field Sample	0025C		
MC0AG0	Field Sample	0025C		
MC0AG1	Field Sample	0025C		
MC0AG2	Field Sample	0025C		
MC0AG3	Field Sample	0025C		

Note: *There are a maximum of 20* ***field*** *samples (excluding PE samples) in an SDG. Attach TR/COC Records to this form in alphanumeric order (the order listed above on this form).*

Signature Zh. Rahman Date 09/16/2014

Page 1 of 2

USEPA CLP COC (LAB COPY)
DateShipped: 9/12/2014
CarrierName: FedEx
AirbillNo: 7711 3242 5152

CHAIN OF CUSTODY RECORD
Site #: TK
Case #: 44673
Cooler #: 2 of 5

No: 3-091114-201005-0007
Lab: Chemtech Consulting Group
Lab Contact: Sample Recieving
Lab Phone: 908-789-8900

Inorganic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Organic Sample #	For Lab Use Only
MC0AF1	Soil/ Matt Fisher	Grab	Metals(21)	1087 (4 C) (1)	NKWP-SS-17	09/10/2014 11:18	C0AF1	
MC0AF2	Soil/ Matt Fisher	Grab	Metals(21)	1089 (4 C) (1)	NKWP-SS-18	09/10/2014 11:20	C0AF2	
MC0AF3	Soil/ Matt Fisher	Grab	Metals(21)	1091 (4 C) (1)	NKWP-SS-19	09/10/2014 13:22	C0AF3	
MC0AF4	Soil/ Matt Fisher	Grab	Metals(21)	1093 (4 C) (1)	NKWP-SS-20	09/10/2014 13:20	C0AF4	
MC0AF5	Soil/ Matt Fisher	Grab	Metals(21)	1095 (4 C) (1)	NKWP-SS-21	09/10/2014 13:30	C0AF5	
MC0AF6	Sediment/ Matt Fisher	Grab	Metals(21)	1097 (4 C) (1)	NKWP-WS-01	09/10/2014 13:38	C0AF6	
MC0AF7	Sediment/ Matt Fisher	Grab	Metals(21)	1099 (4 C) (1)	NKWP-WS-01-01	09/10/2014 13:38	C0AF7	
MC0AF8	Sediment/ Matt Fisher	Grab	Metals(21)	1101 (4 C) (1)	NKWP-WS-02	09/10/2014 13:55	C0AF8	
MC0AF9	Sediment/ Matt Fisher	Grab	Metals(21)	1103 (4 C) (1)	NKWP-WS-03	09/10/2014 13:45	C0AF9	
MC0AG0	Sediment/ Matt Fisher	Grab	Metals(21)	1105 (4 C) (1)	NKWP-WS-04	09/10/2014 14:05	C0AG0	
MC0AG1	Sediment/ Matt Fisher	Grab	Metals(21)	1107 (4 C) (1)	NKWP-WS-05	09/10/2014 14:20	C0AG1	
MC0AG2	Sediment/ Matt Fisher	Grab	Metals(21)	1109 (4 C) (1)	NKWP-WS-06	09/10/2014 14:30	C0AG2	
MC0AG3	Sediment/ Matt Fisher	Grab	Metals(21)	1111 (4 C) (1)	NKWP-WS-07	09/10/2014 15:40	C0AG3	

Sample(s) to be used for Lab QC: MC0AF7

Shipment for Case Complete? Y
Samples Transferred From Chain of Custody #

Analysis Key: Metals=ICP-AES 11+ Metals

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
EPA Region 3 START	Matt Fisher	9/12/2014 1200							Deepak Parmar	9/13/14	10:00

Temp 2°C

MC0AF1

USEPA CLP COC (LAB COPY)
DateShipped: 9/12/2014
CarrierName: FedEx
AirbillNo: 7711 3242 5152

CHAIN OF CUSTODY RECORD
Site #: TK
Case #: 44664
Cooler #: 2 of 5

No: 3-091114-201005-0007
Lab: Chemtech Consulting Group
Lab Contact: Sample Recieving
Lab Phone: 908-789-8900

Inorganic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Organic Sample #	For Lab Use Only
MC0AF1	Soil/ Matt Fisher	Grab	Metals(21)	1087 (4 C) (1)	NKWP-SS-17	09/10/2014 11:18	C0AF1	
MC0AF2	Soil/ Matt Fisher	Grab	Metals(21)	1089 (4 C) (1)	NKWP-SS-18	09/10/2014 11:20	C0AF2	
MC0AF3	Soil/ Matt Fisher	Grab	Metals(21)	1091 (4 C) (1)	NKWP-SS-19	09/10/2014 13:22	C0AF3	
MC0AF4	Soil/ Matt Fisher	Grab	Metals(21)	1093 (4 C) (1)	NKWP-SS-20	09/10/2014 13:20	C0AF4	
MC0AF5	Soil/ Matt Fisher	Grab	Metals(21)	1095 (4 C) (1)	NKWP-SS-21	09/10/2014 13:30	C0AF5	
MC0AF6	Sediment/ Matt Fisher	Grab	Metals(21)	1097 (4 C) (1)	NKWP-WS-01	09/10/2014 13:38	C0AF6	
MC0AF7	Sediment/ Matt Fisher	Grab	Metals(21)	1099 (4 C) (1)	NKWP-WS-01-01	09/10/2014 13:38	C0AF7	
MC0AF8	Sediment/ Matt Fisher	Grab	Metals(21)	1101 (4 C) (1)	NKWP-WS-02	09/10/2014 13:55	C0AF8	
MC0AF9	Sediment/ Matt Fisher	Grab	Metals(21)	1103 (4 C) (1)	NKWP-WS-03	09/10/2014 13:45	C0AF9	
MC0AG0	Sediment/ Matt Fisher	Grab	Metals(21)	1105 (4 C) (1)	NKWP-WS-04	09/10/2014 14:05	C0AG0	
MC0AG1	Sediment/ Matt Fisher	Grab	Metals(21)	1107 (4 C) (1)	NKWP-WS-05	09/10/2014 14:20	C0AG1	
MC0AG2	Sediment/ Matt Fisher	Grab	Metals(21)	1109 (4 C) (1)	NKWP-WS-06	09/10/2014 14:30	C0AG2	
MC0AG3	Sediment/ Matt Fisher	Grab	Metals(21)	1111 (4 C) (1)	NKWP-WS-07	09/10/2014 15:40	C0AG3	

Sample(s) to be used for Lab QC: MC0AF7

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #

Analysis Key: Metals=ICP-AES 11+ Metals

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time

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COVER PAGE

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No: 44664 Mod. Ref. No.: SDG No: MC0AF1

SOW No.: ISM01.3

EPA Sample No.	Lab Sample ID
MC0AF1	F3941-01
MC0AF2	F3941-02
MC0AF3	F3941-03
MC0AF4	F3941-04
MC0AF5	F3941-05
MC0AF6	F3941-06
MC0AF7	F3941-07
MC0AF7D	F3941-08
MC0AF7S	F3941-09
MC0AF8	F3941-10
MC0AF9	F3941-11
MC0AG0	F3941-12
MC0AG1	F3941-13
MC0AG2	F3941-14
MC0AG3	F3941-15

		ICP-AES	ICP-MS
Were ICP-AES and ICP-MS interelement corrections applied?	(Yes/No)	YES	N/A
Were ICP-AES and ICP-MS background corrections applied?	(Yes/No)	YES	N/A
If yes, were raw data generated before application of background corrections?	(Yes/No)	NO	N/A

The laboratory did not receive any instructions with this SDG to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy Data Package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Thukhi for Name: MILDRED REYES

Date: 09/30/2014 Title: DOCUMENT CONTROL OFFICER

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1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AF1

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AF1

Matrix: SOIL Lab Sample ID: F3941-01

% Solids: 89.8 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	0.54	J	N	P
7440-38-2	Arsenic	3.6			P
7440-39-3	Barium	66.2			P
7440-41-7	Beryllium	0.44	J		P
7440-43-9	Cadmium	0.29	J		P
7440-70-2	Calcium	3700			P
7440-47-3	Chromium	19.5			P
7440-48-4	Cobalt	6.1			P
7440-50-8	Copper	22.9			P
7439-89-6	Iron	24400			P
7439-92-1	Lead	7.4			P
7439-95-4	Magnesium	4740			P
7439-96-5	Manganese	259			P
7440-02-0	Nickel	11.3			P
7440-09-7	Potassium	2870			P
7782-49-2	Selenium	3.8			P
7440-22-4	Silver	0.88	U		P
7440-23-5	Sodium	110	J		P
7440-28-0	Thallium	2.2	U		P
7440-62-2	Vanadium	41.1			P
7440-66-6	Zinc	35.8			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AF2

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AF1

Matrix: SOIL Lab Sample ID: F3941-02

% Solids: 84.1 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12700			P
7440-36-0	Antimony	0.77	J	N	P
7440-38-2	Arsenic	5.3			P
7440-39-3	Barium	52.4			P
7440-41-7	Beryllium	0.53			P
7440-43-9	Cadmium	0.39	J		P
7440-70-2	Calcium	2210			P
7440-47-3	Chromium	23.4			P
7440-48-4	Cobalt	4.3	J		P
7440-50-8	Copper	14.2			P
7439-89-6	Iron	32500			P
7439-92-1	Lead	12.3			P
7439-95-4	Magnesium	2520			P
7439-96-5	Manganese	137			P
7440-02-0	Nickel	6.9			P
7440-09-7	Potassium	1660			P
7782-49-2	Selenium	5.3			P
7440-22-4	Silver	0.89	U		P
7440-23-5	Sodium	91.6	J		P
7440-28-0	Thallium	2.2	U		P
7440-62-2	Vanadium	50.5			P
7440-66-6	Zinc	23.5			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AF3

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AF1

Matrix: SOIL Lab Sample ID: F3941-03

% Solids: 86.6 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5580			P
7440-36-0	Antimony	0.16	J	N	P
7440-38-2	Arsenic	2.9			P
7440-39-3	Barium	34.1			P
7440-41-7	Beryllium	0.39	J		P
7440-43-9	Cadmium	0.088	J		P
7440-70-2	Calcium	160	J		P
7440-47-3	Chromium	8.1			P
7440-48-4	Cobalt	2.5	J		P
7440-50-8	Copper	4.1			P
7439-89-6	Iron	6200			P
7439-92-1	Lead	16.5			P
7439-95-4	Magnesium	390	J		P
7439-96-5	Manganese	193			P
7440-02-0	Nickel	3.6			P
7440-09-7	Potassium	66.5	J		P
7782-49-2	Selenium	1.1	J		P
7440-22-4	Silver	0.83	U		P
7440-23-5	Sodium	34.1	J		P
7440-28-0	Thallium	2.1	U		P
7440-62-2	Vanadium	12.8			P
7440-66-6	Zinc	16.0			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AF4

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AF1

Matrix: SOIL Lab Sample ID: F3941-04

% Solids: 74.0 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8700			P
7440-36-0	Antimony	1.6	J	N	P
7440-38-2	Arsenic	340			P
7440-39-3	Barium	105			P
7440-41-7	Beryllium	0.51			P
7440-43-9	Cadmium	0.65			P
7440-70-2	Calcium	4630			P
7440-47-3	Chromium	519			P
7440-48-4	Cobalt	13.8			P
7440-50-8	Copper	327			P
7439-89-6	Iron	17200			P
7439-92-1	Lead	30.4			P
7439-95-4	Magnesium	830			P
7439-96-5	Manganese	934			P
7440-02-0	Nickel	8.6			P
7440-09-7	Potassium	323	J		P
7782-49-2	Selenium	2.9	J		P
7440-22-4	Silver	0.99	U		P
7440-23-5	Sodium	73.7	J		P
7440-28-0	Thallium	2.5	U		P
7440-62-2	Vanadium	21.3			P
7440-66-6	Zinc	115			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AF5

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AF1

Matrix: SOIL Lab Sample ID: F3941-05

% Solids: 79.3 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7550			P
7440-36-0	Antimony	0.99	J	N	P
7440-38-2	Arsenic	246			P
7440-39-3	Barium	70.8			P
7440-41-7	Beryllium	0.55			P
7440-43-9	Cadmium	0.55			P
7440-70-2	Calcium	2270			P
7440-47-3	Chromium	340			P
7440-48-4	Cobalt	9.4			P
7440-50-8	Copper	169			P
7439-89-6	Iron	17900			P
7439-92-1	Lead	25.7			P
7439-95-4	Magnesium	643			P
7439-96-5	Manganese	385			P
7440-02-0	Nickel	7.4			P
7440-09-7	Potassium	247	J		P
7782-49-2	Selenium	3.0	J		P
7440-22-4	Silver	0.93	U		P
7440-23-5	Sodium	70.2	J		P
7440-28-0	Thallium	2.3	U		P
7440-62-2	Vanadium	20.3			P
7440-66-6	Zinc	117			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AF6

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No: SDG No.: MC0AF1

Matrix: SOIL Lab Sample ID: F3941-06

% Solids: 55.1 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6150			P
7440-36-0	Antimony	0.75	J	N	P
7440-38-2	Arsenic	99.5			P
7440-39-3	Barium	90.9			P
7440-41-7	Beryllium	0.37	J		P
7440-43-9	Cadmium	0.36	J		P
7440-70-2	Calcium	4290			P
7440-47-3	Chromium	122			P
7440-48-4	Cobalt	4.7	J		P
7440-50-8	Copper	78.8			P
7439-89-6	Iron	11200			P
7439-92-1	Lead	24.4			P
7439-95-4	Magnesium	810			P
7439-96-5	Manganese	522			P
7440-02-0	Nickel	5.3			P
7440-09-7	Potassium	96.0	J		P
7782-49-2	Selenium	2.3	J		P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	131	J		P
7440-28-0	Thallium	3.1	U		P
7440-62-2	Vanadium	15.5			P
7440-66-6	Zinc	100			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AF7

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AF1

Matrix: SOIL Lab Sample ID: F3941-07

% Solids: 53.8 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6850			P
7440-36-0	Antimony	0.79	J	N	P
7440-38-2	Arsenic	116			P
7440-39-3	Barium	90.8			P
7440-41-7	Beryllium	0.48	J		P
7440-43-9	Cadmium	0.37	J		P
7440-70-2	Calcium	4110			P
7440-47-3	Chromium	151			P
7440-48-4	Cobalt	5.0	J		P
7440-50-8	Copper	90.4			P
7439-89-6	Iron	13400			P
7439-92-1	Lead	22.4			P
7439-95-4	Magnesium	786			P
7439-96-5	Manganese	467			P
7440-02-0	Nickel	5.7	J		P
7440-09-7	Potassium	26.2	J		P
7782-49-2	Selenium	2.6	J		P
7440-22-4	Silver	1.5	U		P
7440-23-5	Sodium	107	J		P
7440-28-0	Thallium	3.7	U		P
7440-62-2	Vanadium	17.8			P
7440-66-6	Zinc	98.3			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AF8

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AF1

Matrix: SOIL Lab Sample ID: F3941-10

% Solids: 45.7 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10600			P
7440-36-0	Antimony	0.34	J	N	P
7440-38-2	Arsenic	9.7			P
7440-39-3	Barium	100			P
7440-41-7	Beryllium	1.3			P
7440-43-9	Cadmium	0.41	J		P
7440-70-2	Calcium	2370			P
7440-47-3	Chromium	35.4			P
7440-48-4	Cobalt	7.2	J		P
7440-50-8	Copper	18.2			P
7439-89-6	Iron	13800			P
7439-92-1	Lead	24.4			P
7439-95-4	Magnesium	577	J		P
7439-96-5	Manganese	119			P
7440-02-0	Nickel	7.8			P
7440-09-7	Potassium	131	J		P
7782-49-2	Selenium	2.7	J		P
7440-22-4	Silver	1.5	U		P
7440-23-5	Sodium	87.2	J		P
7440-28-0	Thallium	3.8	U		P
7440-62-2	Vanadium	30.3			P
7440-66-6	Zinc	53.9			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AF9

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AF1

Matrix: SOIL Lab Sample ID: F3941-11

% Solids: 48.1 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9940			P
7440-36-0	Antimony	0.52	J	N	P
7440-38-2	Arsenic	7.2			P
7440-39-3	Barium	90.3			P
7440-41-7	Beryllium	1.2			P
7440-43-9	Cadmium	0.45	J		P
7440-70-2	Calcium	1680			P
7440-47-3	Chromium	16.7			P
7440-48-4	Cobalt	8.2			P
7440-50-8	Copper	7.4			P
7439-89-6	Iron	14200			P
7439-92-1	Lead	27.6			P
7439-95-4	Magnesium	493	J		P
7439-96-5	Manganese	154			P
7440-02-0	Nickel	7.0			P
7440-09-7	Potassium	20.6	J		P
7782-49-2	Selenium	2.7	J		P
7440-22-4	Silver	1.5	U		P
7440-23-5	Sodium	85.4	J		P
7440-28-0	Thallium	3.7	U		P
7440-62-2	Vanadium	27.9			P
7440-66-6	Zinc	36.7			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AG0

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AF1

Matrix: SOIL Lab Sample ID: F3941-12

% Solids: 65.5 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9650			P
7440-36-0	Antimony	1.5	J	N	P
7440-38-2	Arsenic	504			P
7440-39-3	Barium	90.5			P
7440-41-7	Beryllium	0.65			P
7440-43-9	Cadmium	0.54	J		P
7440-70-2	Calcium	3270			P
7440-47-3	Chromium	764			P
7440-48-4	Cobalt	17.8			P
7440-50-8	Copper	362			P
7439-89-6	Iron	21800			P
7439-92-1	Lead	32.8			P
7439-95-4	Magnesium	941			P
7439-96-5	Manganese	835			P
7440-02-0	Nickel	9.5			P
7440-09-7	Potassium	489	J		P
7782-49-2	Selenium	3.6	J		P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	90.4	J		P
7440-28-0	Thallium	2.8	U		P
7440-62-2	Vanadium	25.1			P
7440-66-6	Zinc	82.2			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AG1

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AF1

Matrix: SOIL Lab Sample ID: F3941-13

% Solids: 43.6 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13200			P
7440-36-0	Antimony	0.33	J	N	P
7440-38-2	Arsenic	18.0			P
7440-39-3	Barium	119			P
7440-41-7	Beryllium	1.4			P
7440-43-9	Cadmium	0.53	J		P
7440-70-2	Calcium	2730			P
7440-47-3	Chromium	43.6			P
7440-48-4	Cobalt	11.1			P
7440-50-8	Copper	19.6			P
7439-89-6	Iron	19300			P
7439-92-1	Lead	30.7			P
7439-95-4	Magnesium	714	J		P
7439-96-5	Manganese	307			P
7440-02-0	Nickel	9.2			P
7440-09-7	Potassium	68.4	J		P
7782-49-2	Selenium	3.7	J		P
7440-22-4	Silver	1.7	U		P
7440-23-5	Sodium	111	J		P
7440-28-0	Thallium	4.3	U		P
7440-62-2	Vanadium	36.1			P
7440-66-6	Zinc	55.2			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AG2

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AF1

Matrix: SOIL Lab Sample ID: F3941-14

% Solids: 32.5 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13800			P
7440-36-0	Antimony	12.7	U	N	P
7440-38-2	Arsenic	15.9			P
7440-39-3	Barium	113			P
7440-41-7	Beryllium	1.4			P
7440-43-9	Cadmium	0.37	J		P
7440-70-2	Calcium	1720			P
7440-47-3	Chromium	46.7			P
7440-48-4	Cobalt	5.9	J		P
7440-50-8	Copper	20.6			P
7439-89-6	Iron	12600			P
7439-92-1	Lead	32.6			P
7439-95-4	Magnesium	707	J		P
7439-96-5	Manganese	68.1			P
7440-02-0	Nickel	8.3	J		P
7440-09-7	Potassium	1060	U		P
7782-49-2	Selenium	2.6	J		P
7440-22-4	Silver	2.1	U		P
7440-23-5	Sodium	103	J		P
7440-28-0	Thallium	5.3	U		P
7440-62-2	Vanadium	40.8			P
7440-66-6	Zinc	43.2			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AG3

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AF1

Matrix: SOIL Lab Sample ID: F3941-15

% Solids: 67.7 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3240			P
7440-36-0	Antimony	6.7	U	N	P
7440-38-2	Arsenic	2.5			P
7440-39-3	Barium	41.4			P
7440-41-7	Beryllium	0.15	J		P
7440-43-9	Cadmium	0.27	J		P
7440-70-2	Calcium	3090			P
7440-47-3	Chromium	7.0			P
7440-48-4	Cobalt	0.76	J		P
7440-50-8	Copper	5.4			P
7439-89-6	Iron	4710			P
7439-92-1	Lead	10.7			P
7439-95-4	Magnesium	350	J		P
7439-96-5	Manganese	185			P
7440-02-0	Nickel	2.2	J		P
7440-09-7	Potassium	555	U		P
7782-49-2	Selenium	0.90	J		P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	30.2	J		P
7440-28-0	Thallium	2.8	U		P
7440-62-2	Vanadium	11.5			P
7440-66-6	Zinc	15.8			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AF1

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	2521.0	2426.09	96	400000.0	398340.00	100	391809.80	98	P
Antimony	994.0	907.20	91	5000.0	5117.53	102	5033.26	101	P
Arsenic	999.0	920.45	92	5000.0	5151.47	103	5059.46	101	P
Barium	497.0	521.28	105	10000.0	10631.50	106	10541.61	105	P
Beryllium	495.0	489.77	99	500.0	522.95	105	513.84	103	P
Cadmium	496.0	486.66	98	2500.0	2650.88	106	2592.41	104	P
Calcium	10026.0	10421.93	104	400000.0	420683.20	105	417010.90	104	P
Chromium	490.0	533.96	109	15500.0	16593.77	107	16229.67	105	P
Cobalt	499.0	486.07	97	2500.0	2632.29	105	2584.71	103	P
Copper	492.0	509.20	103	15000.0	15953.53	106	15707.25	105	P
Iron	5082.0	5452.37	107	400000.0	405238.60	101	398204.60	100	P
Lead	1002.0	985.42	98	25000.0	26314.32	105	25844.56	103	P
Magnesium	6074.0	6017.59	99	400000.0	408573.30	102	402145.80	101	P
Manganese	499.0	530.61	106	15000.0	15755.01	105	15551.92	104	P
Nickel	503.0	496.19	99	2500.0	2609.47	104	2557.49	102	P
Potassium	10021.0	9365.29	93	150000.0	161084.20	107	159141.20	106	P
Selenium	1029.0	937.50	91	5000.0	5120.37	102	5011.57	100	P
Silver	501.0	489.13	98	1250.0	1356.07	108	1327.71	106	P
Sodium	10097.0	9748.83	97	400000.0	396824.10	99	397718.40	99	P
Thallium	1028.0	1074.30	105	5000.0	5167.49	103	5086.88	102	P
Vanadium	501.0	518.65	104	2500.0	2615.95	105	2586.06	103	P
Zinc	1025.0	979.39	96	15000.0	15550.68	104	15154.63	101	P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AF1

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum				400000.0	390848.80	98	392015.10	98	P
Antimony				5000.0	5000.81	100	4997.00	100	P
Arsenic				5000.0	4998.76	100	4968.16	99	P
Barium				10000.0	10545.16	105	10582.41	106	P
Beryllium				500.0	501.30	100	496.94	99	P
Cadmium				2500.0	2567.56	103	2521.78	101	P
Calcium				400000.0	417704.90	104	419570.50	105	P
Chromium				15500.0	15945.94	103	15835.92	102	P
Cobalt				2500.0	2578.70	103	2550.03	102	P
Copper				15000.0	15538.88	104	15533.75	104	P
Iron				400000.0	394619.00	99	393984.50	98	P
Lead				25000.0	25875.83	104	25526.55	102	P
Magnesium				400000.0	394167.00	99	391633.60	98	P
Manganese				15000.0	15370.85	102	15353.74	102	P
Nickel				2500.0	2530.77	101	2496.91	100	P
Potassium				150000.0	156627.20	104	156348.60	104	P
Selenium				5000.0	4940.38	99	4914.89	98	P
Silver				1250.0	1316.07	105	1314.84	105	P
Sodium				400000.0	396851.10	99	403360.50	101	P
Thallium				5000.0	5044.35	101	4992.87	100	P
Vanadium				2500.0	2556.26	102	2562.85	103	P
Zinc				15000.0	14988.84	100	14994.97	100	P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AF1

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum				400000.0	393031.70	98			P
Antimony				5000.0	4970.44	99			P
Arsenic				5000.0	4943.11	99			P
Barium				10000.0	10744.39	107			P
Beryllium				500.0	489.76	98			P
Cadmium				2500.0	2520.82	101			P
Calcium				400000.0	424561.40	106			P
Chromium				15500.0	15715.90	101			P
Cobalt				2500.0	2567.55	103			P
Copper				15000.0	15564.41	104			P
Iron				400000.0	390304.20	98			P
Lead				25000.0	25846.84	103			P
Magnesium				400000.0	388780.70	97			P
Manganese				15000.0	15389.12	103			P
Nickel				2500.0	2492.82	100			P
Potassium				150000.0	156618.80	104			P
Selenium				5000.0	4849.72	97			P
Silver				1250.0	1317.51	105			P
Sodium				400000.0	404962.70	101			P
Thallium				5000.0	5018.86	100			P
Vanadium				2500.0	2551.22	102			P
Zinc				15000.0	15076.74	101			P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AF1

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony	994.0	905.05	91	5000.0	4982.24	100	4989.82	100	P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AF1

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony				5000.0	5090.21	102	5063.21	101	P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AF1

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony				5000.0	5109.19	102			P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

3-IN
BLANKS

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AF1

Preparation Blank Matrix (soil/water/wipe/filter): SOIL

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): MG/KG

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum	200.000	U	200.000	U	22.076	J	200.000	U	20.000	U	P
Antimony	60.000	U	60.000	U	60.000	U	60.000	U	6.000	U	P
Arsenic	10.000	U	10.000	U	10.000	U	10.000	U	1.000	U	P
Barium	200.000	U	200.000	U	200.000	U	200.000	U	20.000	U	P
Beryllium	5.000	U	-0.779	J	5.000	U	5.000	U	0.500	U	P
Cadmium	5.000	U	5.000	U	5.000	U	5.000	U	0.5000	U	P
Calcium	5000.000	U	5000.000	U	5000.000	U	5000.000	U	500.000	U	P
Chromium	10.000	U	10.000	U	10.000	U	10.000	U	1.000	U	P
Cobalt	50.000	U	50.000	U	50.000	U	50.000	U	5.000	U	P
Copper	25.000	U	25.000	U	4.261	J	25.000	U	2.500	U	P
Iron	100.000	U	100.000	U	19.865	J	13.442	J	10.000	U	P
Lead	10.000	U	10.000	U	10.000	U	10.000	U	1.000	U	P
Magnesium	5000.000	U	5000.000	U	5000.000	U	5000.000	U	500.000	U	P
Manganese	15.000	U	15.000	U	15.000	U	15.000	U	1.500	U	P
Nickel	40.000	U	40.000	U	40.000	U	40.000	U	4.000	U	P
Potassium	5000.000	U	298.589	J	122.050	J	212.243	J	12.015	J	P
Selenium	35.000	U	35.000	U	35.000	U	35.000	U	3.500	U	P
Silver	10.000	U	10.000	U	10.000	U	10.000	U	1.000	U	P
Sodium	5000.000	U	5000.000	U	5000.000	U	5000.000	U	500.000	U	P
Thallium	25.000	U	25.000	U	25.000	U	3.575	J	2.500	U	P
Vanadium	50.000	U	50.000	U	50.000	U	50.000	U	5.000	U	P
Zinc	60.000	U	60.000	U	3.819	J	60.000	U	6.000	U	P

3-IN
BLANKS

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AF1

Preparation Blank Matrix (soil/water/wipe/filter):

Preparation Blank Concentration Units (ug/L, ug, or mg/kg):

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum			200.000	U	200.000	U					P
Antimony			60.000	U	60.000	U					P
Arsenic			10.000	U	10.000	U					P
Barium			200.000	U	200.000	U					P
Beryllium			5.000	U	5.000	U					P
Cadmium			5.000	U	5.000	U					P
Calcium			5000.000	U	5000.000	U					P
Chromium			10.000	U	10.000	U					P
Cobalt			50.000	U	50.000	U					P
Copper			25.000	U	25.000	U					P
Iron			12.646	J	100.000	U					P
Lead			10.000	U	10.000	U					P
Magnesium			5000.000	U	5000.000	U					P
Manganese			15.000	U	15.000	U					P
Nickel			40.000	U	40.000	U					P
Potassium			303.009	J	263.613	J					P
Selenium			35.000	U	35.000	U					P
Silver			10.000	U	10.000	U					P
Sodium			5000.000	U	5000.000	U					P
Thallium			2.152	J	25.000	U					P
Vanadium			50.000	U	50.000	U					P
Zinc			60.000	U	60.000	U					P

3-IN
BLANKS

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AF1

Preparation Blank Matrix (soil/water/wipe/filter):

Preparation Blank Concentration Units (ug/L, ug, or mg/kg):

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony	60.000	U	60.000	U	60.000	U	60.000	U			P

3-IN
BLANKS

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: _____ SDG No.: MC0AF1

Preparation Blank Matrix (soil/water/wipe/filter): _____

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): _____

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony			60.000	U	60.000	U					P

US EPA-CLP

4A-IN

ICP-AES INTERFERENCE CHECK SAMPLE

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AF1

ICP-AES Instrument ID: P5 ICS Source: EPA-1211/0710

Concentration Units: ug/L

Analyte	True		Found			
	Sol.A	Sol.AB	Sol.A	%R	Sol. AB	%R
Aluminum	254900.0	246800.0	241000	95	243000	98
Antimony	0.0	618.0	4.1	0	562	91
Arsenic	0.0	104.0	2.1	0	94.9	91
Barium	6.0	537.0	7.1	118	531	99
Beryllium	0.0	495.0	0.77	0	511	103
Cadmium	1.0	972.0	1.3	130	1020	105
Calcium	244500.0	234900.0	249000	102	251000	107
Chromium	52.0	542.0	60.8	117	594	110
Cobalt	0.0	476.0	0.11	0	503	106
Copper	2.0	511.0	4.0	200	513	100
Iron	100700.0	99320.0	102000	101	103000	104
Lead	0.0	49.0	-0.50	0	46.8	96
Magnesium	255400.0	248000.0	257000	101	259000	104
Manganese	7.0	507.0	14.3	204	538	106
Nickel	2.0	954.0	1.2	60	1010	106
Potassium	0.0	0.0	-475	0	-957	
Selenium	0.0	46.0	16.1	0	64.8	141
Silver	0.0	201.0	-2.4	0	200	100
Sodium	0.0	0.0	156	0	57.0	
Thallium	0.0	108.0	-0.89	0	98.5	91
Vanadium	0.0	491.0	0.79	0	510	104
Zinc	0.0	952.0	22.2	0	982	103

US EPA-CLP

4A-IN

ICP-AES INTERFERENCE CHECK SAMPLE

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AF1

ICP-AES Instrument ID: P5 ICS Source: EPA-1211/0710

Concentration Units: ug/L

Analyte	True		Found			
	Sol.A	Sol.AB	Sol.A	%R	Sol. AB	%R
Aluminum	254900.0	246800.0	245000	96	252000	102
Antimony	0.0	618.0	1.4	0	574	93
Arsenic	0.0	104.0	3.3	0	97.1	93
Barium	6.0	537.0	7.2	120	534	99
Beryllium	0.0	495.0	1.3	0	534	108
Cadmium	1.0	972.0	-0.47	-47	1040	107
Calcium	244500.0	234900.0	251000	103	257000	109
Chromium	52.0	542.0	60.8	117	618	114
Cobalt	0.0	476.0	-0.027	0	510	107
Copper	2.0	511.0	-1.4	-70	517	101
Iron	100700.0	99320.0	103000	102	106000	107
Lead	0.0	49.0	-1.7	0	49.2	100
Magnesium	255400.0	248000.0	260000	102	267000	108
Manganese	7.0	507.0	14.4	206	550	108
Nickel	2.0	954.0	3.2	160	1030	108
Potassium	0.0	0.0	-110	0	-268	
Selenium	0.0	46.0	11.3	0	61.4	133
Silver	0.0	201.0	-0.016	0	205	102
Sodium	0.0	0.0	221	0	3.7	
Thallium	0.0	108.0	-0.30	0	102	94
Vanadium	0.0	491.0	1.2	0	525	107
Zinc	0.0	952.0	18.9	0	1030	108

US EPA-CLP

5A-IN

MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MC0AF7S

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AF1

Matrix: SOIL

% Solids for Sample: 53.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony	75 - 125	23.8415		0.7884	J	34.11	68	N	P
Arsenic		120.7277		116.0026		13.64	35		P
Barium	75 - 125	848.8797		90.8459		682.11	111		P
Beryllium	75 - 125	17.2554		0.4769	J	17.05	98		P
Cadmium	75 - 125	16.9287		0.3655	J	17.05	97		P
Chromium	75 - 125	220.3975		150.5755		68.21	102		P
Cobalt	75 - 125	176.5351		5.0153	J	170.53	101		P
Copper	75 - 125	180.2301		90.4021		85.26	105		P
Lead	75 - 125	29.5125		22.4334		6.82	104		P
Manganese	75 - 125	665.6997		467.1108		170.53	116		P
Nickel	75 - 125	175.9753		5.7249	J	170.53	100		P
Selenium	75 - 125	17.3563		2.6240	J	17.05	86		P
Silver	75 - 125	16.1390		1.4870	U	17.05	95		P
Thallium	75 - 125	15.3556		3.7175	U	17.05	90		P
Vanadium	75 - 125	199.9883		17.8481		170.53	107		P
Zinc	75 - 125	264.3530		98.2592		170.53	97		P

Comments:

5B-IN

POST-DIGESTION SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MC0AF7A

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AF1

Matrix: SOIL

Concentration Units: (ug/L or mg/Kg dry weight): mg/kg

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony		16.44		0.79	J	17.8	87.9		P

Comments:

6-IN

DUPLICATES

EPA SAMPLE NO.

MC0AF7D

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AF1

Matrix: SOIL

% Solids for Sample: 53.8

Concentration Units:(ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		6846.6400		6887.2620		1		P
Antimony		0.7884	J	1.0320	J	27		P
Arsenic		116.0026		115.6259		0		P
Barium	29.5038	90.8459		91.2951		0		P
Beryllium		0.4769	J	0.4504	J	6		P
Cadmium		0.3655	J	0.4392	J	18		P
Calcium		4114.8540		4140.6020		1		P
Chromium		150.5755		148.9967		1		P
Cobalt		5.0153	J	5.0700	J	1		P
Copper		90.4021		91.1377		1		P
Iron		13374.9700		13411.2400		0		P
Lead		22.4334		23.2334		4		P
Magnesium	737.5937	786.1226		801.3494		2		P
Manganese		467.1108		469.4642		1		P
Nickel		5.7249	J	5.7901	J	1		P
Potassium		26.2108	J	50.7637	J	64		P
Selenium		2.6240	J	2.6192	J	0		P
Silver		1.4870	U	1.4752	U			P
Sodium		107.0635	J	103.5387	J	3		P
Thallium		3.7175	U	3.6880	U			P
Vanadium	7.3759	17.8481		17.6298		1		P
Zinc		98.2592		98.5581		0		P

7 - IN
LABORATORY CONTROL SAMPLE

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AF1

Analyte	Aqueous/Water (ug/L), Soil Sediment (mg/Kg), Wipe/Filter (ug)		
	True	Found	%R
Aluminum	40.0	38.3	96
Antimony	12.0	10.97	91
Arsenic	2.0	1.64	82
Barium	40.0	42.82	107
Beryllium	1.0	1.010	101
Cadmium	1.0	0.9926	99
Calcium	1000.0	1075.8	108
Chromium	2.0	2.107	105
Cobalt	10.0	9.790	98
Copper	5.0	5.40	108
Iron	20.0	24.5	122
Lead	2.0	1.98	99
Magnesium	1000.0	1001.0	100
Manganese	3.0	3.34	111
Nickel	8.0	7.89	99
Potassium	1000.0	985.1	99
Selenium	7.0	6.48	93
Silver	2.0	1.928	96
Sodium	1000.0	1008.4	101
Thallium	5.0	5.10	102
Vanadium	10.0	10.65	106
Zinc	12.0	11.7	98

8-IN

ICP-AES and ICP-MS SERIAL DILUTIONS

EPA SAMPLE NO.

MC0AF7L

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref.No.: SDG No.: MC0AF1

Matrix: SOIL

Concentration Units (ug/L or mg/kg dry weight): mg/kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	6846.64		7023.92		3		P
Antimony	0.79	J	44.61	U	100		P
Arsenic	116.00		118.01		2		P
Barium	90.85		92.97	J	2		P
Beryllium	0.48	J	3.72	U	100		P
Cadmium	0.37	J	0.46	J	24.32		P
Calcium	4114.85		4251.73		3		P
Chromium	150.58		152.84		2		P
Cobalt	5.02	J	5.24	J	4		P
Copper	90.40		94.43		4		P
Iron	13374.97		13891.96		4		P
Lead	22.43		23.85		6		P
Magnesium	786.12		829.98	J	6		P
Manganese	467.11		483.14		3		P
Nickel	5.72	J	6.23	J	9		P
Potassium	26.21	J	3717.47	U	100		P
Selenium	2.62	J	3.10	J	18		P
Silver	1.49	U	7.43	U			P
Sodium	107.06	J	3717.47	U	100		P
Thallium	3.72	U	18.59	U			P
Vanadium	17.85		17.59	J	1		P
Zinc	98.26		101.41		3		P

US EPA-CLP

9-IN

METHOD DETECTION LIMITS (MDL) (ANNUALLY)

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AF1

Instrument Type: P Instrument ID: P5 Date: 01/09/2014

Preparation Method: 200.7

Concentration Units (ug/L, mg/kg, or ug): UG/L

Analyte	Wavelength/Mass	MDL
Aluminum	396.10	15.4
Antimony	206.83	2.7
Arsenic	189.04	2.1
Barium	493.41	2.8
Beryllium	234.80	0.64
Cadmium	214.40	0.18
Calcium	373.60	59.9
Chromium	267.72	0.51
Cobalt	228.62	0.86
Copper	324.75	3.4
Iron	259.80	10.7
Lead	220.35	1.6
Magnesium	279.08	63.2
Manganese	257.61	0.75
Nickel	231.60	1.3
Potassium	769.80	105
Selenium	196.02	2.8
Silver	328.07	0.38
Sodium	818.30	252
Thallium	190.86	2.0
Vanadium	292.40	3.7
Zinc	213.80	3.5

Comments:

9-IN

METHOD DETECTION LIMITS (MDL) (ANNUALLY)

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AF1

Instrument Type: P Instrument ID: P5 Date: 01/09/2014

Preparation Method: 3050B

Concentration Units (ug/L, mg/kg, or ug): MG/KG

Analyte	Wavelength/Mass	MDL
Aluminum	396.10	1.8
Antimony	206.83	0.16
Arsenic	189.04	0.24
Barium	493.41	0.37
Beryllium	234.80	0.074
Cadmium	214.40	0.0078
Calcium	373.60	8.6
Chromium	267.72	0.069
Cobalt	228.62	0.097
Copper	324.75	0.29
Iron	259.80	1.7
Lead	220.35	0.16
Magnesium	279.08	3.7
Manganese	257.61	0.13
Nickel	231.60	0.12
Potassium	769.80	10.8
Selenium	196.02	0.16
Silver	328.07	0.050
Sodium	818.30	24.2
Thallium	190.86	0.25
Vanadium	292.40	0.59
Zinc	213.80	1.1

Comments:

US EPA-CLP

10A-IN

ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref.No.: SDG No.: MC0AF1

ICP-AES Instrument ID: P5 Date: 01/22/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	Co
Aluminum	396.152	0.000000	0.003712	0.000000	0.000000	0.000000
Antimony	206.833	0.000000	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000000	-0.000095	0.000000	0.000000
Barium	493.409	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	234.861	0.000000	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	0.000000	0.000000	0.000032	0.000000	0.000000
Calcium	373.690	0.000000	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000000
Cobalt	228.616	0.000000	0.000000	0.000000	0.000000	0.000000
Copper	324.754	0.000000	0.000000	-0.000123	0.000000	-0.000740
Iron	259.837	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.353	-0.000072	0.000000	0.000030	0.000000	0.000000
Magnesium	279.079	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.610	0.000000	0.000000	0.000000	0.000000	0.000000
Nickel	231.604	0.000000	0.000000	0.000000	0.000000	-0.000294
Potassium	769.896	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.090	0.000000	0.000000	-0.000268	0.000000	-0.000478
Silver	328.068	0.000000	0.000000	-0.000054	0.000000	0.000000
Sodium	818.326	0.000000	0.000000	0.000000	0.000000	0.000000
Thallium	190.856	0.000000	0.000000	-0.000049	0.000000	0.002115
Vanadium	292.402	0.000000	0.000000	0.000000	0.000000	0.000000
Zinc	213.856	0.000000	0.000000	0.000063	0.000000	0.000000

Comments:

US EPA-CLP

10B-IN

ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AF1

ICP-AES Instrument ID: P5 Date: 01/22/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Cr	Cu	Mn	Mo	Ni
Aluminum	396.152	0.000000	0.000000	0.000000	0.038320	0.001814
Antimony	206.833	0.009638	0.000000	0.000000	-0.003330	-0.000475
Arsenic	189.042	0.000283	0.000000	0.000000	0.000345	0.000000
Barium	493.409	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	234.861	0.000000	0.000000	0.000000	-0.000170	0.000000
Cadmium	214.438	0.000000	0.000000	0.000000	0.000000	0.000000
Calcium	373.690	0.000000	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000276	0.000000	0.000000
Cobalt	228.616	0.000000	0.000000	0.000000	-0.001000	0.000000
Copper	324.754	0.000000	0.000000	0.000000	0.000374	0.000000
Iron	259.837	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.353	0.000000	0.000385	0.000087	-0.001220	0.000149
Magnesium	279.079	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.610	0.000000	0.000000	0.000000	0.000000	0.000000
Nickel	231.604	0.000000	0.000000	0.000000	0.000000	0.000000
Potassium	769.896	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.090	0.000000	0.000000	0.000550	0.000223	0.000000
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.000000
Sodium	818.326	0.000000	0.000000	0.000000	0.000000	0.000000
Thallium	190.856	0.000220	0.000000	0.000849	-0.002166	0.000000
Vanadium	292.402	-0.002627	0.000000	-0.000280	-0.008872	0.000000
Zinc	213.856	0.000000	0.000240	0.000000	0.000000	0.004587

Comments:

US EPA-CLP

10B-IN

ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AF1

ICP-AES Instrument ID: P5 Date: 01/22/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Pb	Ti	V	Zn
Aluminum	396.152	0.000000	0.000000	0.000000	0.000000
Antimony	206.833	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000000	0.000000	0.000000
Barium	493.409	0.000000	0.000000	0.000000	0.000000
Beryllium	234.861	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	0.000000	0.000000	0.000000	0.000000
Calcium	373.690	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000
Cobalt	228.616	0.000000	0.001813	0.000000	0.000000
Copper	324.754	0.000000	-0.000282	-0.000234	0.000000
Iron	259.837	0.000000	0.000000	0.000000	0.000000
Lead	220.353	0.000000	0.000000	-0.001249	0.000000
Magnesium	279.079	0.000000	0.000000	0.000000	0.000000
Manganese	257.610	0.000000	0.000000	0.000000	0.000000
Nickel	231.604	0.000000	0.000000	0.000000	0.000000
Potassium	769.896	0.000000	0.000000	0.000000	0.000000
Selenium	196.090	0.000000	0.000000	0.000000	0.000000
Silver	328.068	0.000000	0.000000	-0.001258	0.000000
Sodium	818.326	0.000000	0.000000	0.000000	0.000000
Thallium	190.856	0.000000	-0.000580	-0.001321	0.000000
Vanadium	292.402	0.000000	0.000568	0.000000	0.000000
Zinc	213.856	0.000000	0.000000	0.000000	0.000000

Comments:

US EPA-CLP

12-IN

PREPARATION LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AF1

Preparation Method: 3050B

EPA Sample No.	Preparation Date	Initial Weight/Volume (g) or (mL)	Final Volume (mL)
PBS01	09/17/2014	1.00	100
LCS01	09/17/2014	1.00	100
MC0AF1	09/17/2014	1.27	100
MC0AF2	09/17/2014	1.34	100
MC0AF3	09/17/2014	1.39	100
MC0AF4	09/17/2014	1.37	100
MC0AF5	09/17/2014	1.36	100
MC0AF6	09/17/2014	1.47	100
MC0AF7	09/17/2014	1.25	100
MC0AF7D	09/17/2014	1.26	100
MC0AF7S	09/17/2014	1.09	100
MC0AF8	09/17/2014	1.44	100
MC0AF9	09/17/2014	1.42	100
MC0AG0	09/17/2014	1.35	100
MC0AG1	09/17/2014	1.34	100
MC0AG2	09/17/2014	1.45	100
MC0AG3	09/17/2014	1.33	100

US EPA-CLP

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No _____ SDG No.: MC0AF1

Instrument ID: P5 Analysis Method: P

Start Date: 09/18/2014 End Date: 09/19/2014

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
S0	1.0	1713	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1717	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1721	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1725	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1729	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1733	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1737	X						X				X		X							X							
ICV53	1.0	1751	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICB53	1.0	1755	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSA53	1.0	1759	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSAB53	1.0	1803	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV54	1.0	1807	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB54	1.0	1811	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	1.0	1815																											
ZZZZZZ	1.0	1819																											
ZZZZZZ	1.0	1823																											
ZZZZZZ	1.0	1827																											
ZZZZZZ	1.0	1831																											
ZZZZZZ	1.0	1836																											
ZZZZZZ	1.0	1840																											
ZZZZZZ	1.0	1844																											
ZZZZZZ	1.0	1848																											
ZZZZZZ	1.0	1851																											
ZZZZZZ	1.0	1855																											
ZZZZZZ	1.0	1859																											
ZZZZZZ	1.0	1904																											
ZZZZZZ	1.0	1908																											
ZZZZZZ	1.0	1912																											
ZZZZZZ	1.0	1919																											
ZZZZZZ	1.0	1923																											
ZZZZZZ	1.0	1927																											
ZZZZZZ	1.0	1931																											
ZZZZZZ	5.0	1935																											
CCV55	1.0	1939	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB55	1.0	1943	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	1.0	1947																											
ZZZZZZ	1.0	1951																											

US EPA-CLP

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No _____ SDG No.: MC0AF1

Instrument ID: P5 Analysis Method: P

Start Date: 09/18/2014 End Date: 09/19/2014

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ZZZZZZ	1.0	1955																											
ZZZZZZ	1.0	1959																											
ZZZZZZ	1.0	2003																											
ZZZZZZ	1.0	2007																											
ZZZZZZ	1.0	2011																											
ZZZZZZ	10	2015																											
ZZZZZZ	10	2019																											
ZZZZZZ	10	2023																											
ZZZZZZ	50	2027																											
ZZZZZZ	1.0	2031																											
ZZZZZZ	1.0	2035																											
ZZZZZZ	1.0	2039																											
ZZZZZZ	1.0	2043																											
ZZZZZZ	1.0	2048																											
ZZZZZZ	1.0	2052																											
ZZZZZZ	1.0	2056																											
ZZZZZZ	1.0	2100																											
ZZZZZZ	1.0	2104																											
CCV56	1.0	2108	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB56	1.0	2112	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	5.0	2116																											
ZZZZZZ	1.0	2120																											
ZZZZZZ	1.0	2124																											
ZZZZZZ	1.0	2129																											
ZZZZZZ	1.0	2133																											
ZZZZZZ	1.0	2137																											
PBS01	1.0	2141	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
LCS01	1.0	2145	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	1.0	2149																											
ZZZZZZ	1.0	2153																											
ZZZZZZ	1.0	2157																											
ZZZZZZ	5.0	2201																											
ZZZZZZ	1.0	2205																											
ZZZZZZ	1.0	2209																											
ZZZZZZ	1.0	2213																											
ZZZZZZ	1.0	2217																											
ZZZZZZ	1.0	2221																											
MC0AF1	1.0	2225	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				

US EPA-CLP

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No _____ SDG No.: MC0AF1

Instrument ID: P5 Analysis Method: P

Start Date: 09/18/2014 End Date: 09/19/2014

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
MC0AF2	1.0	2229	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AF3	1.0	2233	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCV57	1.0	2237	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB57	1.0	2241	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AF4	1.0	2245	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AF5	1.0	2249	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AF6	1.0	2253	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AF7	1.0	2257	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AF7D	1.0	2301	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AF7S	1.0	2305		X	X	X	X	X		X	X	X		X		X		X		X	X		X	X	X			
MC0AF7L	5.0	2309	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AF8	1.0	2313	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AF9	1.0	2317	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AG0	1.0	2321	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AG1	1.0	2325	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AG2	1.0	2329	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AG3	1.0	2333	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	2337																											
ZZZZZZ	1.0	2341																											
ZZZZZZ	1.0	2345																											
ZZZZZZ	1.0	2349																											
ZZZZZZ	1.0	2353																											
ZZZZZZ	1.0	2357																											
ZZZZZZ	1.0	0001																											
CCV58	1.0	0005	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB58	1.0	0009	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			

US EPA-CLP

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No _____ SDG No.: MC0AF1

Instrument ID: P5 Analysis Method: P

Start Date: 09/19/2014 End Date: 09/19/2014

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
S0	1.0	1212		X																									
S	1.0	1216		X																									
S	1.0	1220		X																									
S	1.0	1224		X																									
S	1.0	1228		X																									
S	1.0	1232		X																									
S	1.0	1237																											
ICV54	1.0	1245		X																									
ICB54	1.0	1249		X																									
ICSA54	1.0	1258	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSAB54	1.0	1302	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV60	1.0	1306		X																									
CCB60	1.0	1310		X																									
ZZZZZZ	1.0	1314																											
ZZZZZZ	1.0	1318																											
ZZZZZZ	1.0	1322																											
ZZZZZZ	1.0	1327																											
ZZZZZZ	1.0	1331																											
ZZZZZZ	1.0	1335																											
ZZZZZZ	1.0	1339																											
ZZZZZZ	1.0	1343																											
ZZZZZZ	1.0	1347																											
ZZZZZZ	1.0	1351																											
ZZZZZZ	1.0	1355																											
ZZZZZZ	1.0	1359																											
ZZZZZZ	1.0	1403																											
ZZZZZZ	1.0	1408																											
ZZZZZZ	1.0	1412																											
ZZZZZZ	1.0	1416																											
ZZZZZZ	1.0	1420																											
ZZZZZZ	1.0	1424																											
ZZZZZZ	1.0	1428																											
CCV61	1.0	1432		X																									
CCB61	1.0	1436		X																									
ZZZZZZ	1.0	1456																											
ZZZZZZ	1.0	1500																											
ZZZZZZ	1.0	1505																											

US EPA-CLP

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No _____ SDG No.: MC0AF1

Instrument ID: P5 Analysis Method: P

Start Date: 09/19/2014 End Date: 09/19/2014

EPA Sample NO.	D/F	Time	Analytes																											
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN				
ZZZZZZ	1.0	1509																												
ZZZZZZ	1.0	1513																												
ZZZZZZ	1.0	1517																												
ZZZZZZ	1.0	1521																												
ZZZZZZ	1.0	1525																												
ZZZZZZ	1.0	1529																												
ZZZZZZ	1.0	1533																												
ZZZZZZ	1.0	1537																												
ZZZZZZ	1.0	1541																												
ZZZZZZ	5.0	1545																												
ZZZZZZ	1.0	1549																												
ZZZZZZ	1.0	1553																												
ZZZZZZ	1.0	1557																												
CCV62	1.0	1601		X																										
CCB62	1.0	1605		X																										
ZZZZZZ	1.0	1609																												
ZZZZZZ	1.0	1613																												
ZZZZZZ	1.0	1617																												
ZZZZZZ	10	1635																												
ZZZZZZ	1.0	1638																												
ZZZZZZ	1.0	1643																												
ZZZZZZ	1.0	1647																												
ZZZZZZ	1.0	1651																												
ZZZZZZ	1.0	1655																												
ZZZZZZ	1.0	1659																												
ZZZZZZ	1.0	1703																												
ZZZZZZ	1.0	1707																												
ZZZZZZ	5.0	1711																												
ZZZZZZ	1.0	1715																												
ZZZZZZ	1.0	1719																												
ZZZZZZ	1.0	1723																												
ZZZZZZ	1.0	1727																												
ZZZZZZ	1.0	1731																												
ZZZZZZ	1.0	1735																												
ZZZZZZ	1.0	1739																												
ZZZZZZ	1.0	1743																												
ZZZZZZ	1.0	1747																												
CCV63	1.0	1756		X																										

US EPA-CLP

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AF1

Instrument ID: P5 Analysis Method: P

Start Date: 09/19/2014 End Date: 09/19/2014

EPA Sample NO.	D/F	Time	Analytes																												
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
CCB63	1.0	1800		X																											
ZZZZZZ	1.0	1805																													
ZZZZZZ	1.0	1809																													
ZZZZZZ	1.0	1813																													
ZZZZZZ	1.0	1817																													
ZZZZZZ	1.0	1821																													
ZZZZZZ	1.0	1825																													
ZZZZZZ	1.0	1829																													
ZZZZZZ	1.0	1833																													
ZZZZZZ	1.0	1837																													
ZZZZZZ	1.0	1841																													
MC0AF7A	1.0	1845		X																											
ZZZZZZ	10	1849																													
ZZZZZZ	10	1853																													
ZZZZZZ	10	1857																													
ZZZZZZ	1.0	1901																													
ZZZZZZ	1.0	1905																													
ZZZZZZ	1.0	1910																													
ZZZZZZ	1.0	1914																													
ZZZZZZ	1.0	1918																													
ZZZZZZ	5.0	1922																													
CCV64	1.0	1926		X																											
CCB64	1.0	1930		X																											

US EPA-CLP

16-IN

INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AF1

Instrument ID: P5 **Start Date:** 09/18/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	0.00	0.040	0	200	173	13	38750	37382	4
Antimony	0.00	0.0100	0	60.0	54	11	1250	1135	9
Arsenic	0.00	0.00000	0	10.0	7.0	30	1250	1142	9
Barium	0.00	-0.0100	0	200	201	-1	2500	2533	-1
Beryllium	0.00	0.00000	0	5.00	4.4	13	125	126	-1
Cadmium	0.00	0.00000	0	5.00	4.8	5	625	624	0
Calcium	0.00	-0.63	0	5000	5096	-2	62500	65929	-5
Chromium	0.00	0.00000	0	10.0	10	-1	3875	4050	-5
Cobalt	0.00	0.00000	0	50.0	46	7	625	613	2
Copper	0.00	0.00000	0	25.0	27	-9	3750	3744	0
Iron	0.00	-0.020	0	100	103	-3	37500	39952	-7
Lead	0.00	0.00000	0	10.0	9.6	4	6250	6159	1
Magnesium	0.00	0.080	0	5000	4906	2	62500	62643	0
Manganese	0.00	0.00000	0	15.0	16	-8	3750	3947	-5
Nickel	0.00	0.00000	0	40.0	38	5	625	618	1
Potassium	0.00	0.32	0	5000	4836	3	37500	36490	3
Selenium	0.00	0.0100	0	35.0	33	7	1250	1154	8
Silver	0.00	0.00000	0	10.0	9.3	7	313	293	6
Sodium	0.00	0.85	0	5000	4709	6	37500	36196	3
Thallium	0.00	0.00000	0	25.0	25	2	1250	1276	-2
Vanadium	0.00	0.00000	0	50.0	47	5	625	637	-2
Zinc	0.00	0.00000	0	60.0	61	-2	3750	3663	2

Control Limits ± 30

US EPA-CLP

16-IN

INITIAL CALIBRATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AF1

Instrument ID: P5 Start Date: 09/19/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Antimony	0.00	0.0100	0	60.0	54	10	1250	1158	7

Control Limits ± 30

US EPA-CLP

16-IN

INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AF1

Instrument ID: P5 **Start Date:** 09/18/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	77500	75857	2	155000	152750	1	310000	308340	1
Antimony	2500	2377	5	5000	4879	2	10000	10366	-4
Arsenic	2500	2394	4	5000	4892	2	10000	10326	-3
Barium	5000	5108	-2	10000	9911	1	20000	19947	0
Beryllium	250	253	-1	500	503	-1	1000	994	1
Cadmium	1250	1283	-3	2500	2531	-1	5000	4937	1
Calcium	125000	131180	-5	250000	256530	-3	500000	496200	1
Chromium	7750	8163	-5	15500	15808	-2	31000	30103	3
Cobalt	1250	1260	-1	2500	2510	0	5000	4996	0
Copper	7500	7538	-1	15000	14910	1	30000	30058	0
Iron	75000	79337	-6	150000	154260	-3	300000	298680	0
Lead	12500	12619	-1	25000	25105	0	50000	49868	0
Magnesium	125000	125940	-1	250000	249630	0	500000	493720	1
Manganese	7500	7785	-4	15000	15101	-1	30000	29416	2
Nickel	1250	1271	-2	2500	2517	-1	5000	4973	1
Potassium	75000	74495	1	150000	148900	1	300000	302780	-1
Selenium	2500	2427	3	5000	4911	2	10000	10263	-3
Silver	625	603	3	1250	1221	2	2500	2572	-3
Sodium	75000	72620	3	150000	144280	4	300000	290350	3
Thallium	2500	2581	-3	5000	5036	-1	10000	9858	1
Vanadium	1250	1281	-3	2500	2513	-1	5000	4946	1
Zinc	7500	7438	1	15000	14732	2	30000	30415	-1

US EPA-CLP

16-IN

INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AF1

Instrument ID: P5 **Start Date:** 09/19/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Antimony	2500	2421	3	5000	4886	2	10000	10291	-3

Control Limits ± 30

US EPA-CLP

16-IN

INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AF1

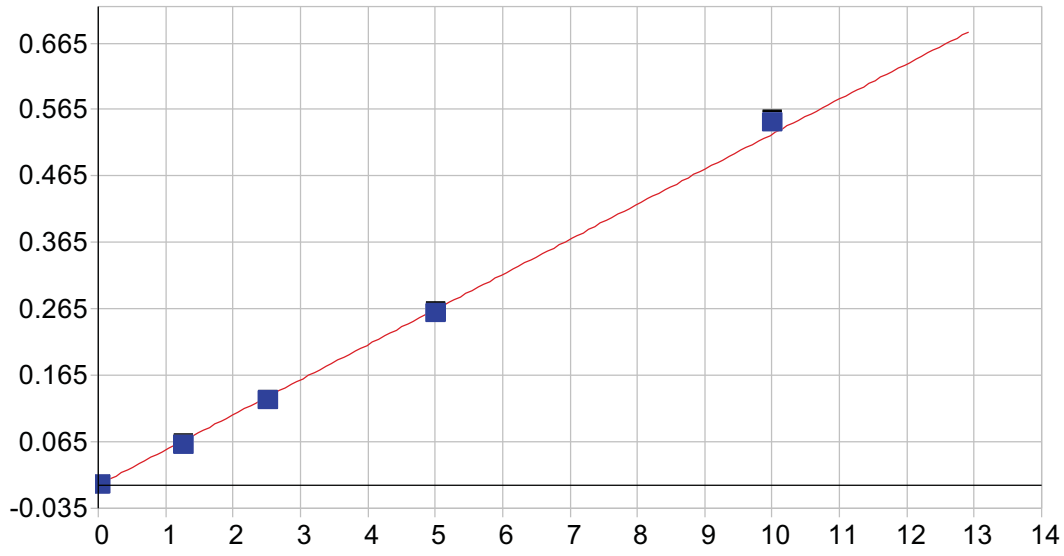
Instrument ID: P5 **Start Date:** 09/18/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	800000	806930	-1			0			0
Antimony			0			0			0
Arsenic			0			0			0
Barium			0			0			0
Beryllium			0			0			0
Cadmium			0			0			0
Calcium	800000	787560	2			0			0
Chromium			0			0			0
Cobalt			0			0			0
Copper			0			0			0
Iron	800000	790270	1			0			0
Lead			0			0			0
Magnesium	800000	805670	-1			0			0
Manganese			0			0			0
Nickel			0			0			0
Potassium			0			0			0
Selenium			0			0			0
Silver			0			0			0
Sodium	800000	819340	-2			0			0
Thallium			0			0			0
Vanadium			0			0			0
Zinc			0			0			0

Control Limits ± 30

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

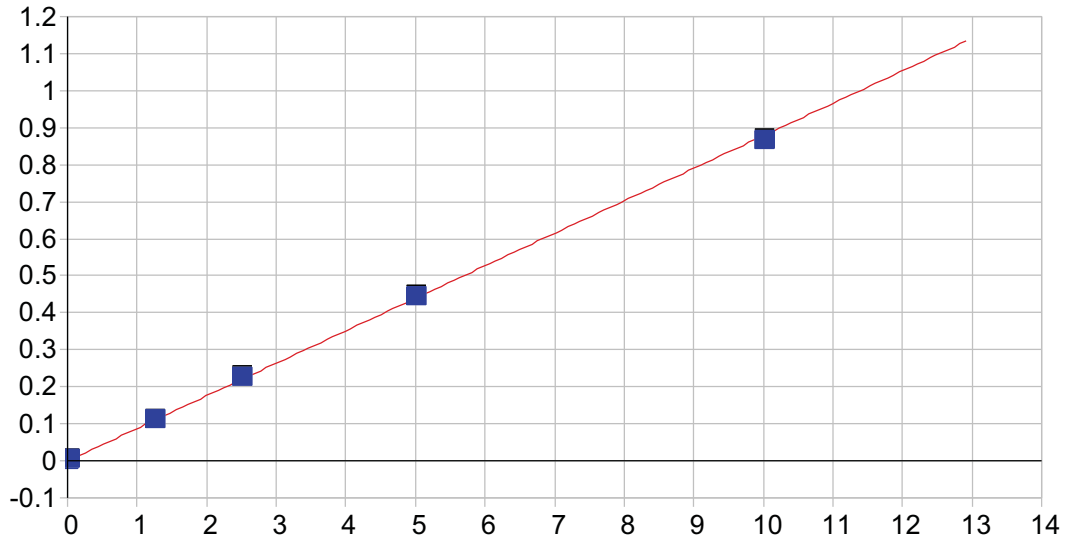


As 189.042 {479}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	-0.000061			Re-Slope:	1.000000	
A1 (Gain):	0.052809			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.999257		Status:	OK.		
Std Error of Est:	0.000034					
Predicted MDL:	0.001746					
Predicted MQL:	0.005820					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00006	.000	1
S1	.01000	.00702	-.003	-29.8	.00031	.000	1
S2	1.2500	1.1413	-.109	-8.70	.06010	.000	1
S3	2.5000	2.3938	-.106	-4.25	.12614	.001	1
S4	5.0000	4.8920	-.108	-2.16	.25785	.002	1
S5	10.000	10.326	.326	3.26	.54438	.002	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



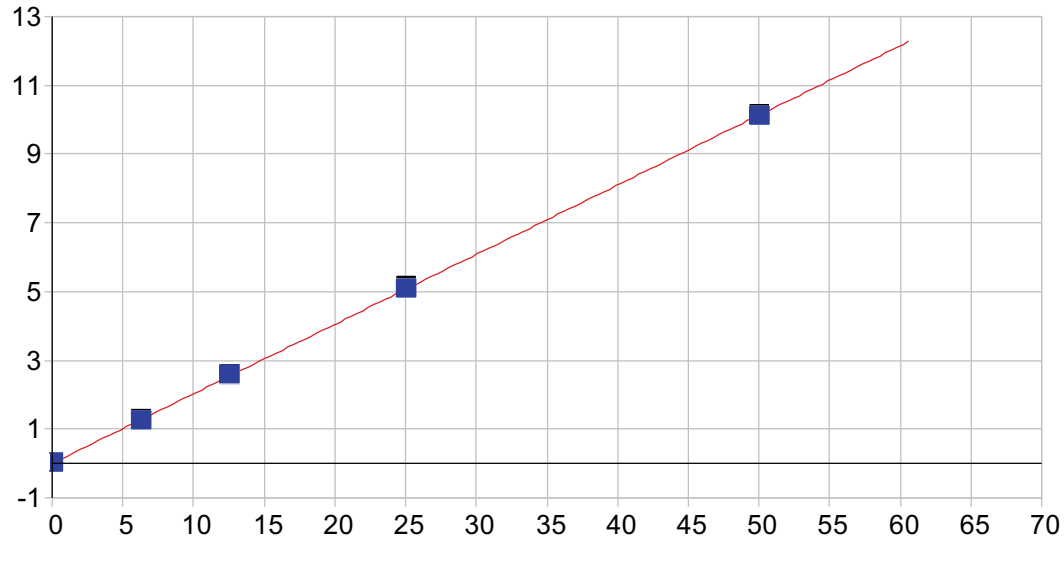
Tl 190.856 {477}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000111	Re-Slope:	1.000000
A1 (Gain):	0.087799	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999854	Status:	OK.
Std Error of Est:	0.000040		
Predicted MDL:	0.001160		
Predicted MQL:	0.003867		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00011	.000	1
S1	.02500	.02460	.000	-1.61	.00205	.000	1
S2	1.2500	1.2761	.026	2.08	.11186	.001	1
S3	2.5000	2.5809	.081	3.24	.22636	.003	1
S4	5.0000	5.0361	.036	.723	.44180	.004	1
S5	10.000	9.8573	-.143	-1.43	.86484	.003	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



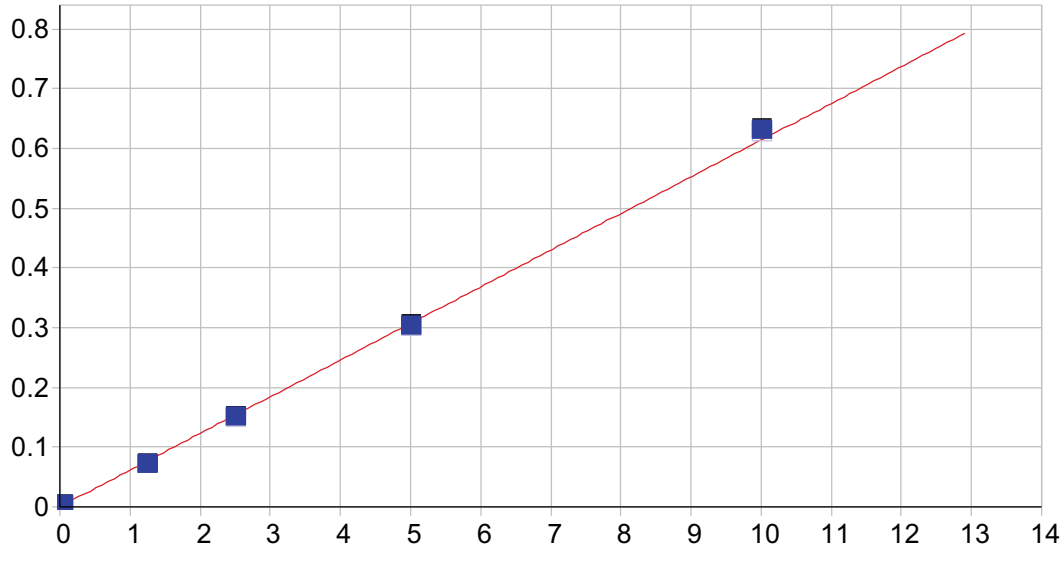
Pb 220.353 {453}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000159	Re-Slope:	1.000000
A1 (Gain):	0.202581	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999983	Status:	OK.
Std Error of Est:	0.000045		
Predicted MDL:	0.001132		
Predicted MQL:	0.003774		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00016	.000	1
S1	.01000	.00955	.000	-4.45	.00176	.000	1
S2	6.2500	6.1587	-.091	-1.46	1.2471	.006	1
S3	12.500	12.619	.119	.952	2.5554	.029	1
S4	25.000	25.105	.105	.421	5.0840	.040	1
S5	50.000	49.868	-.132	-.265	10.099	.027	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



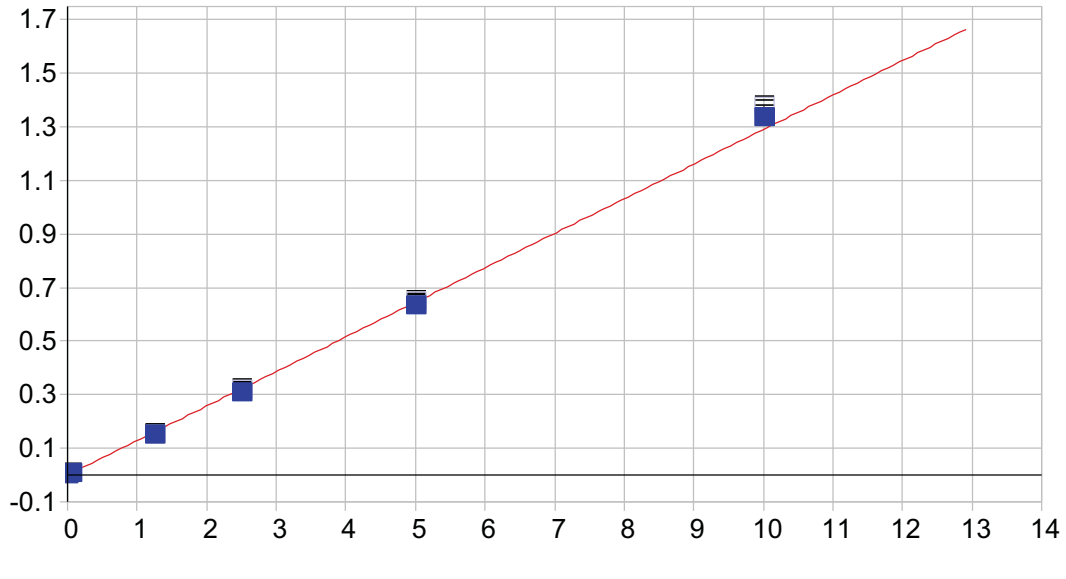
Se 196.090 {472}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000135	Re-Slope:	1.000000
A1 (Gain):	0.061391	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999506	Status:	OK.
Std Error of Est:	0.000060		
Predicted MDL:	0.002103		
Predicted MQL:	0.007009		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00014	.000	1
S1	.03500	.03250	-.003	-7.15	.00213	.000	1
S2	1.2500	1.1537	-.096	-7.70	.07047	.000	1
S3	2.5000	2.4264	-.074	-2.94	.14811	.001	1
S4	5.0000	4.9094	-.091	-1.81	.29956	.003	1
S5	10.000	10.263	.263	2.63	.62626	.002	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



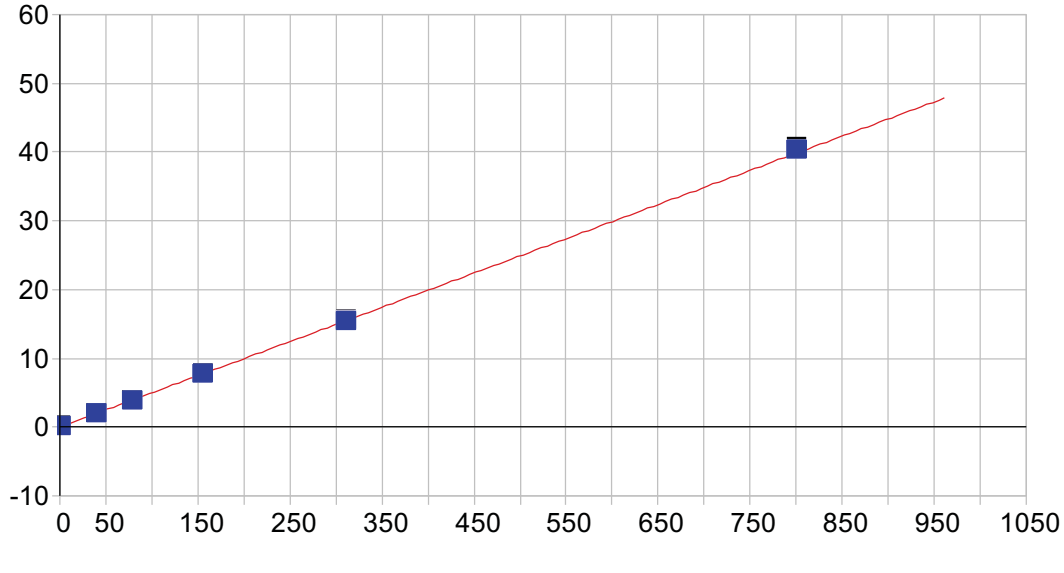
Sb 206.833 {463}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000021	Re-Slope:	1.000000
A1 (Gain):	0.129012	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999187	Status:	OK.
Std Error of Est:	0.000220		
Predicted MDL:	0.001224		
Predicted MQL:	0.004080		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00002	.000	1
S1	.06000	.05361	-.006	-10.6	.00694	.000	1
S2	1.2500	1.1363	-.114	-9.10	.15086	.000	1
S3	2.5000	2.3808	-.119	-4.77	.31565	.003	1
S4	5.0000	4.8820	-.118	-2.36	.64683	.005	1
S5	10.000	10.357	.357	3.57	1.3702	.006	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



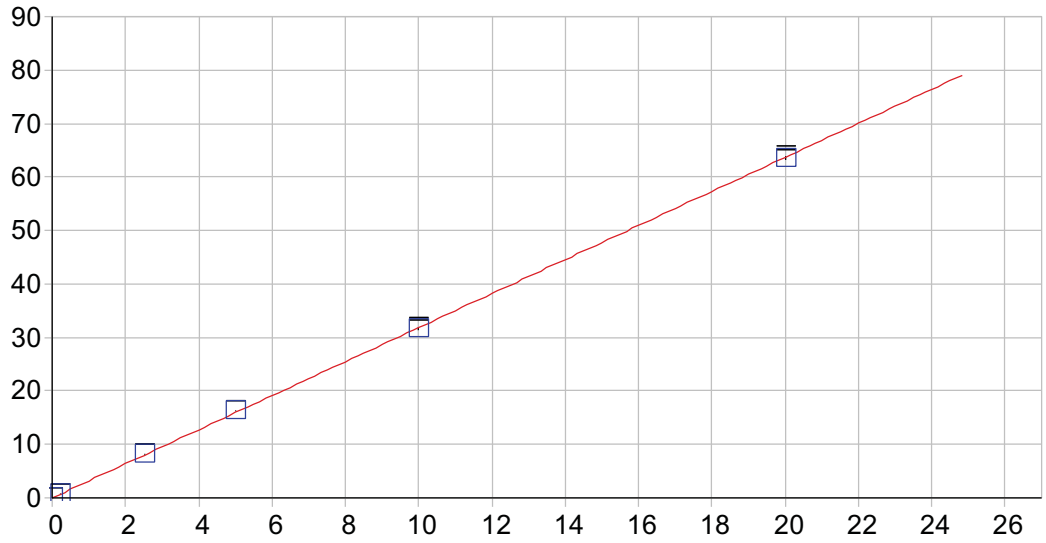
Al 396.152 { 85}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000142	Re-Slope:	1.000000
A1 (Gain):	0.049795	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999933	Status:	OK.
Std Error of Est:	0.000359		
Predicted MDL:	0.008408		
Predicted MQL:	0.028026		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00004	.000	.000	-.00014	.000	1
S1	.20000	.17338	-.027	-13.3	.00944	.000	1
S2	38.750	37.394	-1.36	-3.50	1.8759	.003	1
S3	77.500	75.880	-1.62	-2.09	3.8063	.002	1
S4	155.00	152.77	-2.23	-1.44	7.6633	.016	1
S5	310.00	308.32	-1.68	-.541	15.465	.017	1
S6	800.00	806.93	6.93	.866	40.329	.342	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



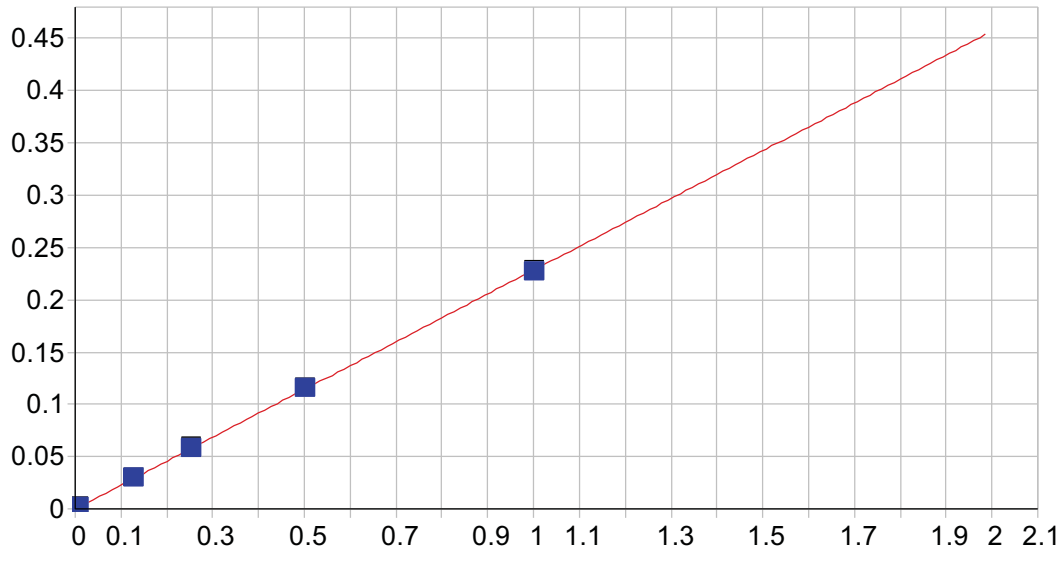
Ba 493.409 { 68}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001613	Re-Slope:	1.000000
A1 (Gain):	3.183268	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999951	Status:	OK.
Std Error of Est:	0.003340		
Predicted MDL:	0.000357		
Predicted MQL:	0.001189		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	.00159	.001	1
S1	.20000	.20108	.001	.541	.64171	.001	1
S2	2.5000	2.5325	.032	1.30	8.0631	.016	1
S3	5.0000	5.1078	.108	2.16	16.261	.040	1
S4	10.000	9.9113	-.089	-.887	31.552	.212	1
S5	20.000	19.947	-.053	-.263	63.500	.293	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



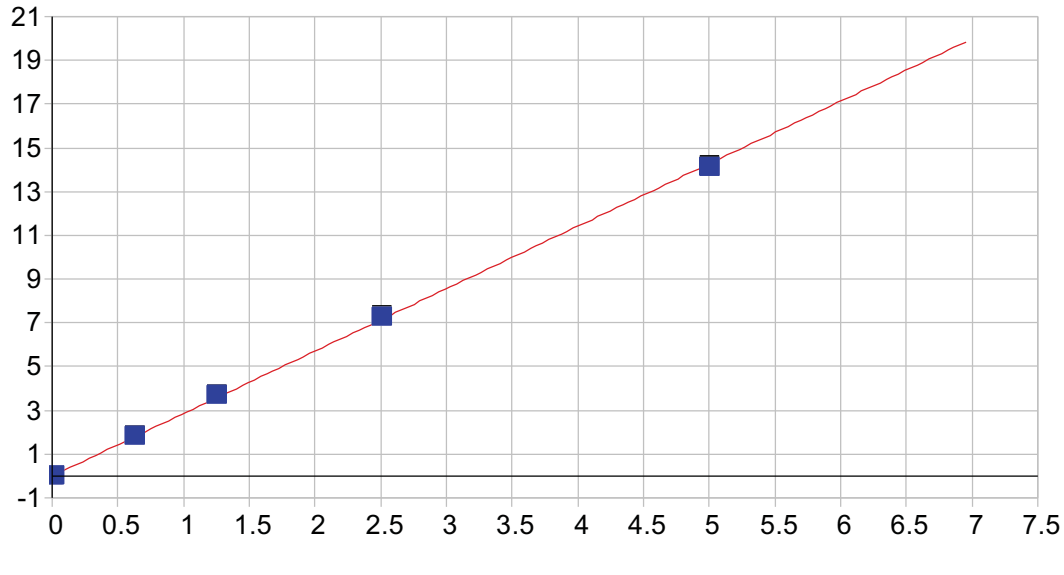
Be 234.861 {144}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000044	Re-Slope:	1.000000
A1 (Gain):	0.228364	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999952	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	0.000400		
Predicted MQL:	0.001335		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00004	.000	1
S1	.00500	.00437	-.001	-12.7	.00104	.000	1
S2	.12500	.12609	.001	.875	.02879	.000	1
S3	.25000	.25278	.003	1.11	.05767	.000	1
S4	.50000	.50312	.003	.625	.11475	.001	1
S5	1.0000	.99364	-.006	-.636	.22657	.000	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



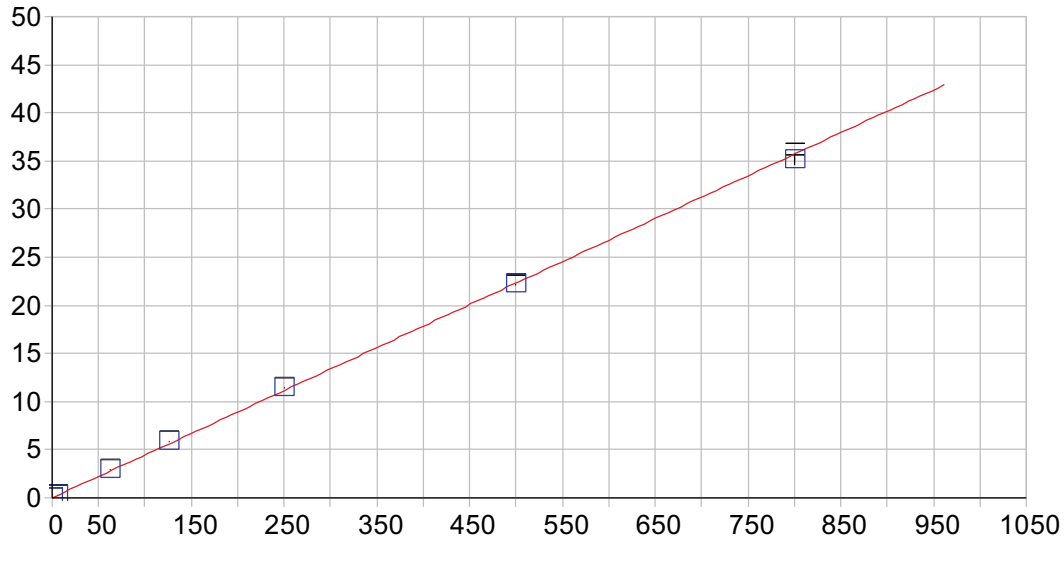
Cd 214.438 {457}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000060	Re-Slope:	1.000000
A1 (Gain):	2.854651	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999891	Status:	OK.
Std Error of Est:	0.000354		
Predicted MDL:	0.000055		
Predicted MQL:	0.000182		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00006	.000	1
S1	.00500	.00475	.000	-5.00	.01363	.000	1
S2	.62500	.62404	-.001	-.154	1.7849	.009	1
S3	1.2500	1.2826	.033	2.61	3.6684	.039	1
S4	2.5000	2.5314	.031	1.25	7.2399	.051	1
S5	5.0000	4.9372	-.063	-1.26	14.121	.040	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



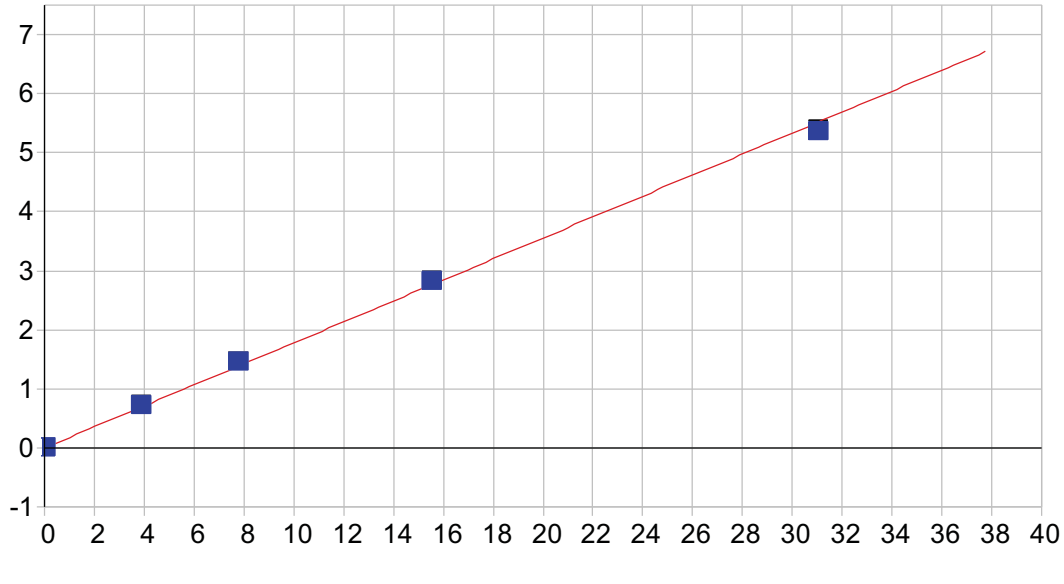
Ca 373.690 { 90}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000964	Re-Slope:	1.000000
A1 (Gain):	0.044621	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999745	Status:	OK.
Std Error of Est:	0.003516		
Predicted MDL:	0.008578		
Predicted MQL:	0.028593		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00063	-.001	.000	.00094	.000	1
S1	5.0000	5.0959	.096	1.92	.22835	.001	1
S2	62.500	65.929	3.43	5.49	2.9428	.001	1
S3	125.00	131.18	6.18	4.94	5.8541	.013	1
S4	250.00	256.53	6.53	2.61	11.448	.052	1
S5	500.00	496.20	-3.80	-.759	22.142	.010	1
S6	800.00	787.56	-12.4	-1.55	35.143	.605	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



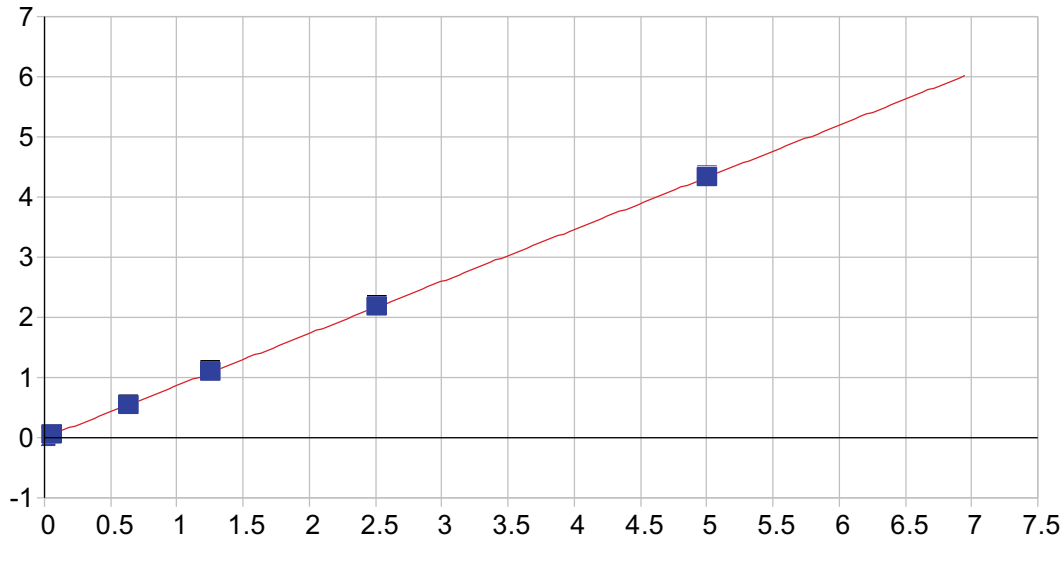
Cr 267.716 {126}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000025	Re-Slope:	1.000000
A1 (Gain):	0.177763	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999467	Status:	OK.
Std Error of Est:	0.000171		
Predicted MDL:	0.000373		
Predicted MQL:	0.001242		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00002	.000	1
S1	.01000	.01009	.000	.927	.00182	.000	1
S2	3.8750	4.0500	.175	4.52	.72015	.001	1
S3	7.7500	8.1633	.413	5.33	1.4515	.003	1
S4	15.500	15.809	.309	1.99	2.8109	.011	1
S5	31.000	30.103	-.897	-2.89	5.3527	.021	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



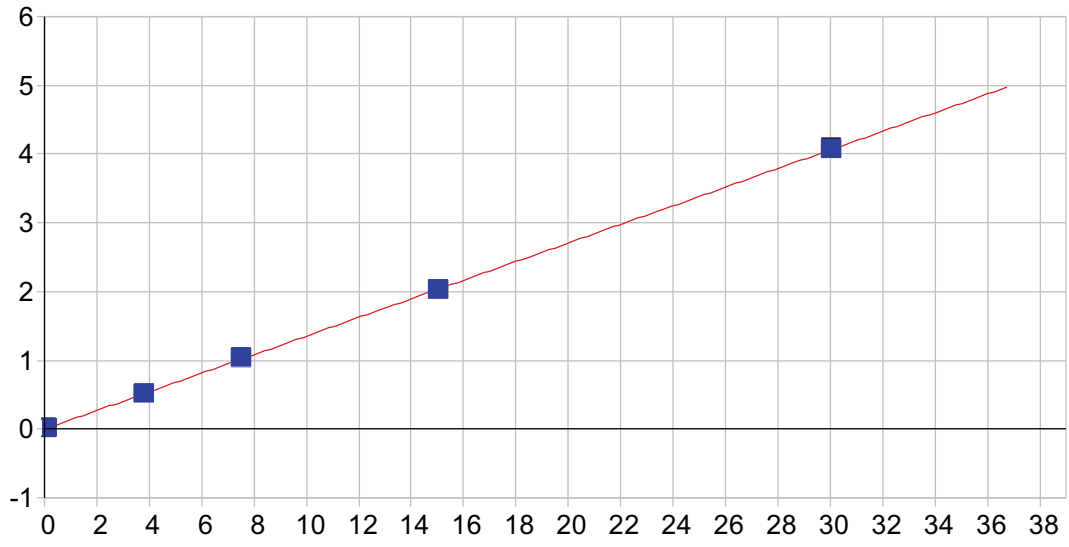
Co 228.616 {448}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000161	Re-Slope:	1.000000
A1 (Gain):	0.865676	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999967	Status:	OK.
Std Error of Est:	0.000187		
Predicted MDL:	0.000182		
Predicted MQL:	0.000607		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00016	.000	1
S1	.05000	.04635	-.004	-7.29	.04012	.000	1
S2	.62500	.61290	-.012	-1.94	.53130	.003	1
S3	1.2500	1.2600	.010	.801	1.0924	.012	1
S4	2.5000	2.5101	.010	.405	2.1763	.018	1
S5	5.0000	4.9956	-.004	-.088	4.3315	.013	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



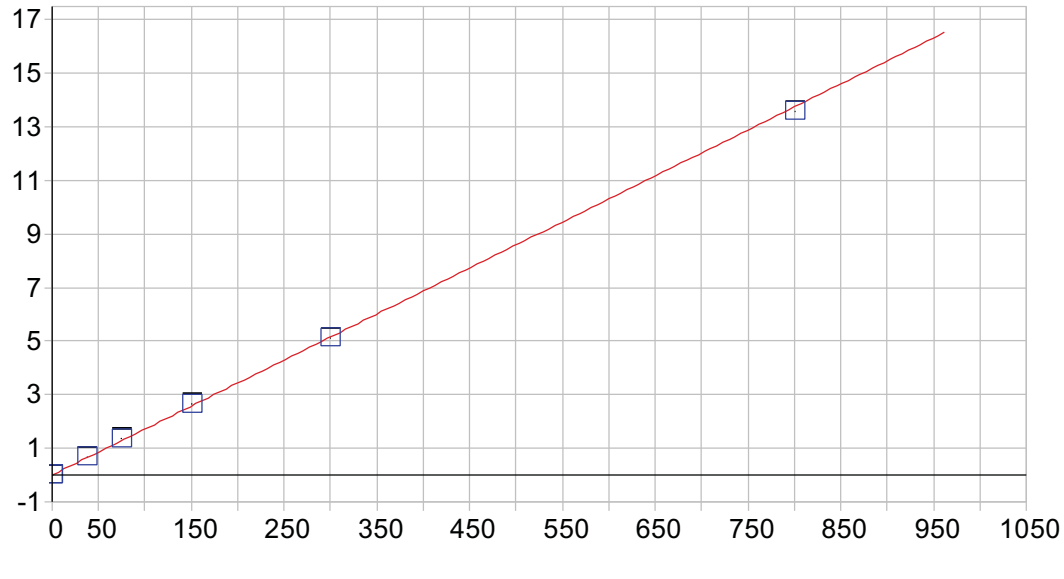
Cu 324.754 {104}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000159	Re-Slope:	1.000000
A1 (Gain):	0.135333	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999991	Status:	OK.
Std Error of Est:	0.000027		
Predicted MDL:	0.001968		
Predicted MQL:	0.006561		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00016	.000	1
S1	.02500	.02727	.002	9.09	.00384	.000	1
S2	3.7500	3.7435	-.007	-.175	.50608	.001	1
S3	7.5000	7.5371	.037	.495	1.0188	.001	1
S4	15.000	14.909	-.091	-.606	2.0151	.002	1
S5	30.000	30.058	.058	.194	4.0625	.007	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



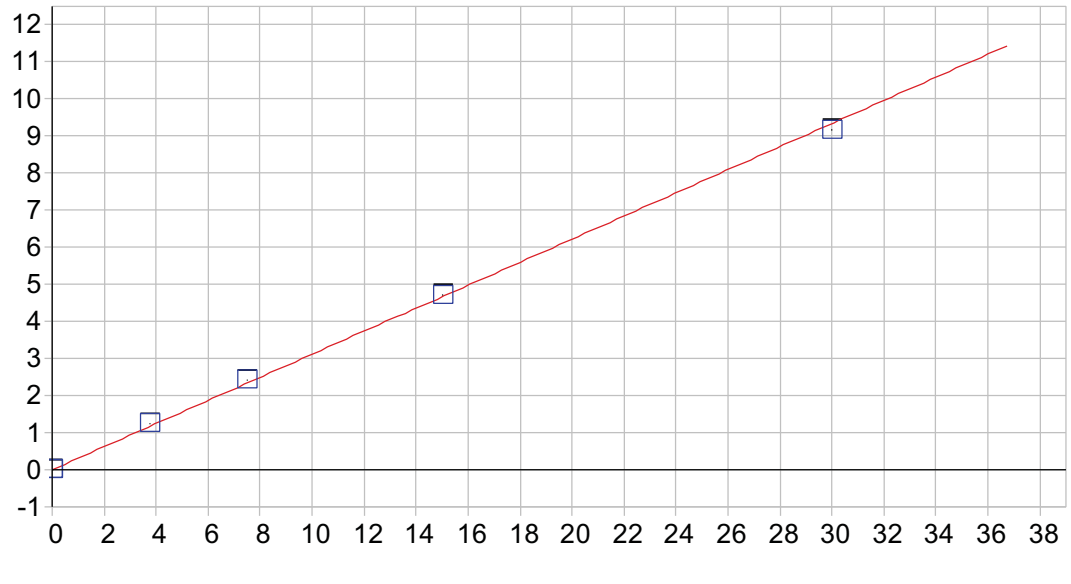
Fe 259.837 {130}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000036	Re-Slope:	1.000000
A1 (Gain):	0.017185	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999759	Status:	OK.
Std Error of Est:	0.000165		
Predicted MDL:	0.007224		
Predicted MQL:	0.024080		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00002	.000	.000	.00004	.000	1
S1	.10000	.10285	.003	2.85	.00180	.000	1
S2	37.500	39.952	2.45	6.54	.68662	.001	1
S3	75.000	79.337	4.34	5.78	1.3635	.004	1
S4	150.00	154.26	4.26	2.84	2.6510	.006	1
S5	300.00	298.68	-1.32	-.440	5.1330	.009	1
S6	800.00	790.27	-9.73	-1.22	13.581	.018	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



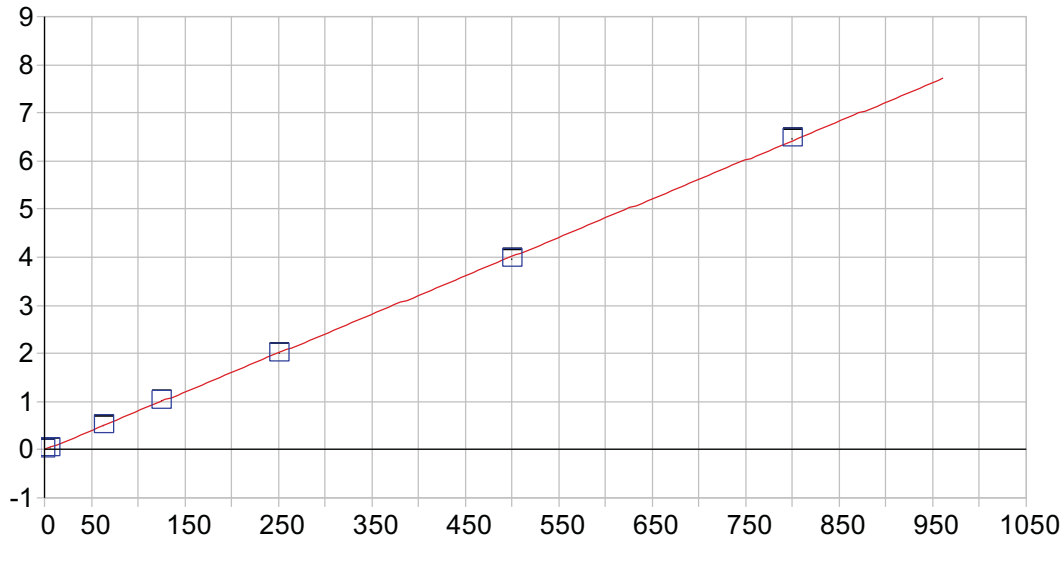
Mn 257.610 {131}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000054	Re-Slope:	1.000000
A1 (Gain):	0.311338	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999704	Status:	OK.
Std Error of Est:	0.000270		
Predicted MDL:	0.000404		
Predicted MQL:	0.001346		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00005	.000	1
S1	.01500	.01617	.001	7.78	.00498	.000	1
S2	3.7500	3.9471	.197	5.25	1.2288	.001	1
S3	7.5000	7.7852	.285	3.80	2.4238	.005	1
S4	15.000	15.101	.101	.672	4.7014	.016	1
S5	30.000	29.416	-.584	-1.95	9.1582	.013	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



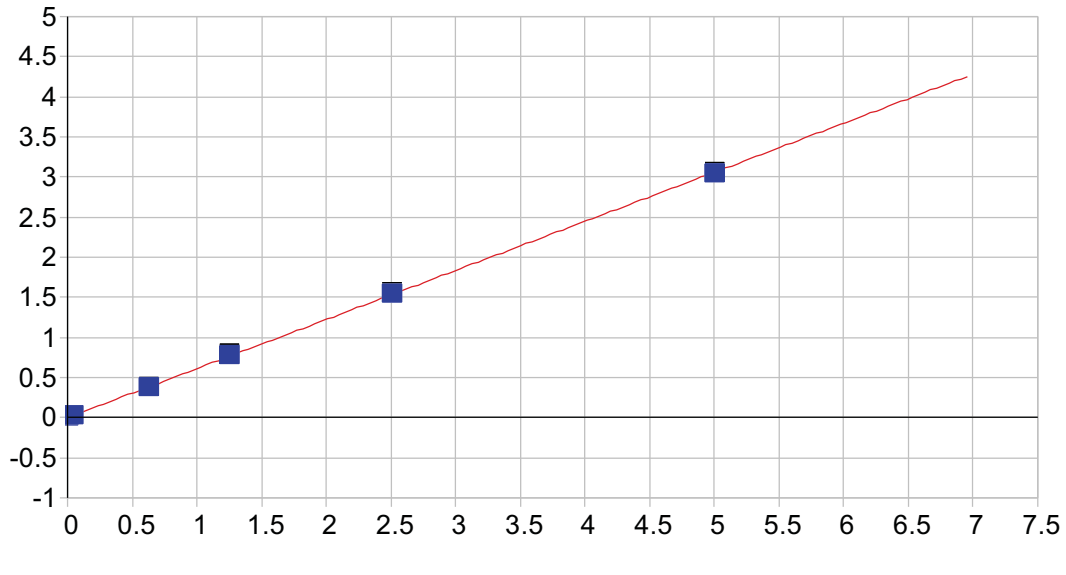
Mg 279.079 {121}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000001	Re-Slope:	1.000000
A1 (Gain):	0.008027	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999963	Status:	OK.
Std Error of Est:	0.000241		
Predicted MDL:	0.020013		
Predicted MQL:	0.066709		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00008	.000	.000	.00000	.000	1
S1	5.0000	4.9060	-.094	-1.88	.03938	.000	1
S2	62.500	62.643	.143	.229	.50280	.002	1
S3	125.00	125.94	.940	.752	1.0109	.002	1
S4	250.00	249.63	-.370	-.148	2.0037	.005	1
S5	500.00	493.72	-6.28	-1.26	3.9628	.007	1
S6	800.00	805.67	5.67	.708	6.4667	.016	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



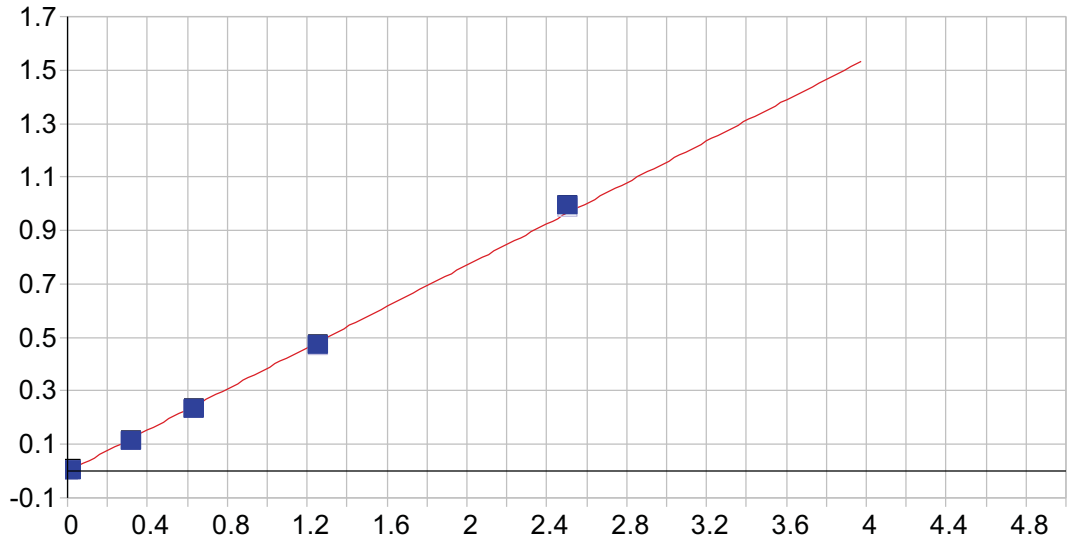
Ni 231.604 {446}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000255	Re-Slope:	1.000000
A1 (Gain):	0.611825	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999958	Status:	OK.
Std Error of Est:	0.000133		
Predicted MDL:	0.000292		
Predicted MQL:	0.000973		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00025	.000	1
S1	.04000	.03796	-.002	-5.09	.02296	.000	1
S2	.62500	.61753	-.007	-1.20	.37745	.002	1
S3	1.2500	1.2706	.021	1.64	.77688	.008	1
S4	2.5000	2.5165	.016	.659	1.5389	.012	1
S5	5.0000	4.9725	-.028	-.551	3.0411	.012	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



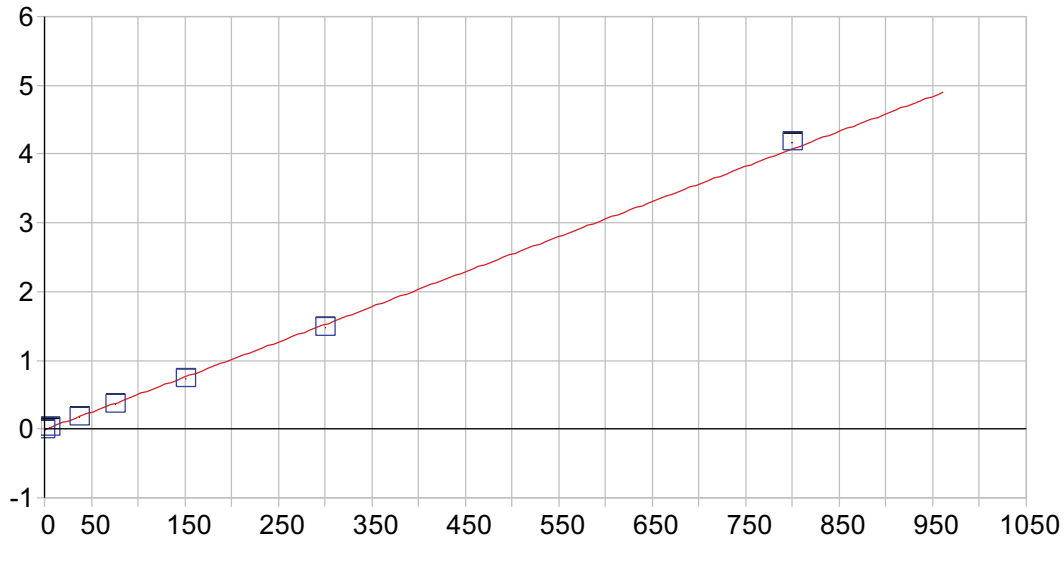
Ag 328.068 {103}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000682	Re-Slope:	1.000000
A1 (Gain):	0.385647	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999476	Status:	OK.
Std Error of Est:	0.000104		
Predicted MDL:	0.000319		
Predicted MQL:	0.001064		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00068	.000	1
S1	.01000	.00928	-.001	-7.17	.00287	.000	1
S2	.31250	.29267	-.020	-6.34	.11110	.000	1
S3	.62500	.60321	-.022	-3.49	.22978	.000	1
S4	1.2500	1.2204	-.030	-2.37	.46563	.001	1
S5	2.5000	2.5719	.072	2.88	.98250	.000	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



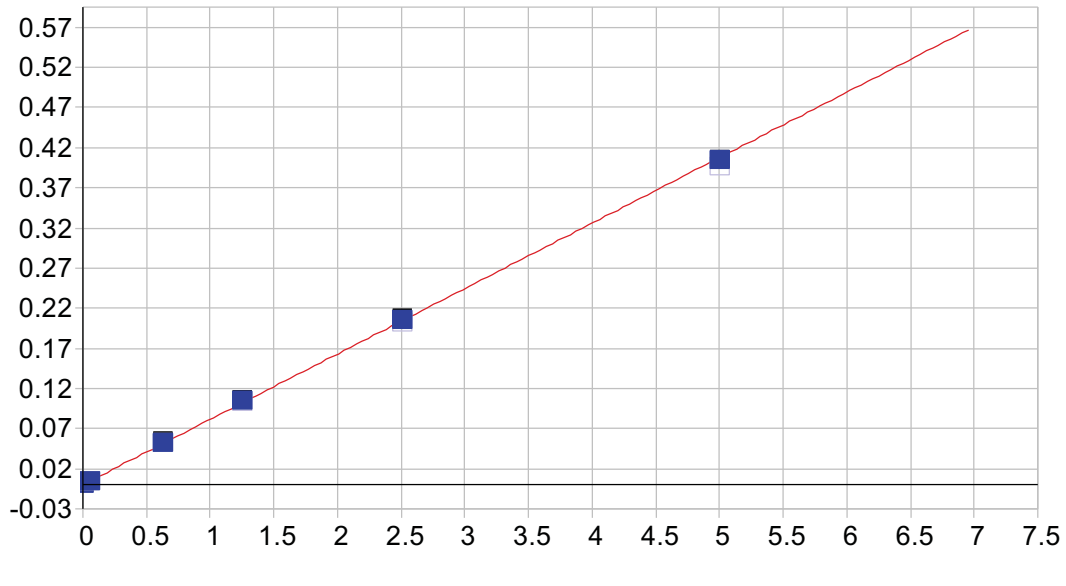
Na 818.326 { 41}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.009168	Re-Slope:	1.000000
A1 (Gain):	0.005106	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999586	Status:	OK.
Std Error of Est:	0.000455		
Predicted MDL:	0.165501		
Predicted MQL:	0.551671		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00085	.001	.000	-.00916	.001	1
S1	5.0000	4.7090	-.291	-5.82	.01488	.001	1
S2	37.500	36.196	-1.30	-3.48	.17565	.001	1
S3	75.000	72.620	-2.38	-3.17	.36164	.000	1
S4	150.00	144.28	-5.72	-3.81	.72754	.002	1
S5	300.00	290.35	-9.65	-3.22	1.4734	.002	1
S6	800.00	819.34	19.3	2.42	4.1745	.009	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



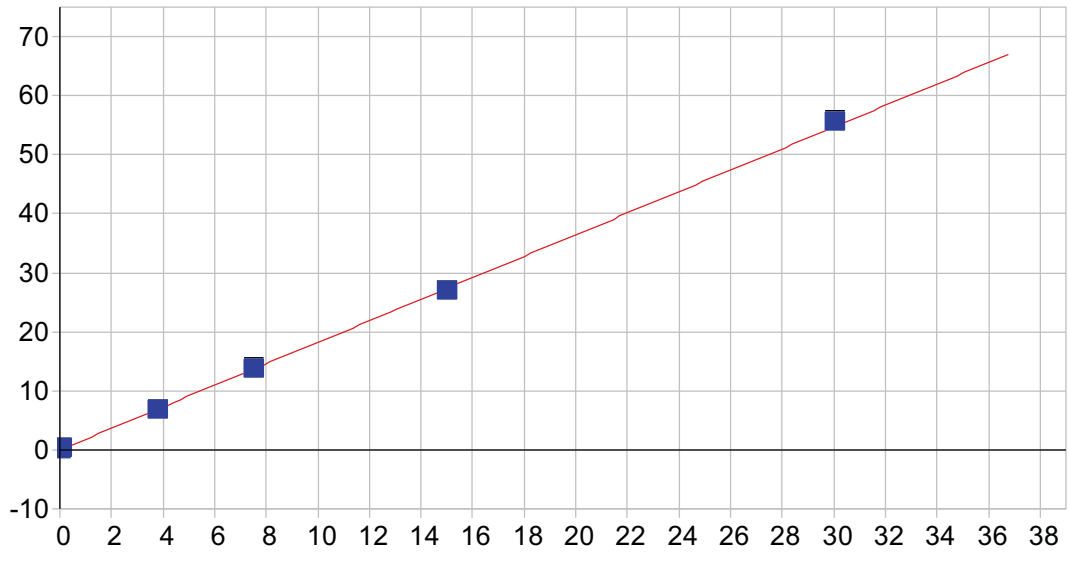
V 292.402 {115}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000022	Re-Slope:	1.000000
A1 (Gain):	0.081503	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999902	Status:	OK.
Std Error of Est:	0.000030		
Predicted MDL:	0.002257		
Predicted MQL:	0.007525		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00002	.000	1
S1	.05000	.04749	-.003	-5.02	.00389	.000	1
S2	.62500	.63715	.012	1.94	.05094	.000	1
S3	1.2500	1.2811	.031	2.49	.10241	.000	1
S4	2.5000	2.5131	.013	.522	.20078	.000	1
S5	5.0000	4.9462	-.054	-1.08	.39504	.001	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



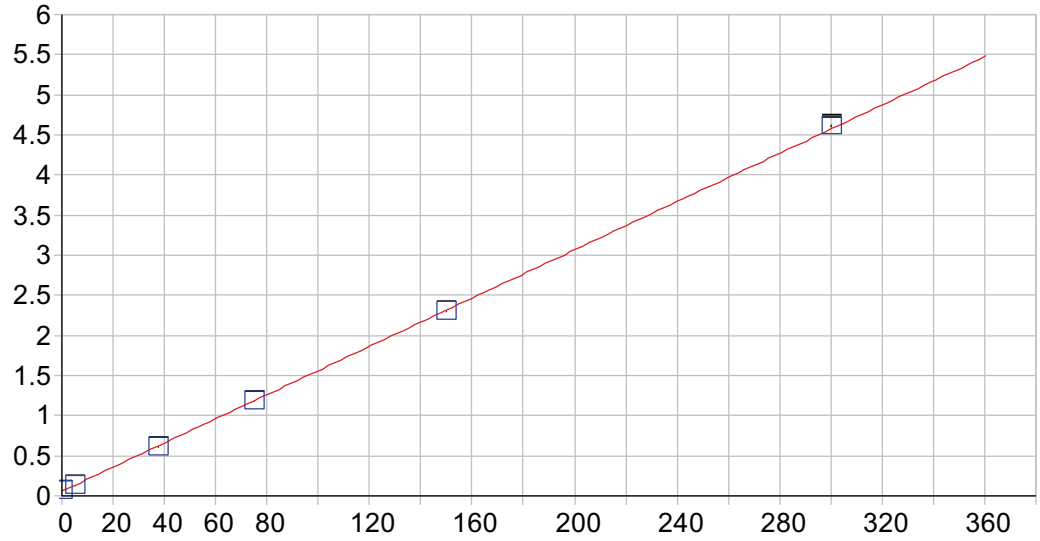
Zn 213.856 {158}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.003978	Re-Slope:	1.000000
A1 (Gain):	1.822594	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999885	Status:	OK.
Std Error of Est:	0.001974		
Predicted MDL:	0.003385		
Predicted MQL:	0.011284		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00398	.002	1
S1	.06000	.06110	.001	1.84	.10775	.003	1
S2	3.7500	3.6630	-.087	-2.32	6.6834	.042	1
S3	7.5000	7.4385	-.062	-.820	13.576	.170	1
S4	15.000	14.733	-.267	-1.78	26.892	.063	1
S5	30.000	30.415	.415	1.38	55.519	.268	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



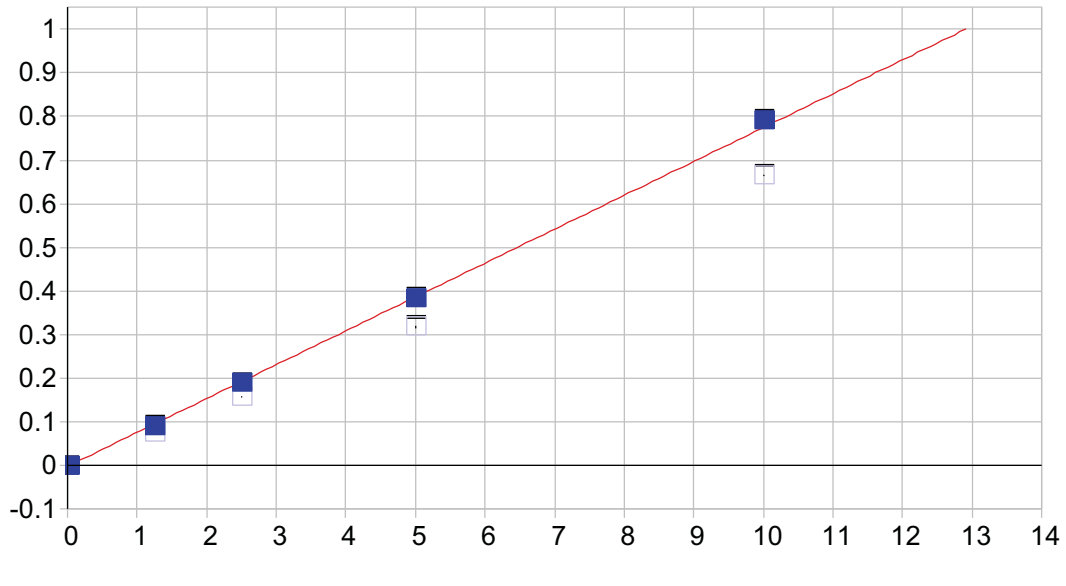
K 769.896 { 44}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.058149	Re-Slope:	1.000000
A1 (Gain):	0.015045	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999938	Status:	OK.
Std Error of Est:	0.000344		
Predicted MDL:	0.051851		
Predicted MQL:	0.172837		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00032	.000	.000	.05815	.001	1
S1	5.0000	4.8363	-.164	-3.27	.13091	.001	1
S2	37.500	36.490	-1.01	-2.69	.60712	.001	1
S3	75.000	74.495	-.505	-.673	1.1789	.002	1
S4	150.00	148.90	-1.10	-.735	2.2983	.003	1
S5	300.00	302.78	2.78	.927	4.6134	.011	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



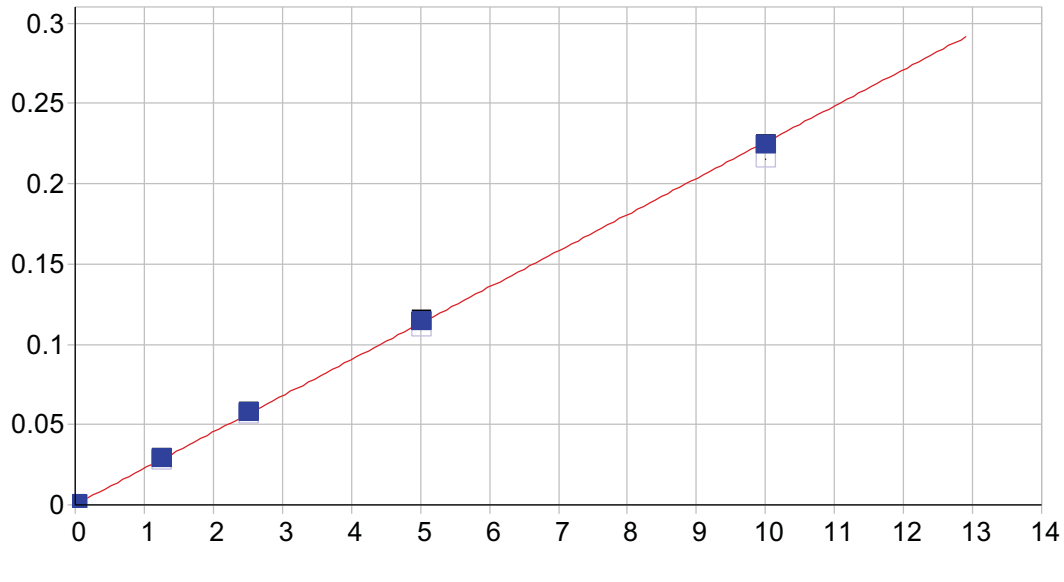
P 177.495 {490}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.002290	Re-Slope:	1.000000
A1 (Gain):	0.077679	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999179	Status:	OK.
Std Error of Est:	0.000054		
Predicted MDL:	0.001308		
Predicted MQL:	0.004360		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	-.00229	.000	1
S1	.01500	.00243	-.013	-83.8	-.00220	.000	1
S2	1.2500	1.1773	-.073	-5.82	.07337	.000	1
S3	2.5000	2.4413	-.059	-2.35	.15576	.002	1
S4	5.0000	4.9316	-.068	-1.37	.31762	.003	1
S5	10.000	10.214	.214	2.14	.66475	.002	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



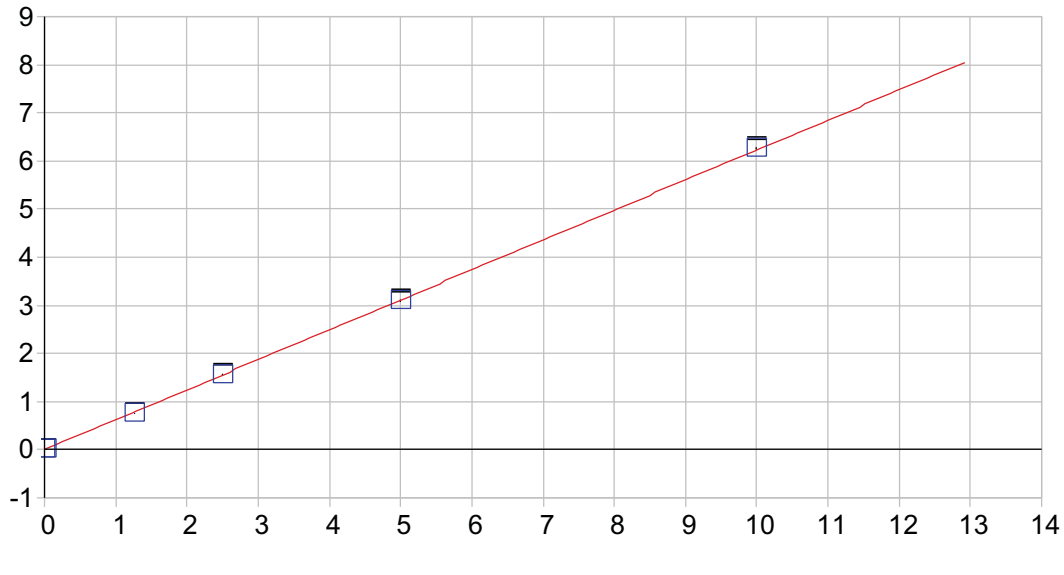
B 249.678 {135}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000136	Re-Slope:	1.000000
A1 (Gain):	0.022568	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999938	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	0.005241		
Predicted MQL:	0.017471		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00014	.000	1
S1	.01000	.00974	.000	-2.61	.00035	.000	1
S2	1.2500	1.2577	.008	.613	.02748	.000	1
S3	2.5000	2.5455	.046	1.82	.05550	.000	1
S4	5.0000	5.0422	.042	.844	.10976	.001	1
S5	10.000	9.9049	-.095	-.951	.21533	.000	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



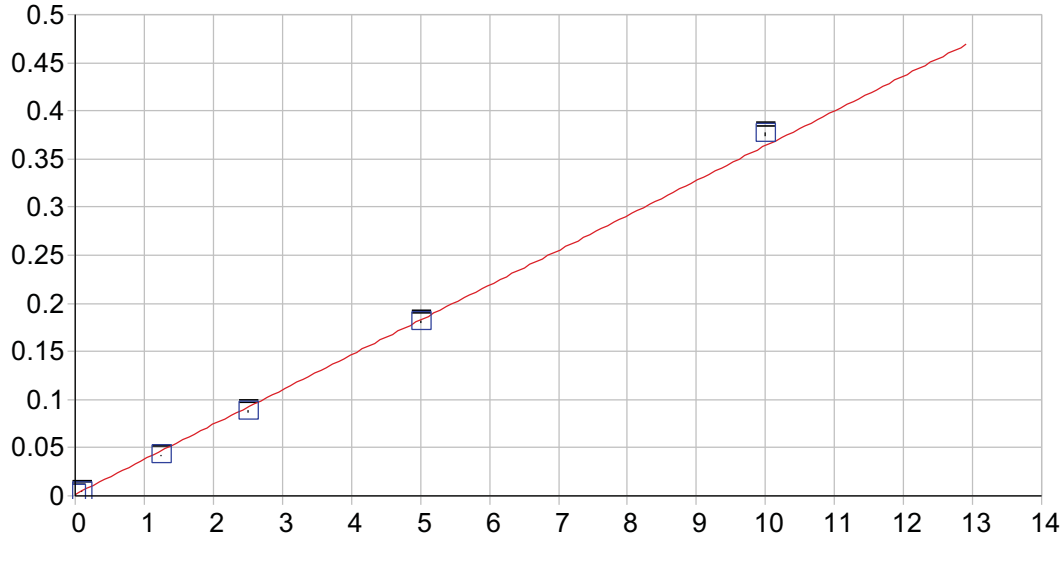
Mo 202.030 {467}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000118	Re-Slope:	1.000000
A1 (Gain):	0.622822	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999966	Status:	OK.
Std Error of Est:	0.000086		
Predicted MDL:	0.000229		
Predicted MQL:	0.000763		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00012	.000	1
S1	.01000	.00960	.000	-3.98	.00586	.000	1
S2	1.2500	1.2197	-.030	-2.43	.75953	.002	1
S3	2.5000	2.5072	.007	.287	1.5614	.013	1
S4	5.0000	4.9687	-.031	-.626	3.0945	.025	1
S5	10.000	10.055	.055	.548	6.2623	.024	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



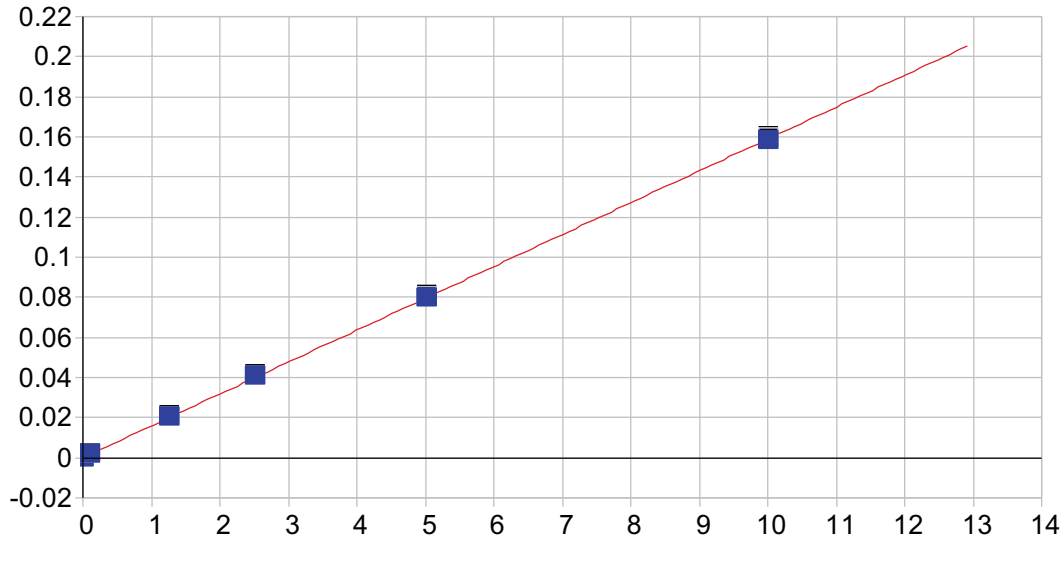
S 182.034 {485}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001670	Re-Slope:	1.000000
A1 (Gain):	0.036204	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999025	Status:	OK.
Std Error of Est:	0.000085		
Predicted MDL:	0.002360		
Predicted MQL:	0.007865		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00003	.000	.000	.00167	.000	1
S1	.10000	.08173	-.018	-18.3	.00463	.000	1
S2	1.2500	1.1111	-.139	-11.1	.04189	.000	1
S3	2.5000	2.3811	-.119	-4.76	.08787	.001	1
S4	5.0000	4.9363	-.064	-1.27	.18039	.001	1
S5	10.000	10.340	.340	3.40	.37602	.002	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



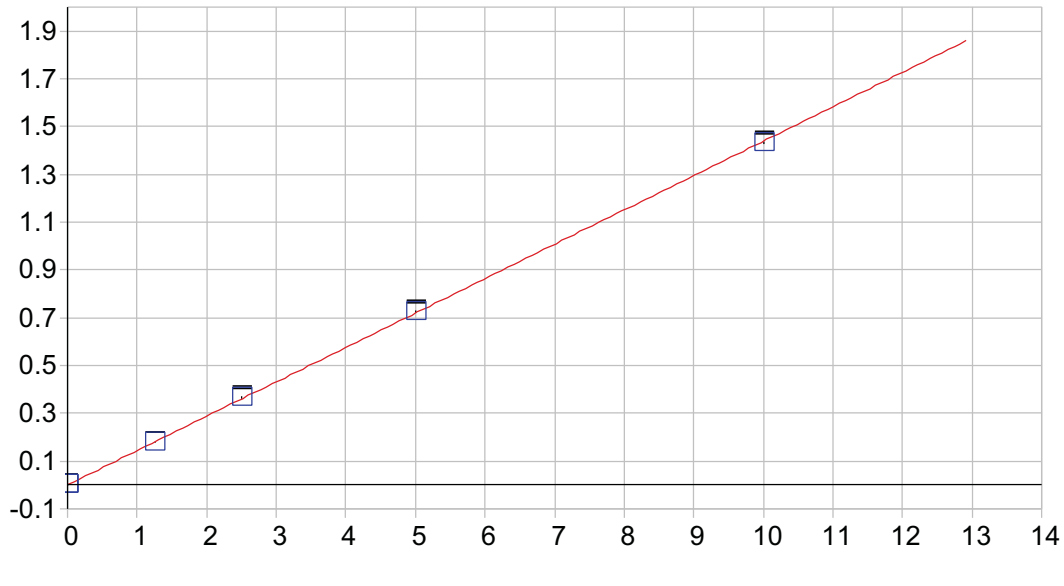
Si 251.611 {134}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000040	Re-Slope:	1.000000
A1 (Gain):	0.015890	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999949	Status:	OK.
Std Error of Est:	0.000009		
Predicted MDL:	0.007221		
Predicted MQL:	0.024070		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00004	.000	1
S1	.10000	.09629	-.004	-3.71	.00157	.000	1
S2	1.2500	1.2730	.023	1.84	.02047	.000	1
S3	2.5000	2.5465	.046	1.86	.04091	.000	1
S4	5.0000	5.0068	.007	.135	.08041	.000	1
S5	10.000	9.9274	-.073	-.726	.15940	.001	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



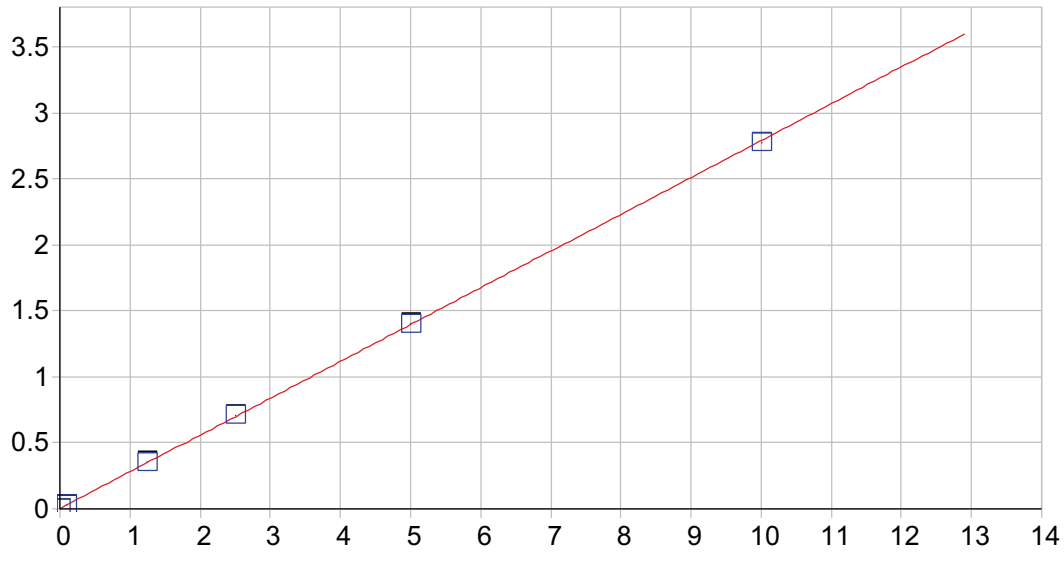
Sn 189.989 {478}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000027	Re-Slope:	1.000000
A1 (Gain):	0.143901	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999940	Status:	OK.
Std Error of Est:	0.000022		
Predicted MDL:	0.000608		
Predicted MQL:	0.002027		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00003	.000	1
S1	.00700	.00568	-.001	-18.8	.00079	.000	1
S2	1.2500	1.2283	-.022	-1.73	.17673	.001	1
S3	2.5000	2.5468	.047	1.87	.36646	.004	1
S4	5.0000	5.0410	.041	.821	.72539	.005	1
S5	10.000	9.9352	-.065	-.648	1.4297	.005	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



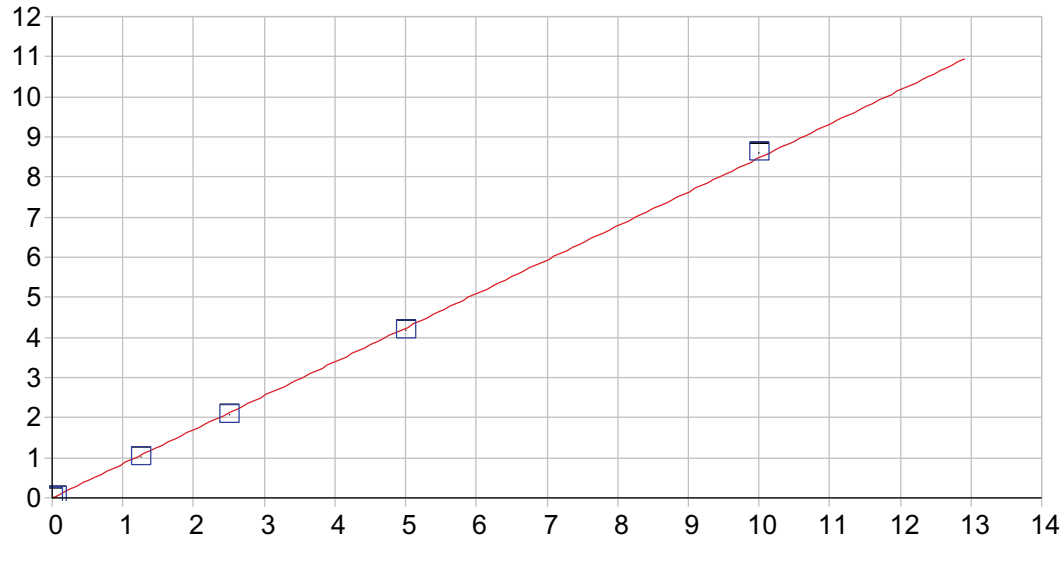
Ti 336.121 {100}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001668	Re-Slope:	1.000000
A1 (Gain):	0.278697	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999968	Status:	OK.
Std Error of Est:	0.000119		
Predicted MDL:	0.000987		
Predicted MQL:	0.003290		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00167	.000	1
S1	.10000	.09696	-.003	-3.04	.02869	.000	1
S2	1.2500	1.2613	.011	.907	.35320	.001	1
S3	2.5000	2.5368	.037	1.47	.70868	.002	1
S4	5.0000	5.0189	.019	.378	1.4004	.002	1
S5	10.000	9.9360	-.064	-.640	2.7708	.001	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



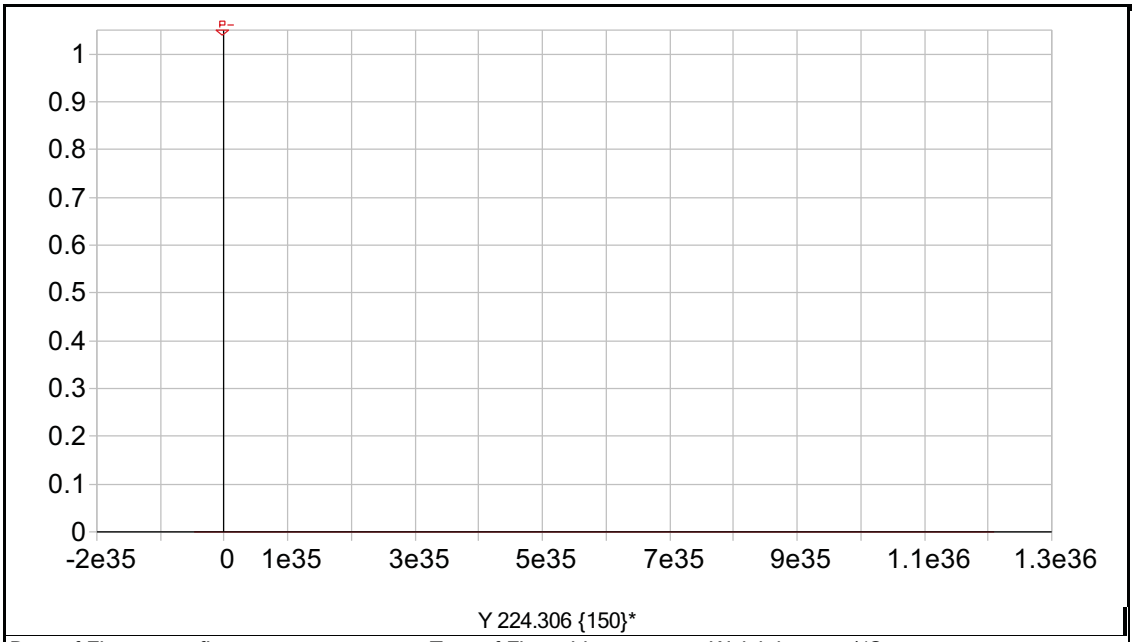
Li 670.784 { 50}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000968	Re-Slope:	1.000000
A1 (Gain):	0.847388	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999837	Status:	OK.
Std Error of Est:	0.000574		
Predicted MDL:	0.001083		
Predicted MQL:	0.003611		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00097	.001	1
S5	10.000	10.161	.161	1.61	8.6115	.015	1
S4	5.0000	4.9305	-.069	-1.39	4.1790	.009	1
S3	2.5000	2.4563	-.044	-1.75	2.0824	.005	1
S2	1.2500	1.2047	-.045	-3.63	1.0218	.002	1
S1	.05000	.04721	-.003	-5.59	.04097	.000	1

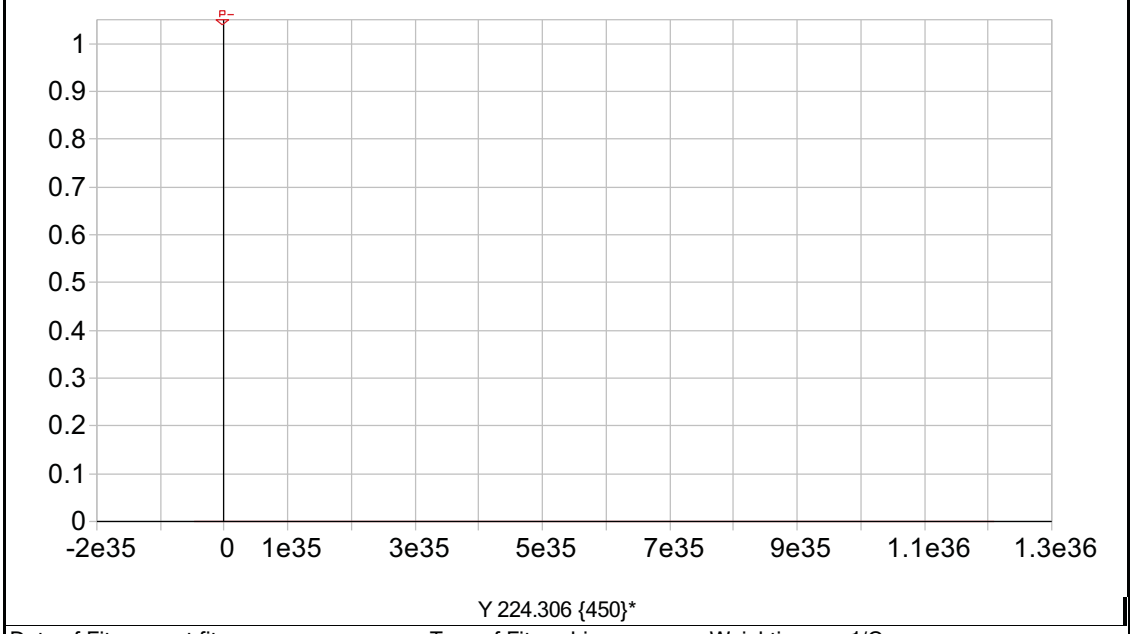
Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



Y 224.306 {150}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000			Status:	Warning	Zero Gain
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



Y 224.306 {450}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	

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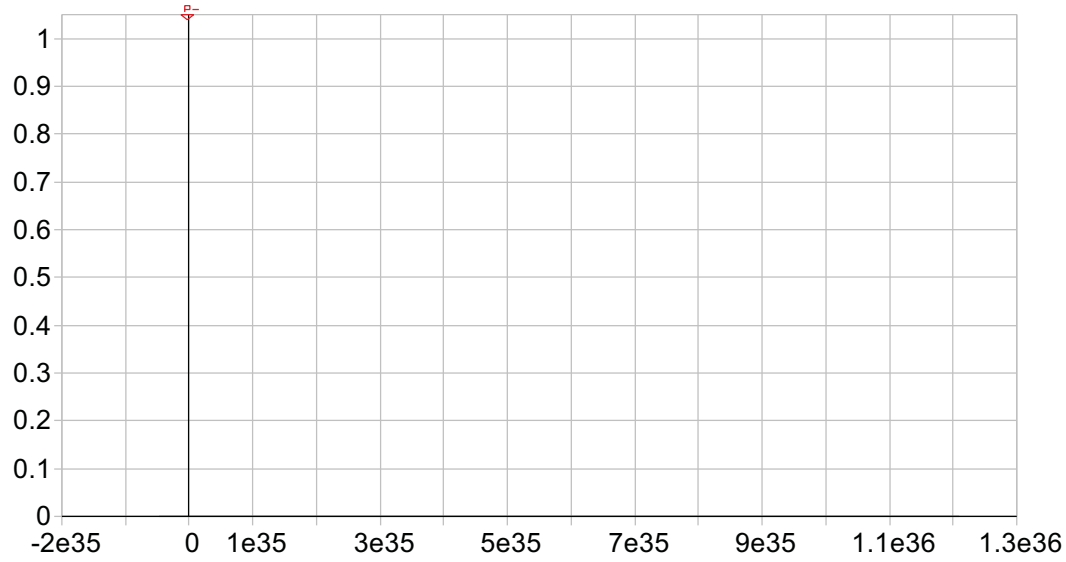
A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



Y 360.073 { 94}*

Date of Fit:	<not fit>		Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):		0.000000		Re-Slope:	1.000000	
A1 (Gain):		0.000000		Y-int:	0.000000	
A2 (Curvature):		0.000000				
n (Exponent):		1.000000				
Correlation:		0.000000		Status:	Warning	Zero Gain
Std Error of Est:		0.000000				
Predicted MDL:		n/a				
Predicted MQL:		n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

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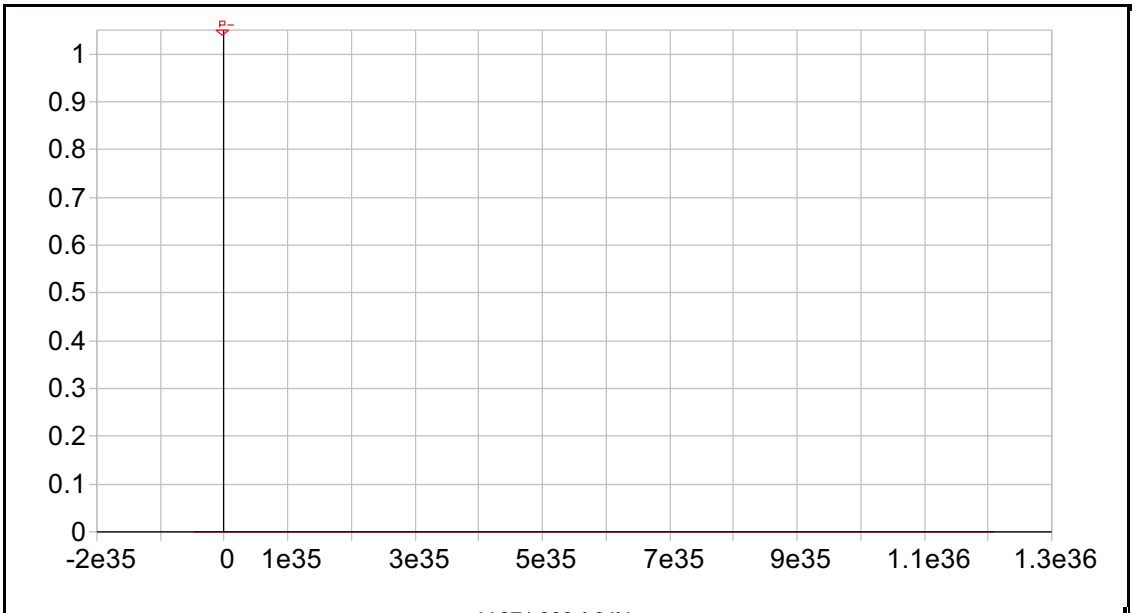
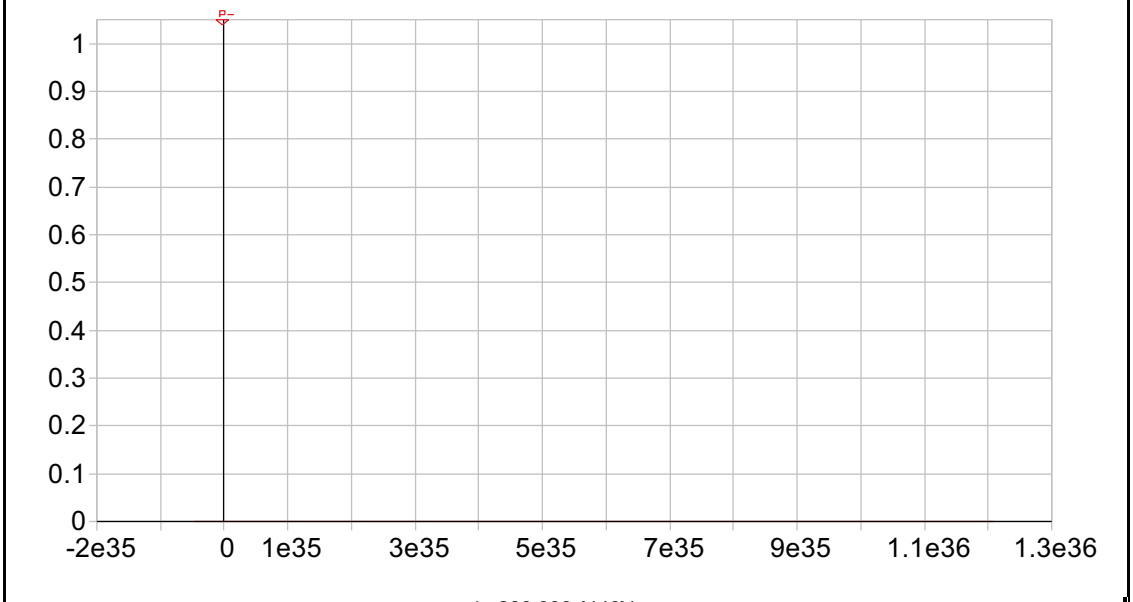


Y 371.030 { 91}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000			Status:	Warning	Zero Gain
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



ln 230.606 {446}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	

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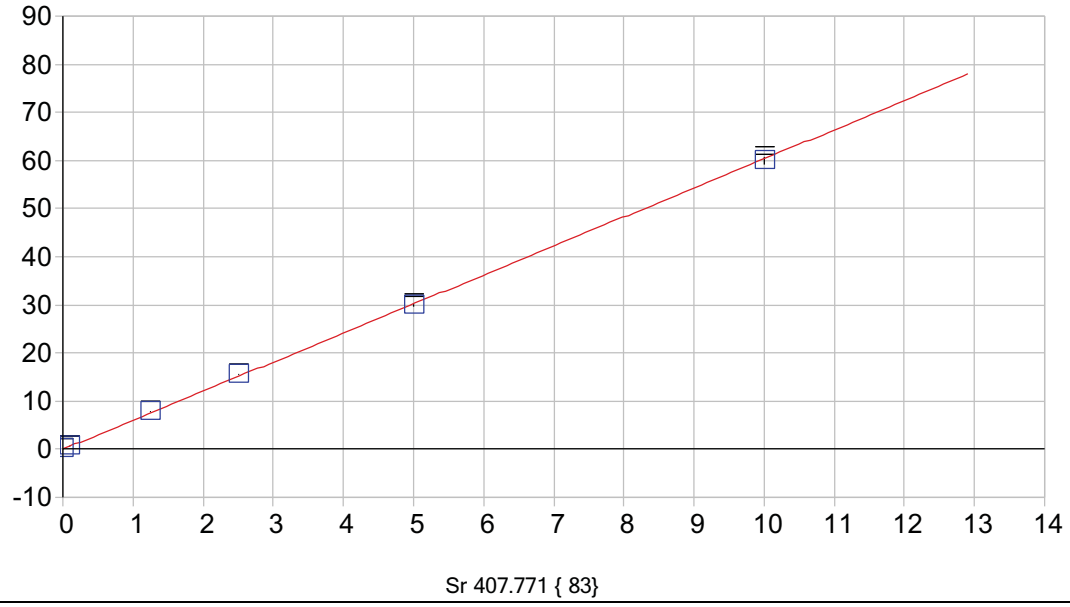
On:9/19/2014 12:41:16 PM
Inst Id :P5

A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



Sr 407.771 { 83}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001563	Re-Slope:	1.000000
A1 (Gain):	6.034744	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999888	Status:	OK.
Std Error of Est:	0.004805		
Predicted MDL:	0.000066		
Predicted MQL:	0.000221		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	-.00161	.000	1
S1	.10000	.10329	.003	3.29	.62177	.001	1
S2	1.2500	1.2797	.030	2.37	7.7210	.017	1
S3	2.5000	2.5798	.080	3.19	15.567	.035	1
S4	5.0000	4.9531	-.047	-.938	29.889	.174	1
S5	10.000	9.9342	-.066	-.658	59.949	.706	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S0 Acquired: 9/18/2014 17:13:24 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00006	-.00011	-.00016	.00014	.00002	-.00014	.00159	.00004
Stddev	.00007	.00008	.00010	.00009	.00017	.00024	.00069	.00004
%RSD	107.61	69.541	62.955	63.699	746.32	169.75	43.424	87.092
#1	-.00007	-.00017	-.00014	.00021	-.00013	-.00040	.00144	.00008
#2	.00001	-.00002	-.00007	.00004	.00021	.00006	.00099	.00005
#3	-.00012	-.00014	-.00027	.00016	.00000	-.00007	.00235	.00000

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00006	.00094	.00002	-.00016	.00016	.00004	-.00005	.00000
Stddev	.00007	.00019	.00007	.00010	.00023	.00014	.00006	.0001
%RSD	114.39	20.827	299.76	64.607	146.81	386.86	101.07	45666.
#1	-.00002	.00071	-.00005	-.00026	.00020	.00011	-.00004	-.00014
#2	.00008	.00102	.00002	-.00005	.00037	-.00012	-.00011	-.00003
#3	.00012	.00108	.00010	-.00016	-.00009	.00012	.00000	.00017

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00025	-.00068	-.00916	.00002	-.00398	.05815	-.00229	.00014
Stddev	.00022	.00005	.00086	.00004	.00167	.00064	.00002	.00001
%RSD	85.927	6.6220	9.4105	160.78	41.956	1.1022	.98092	7.9375
#1	-.00025	-.00064	-.00900	-.00002	-.00530	.05812	-.00231	.00014
#2	-.00047	-.00068	-.00840	.00005	-.00453	.05881	-.00227	.00014
#3	-.00004	-.00073	-.01010	.00004	-.00210	.05753	-.00229	.00012

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00012	.00167	.00004	-.00003	.00167	.00097	-.00161
Stddev	.00010	.00002	.00009	.00002	.00014	.00060	.00008
%RSD	84.375	1.4762	230.73	86.471	8.6550	61.717	5.2246
#1	-.00009	.00166	.00014	-.00002	.00158	.00050	-.00159
#2	-.00004	.00170	-.00004	-.00005	.00183	.00165	-.00170
#3	-.00023	.00165	.00002	-.00001	.00159	.00077	-.00153

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S0 Acquired: 9/18/2014 17:13:24 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	142.32	5505.2	66188.	15091.	6219.9
Stddev	.77	6.6	276.	32.	4.1
%RSD	.54420	.12071	.41727	.20910	.06666
#1	141.55	5512.8	65917.	15059.	6224.3
#2	143.10	5500.8	66176.	15092.	6216.1
#3	142.32	5501.9	66469.	15122.	6219.4

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S1 Acquired: 9/18/2014 17:17:28 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00031	.00205	.00176	.00213	.00694	.00944	.64171	.00104
Stddev	.00001	.00000	.00010	.00003	.00014	.00041	.00108	.00008
%RSD	2.5494	.22735	5.8546	1.5476	2.0362	4.3220	.16761	7.5384
#1	.00032	.00204	.00187	.00212	.00704	.00908	.64133	.00113
#2	.00030	.00205	.00167	.00210	.00701	.00988	.64087	.00098
#3	.00031	.00205	.00175	.00216	.00678	.00935	.64292	.00102

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01363	.22835	.00182	.04012	.00384	.00180	.00498	.03938
Stddev	.00019	.00135	.00006	.00002	.00025	.00009	.00012	.00008
%RSD	1.4026	.59269	3.4294	.04149	6.6390	5.2150	2.3956	.21029
#1	.01344	.22679	.00186	.04011	.00401	.00170	.00507	.03929
#2	.01363	.22919	.00185	.04010	.00355	.00188	.00503	.03939
#3	.01382	.22907	.00175	.04013	.00396	.00183	.00484	.03945

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02296	.00287	.01488	.00389	.10775	.13091	-.00220	.00035
Stddev	.00013	.00003	.00050	.00011	.00252	.00066	.00009	.00004
%RSD	.55968	1.1816	3.3643	2.7689	2.3375	.50050	4.0846	11.786
#1	.02311	.00284	.01538	.00400	.10531	.13017	-.00217	.00035
#2	.02287	.00290	.01487	.00388	.11034	.13141	-.00213	.00031
#3	.02291	.00287	.01438	.00379	.10759	.13114	-.00230	.00040

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00586	.00463	.00157	.00079	.02869	.04097	.62177
Stddev	.00006	.00008	.00006	.00001	.00028	.00035	.00088
%RSD	1.0204	1.6652	3.6402	1.8404	.97306	.85445	.14207
#1	.00579	.00460	.00151	.00080	.02892	.04059	.62078
#2	.00590	.00457	.00160	.00079	.02877	.04129	.62249
#3	.00589	.00472	.00161	.00078	.02838	.04103	.62203

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S1 Acquired: 9/18/2014 17:17:28 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	142.38	5476.8	66392.	15235.	6112.8
Stddev	1.65	9.7	160.	91.	4.4
%RSD	1.1595	.17718	.24089	.59915	.07176
#1	140.61	5477.9	66400.	15320.	6108.0
#2	143.87	5485.9	66547.	15248.	6114.1
#3	142.67	5466.6	66228.	15139.	6116.5

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S2 Acquired: 9/18/2014 17:21:33 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.06010	.11186	1.2471	.07047	.15086	1.8759	8.0631	.02879	1.7849
Stddev	.00023	.00065	.0057	.00030	.00038	.0028	.0159	.00016	.0089
%RSD	.38549	.58491	.46045	.42609	.25006	.14864	.19749	.54256	.50113
#1	.05986	.11141	1.2424	.07019	.15100	1.8787	8.0811	.02887	1.7777
#2	.06033	.11156	1.2454	.07044	.15043	1.8731	8.0509	.02861	1.7821
#3	.06012	.11261	1.2535	.07079	.15115	1.8759	8.0573	.02889	1.7949

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.9428	.72015	.53130	.50608	.68662	1.2288	.50280	.37745	.11110
Stddev	.0012	.00093	.00267	.00119	.00068	.0005	.00156	.00186	.00013
%RSD	.04026	.12846	.50308	.23531	.09956	.04347	.30944	.49224	.11963
#1	2.9434	.72121	.52915	.50745	.68686	1.2294	.50141	.37539	.11119
#2	2.9414	.71950	.53045	.50545	.68585	1.2284	.50448	.37796	.11095
#3	2.9435	.71974	.53429	.50534	.68716	1.2286	.50253	.37900	.11117

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.17565	.05094	6.6834	.60712	.07337	.02748	.75953	.04189	.02047
Stddev	.00082	.00035	.0415	.00066	.00031	.00013	.00170	.00010	.00015
%RSD	.46728	.68153	.62176	.10903	.42930	.47389	.22317	.24077	.71740
#1	.17653	.05100	6.7164	.60668	.07315	.02752	.75789	.04178	.02049
#2	.17552	.05056	6.6367	.60788	.07322	.02758	.75941	.04195	.02061
#3	.17491	.05125	6.6971	.60680	.07373	.02733	.76128	.04195	.02032

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.17673	.35320	1.0218	7.7210
Stddev	.00069	.00101	.0020	.0174
%RSD	.39322	.28506	.19600	.22477
#1	.17616	.35309	1.0238	7.7407
#2	.17654	.35225	1.0218	7.7079
#3	.17751	.35425	1.0198	7.7145

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S2 Acquired: 9/18/2014 17:21:33 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	139.64	5222.8	64384.	15079.	5459.9
Stddev	1.25	9.6	138.	60.	19.4
%RSD	.89613	.18465	.21392	.39752	.35486
#1	139.86	5226.3	64246.	15147.	5469.7
#2	140.76	5230.3	64522.	15056.	5472.3
#3	138.29	5212.0	64383.	15035.	5437.6

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S3 Acquired: 9/18/2014 17:25:25 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.12614	.22636	2.5554	.14811	.31565	3.8063	16.261	.05767	3.6684
Stddev	.00114	.00254	.0290	.00112	.00297	.0021	.040	.00046	.0387
%RSD	.90082	1.1238	1.1352	.75613	.94076	.05596	.24442	.80524	1.0539
#1	.12500	.22354	2.5232	.14684	.31223	3.8044	16.294	.05718	3.6260
#2	.12614	.22706	2.5632	.14857	.31722	3.8086	16.272	.05775	3.6777
#3	.12728	.22848	2.5796	.14894	.31751	3.8060	16.217	.05810	3.7016

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5.8541	1.4515	1.0924	1.0188	1.3635	2.4238	1.0109	.77688	.22978
Stddev	.0130	.0028	.0117	.0010	.0044	.0048	.0017	.00773	.00016
%RSD	.22242	.19070	1.0720	.10137	.32201	.19970	.17074	.99469	.07058
#1	5.8593	1.4503	1.0791	1.0194	1.3627	2.4218	1.0096	.76804	.22996
#2	5.8638	1.4496	1.0968	1.0194	1.3595	2.4293	1.0102	.78026	.22973
#3	5.8393	1.4547	1.1012	1.0176	1.3682	2.4203	1.0128	.78234	.22964

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.36164	.10241	13.576	1.1789	.15576	.05550	1.5614	.08787	.04091
Stddev	.00013	.00016	.170	.0019	.00175	.00000	.0134	.00091	.00011
%RSD	.03606	.16031	1.2488	.16287	1.1206	.00277	.85652	1.0336	.26872
#1	.36153	.10228	13.765	1.1811	.15383	.05550	1.5464	.08687	.04085
#2	.36179	.10259	13.439	1.1781	.15623	.05550	1.5657	.08812	.04084
#3	.36161	.10235	13.523	1.1775	.15722	.05550	1.5721	.08864	.04103

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.36646	.70868	2.0824	15.567
Stddev	.00361	.00206	.0052	.035
%RSD	.98637	.29080	.24807	.22212
#1	.36240	.70974	2.0875	15.591
#2	.36762	.70630	2.0825	15.582
#3	.36935	.70998	2.0772	15.527

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S3 Acquired: 9/18/2014 17:25:25 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	135.63	4940.1	61980.	15092.	5087.4
Stddev	1.55	37.8	76.	18.	43.2
%RSD	1.1453	.76585	.12271	.11881	.85002
#1	133.95	4983.0	62057.	15102.	5135.7
#2	137.02	4925.6	61905.	15071.	5074.4
#3	135.92	4911.6	61978.	15102.	5052.2

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S4 Acquired: 9/18/2014 17:29:14 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.25785	.44180	5.0840	.29956	.64683	7.6633	31.552	.11475	7.2399
Stddev	.00210	.00376	.0398	.00263	.00469	.0159	.212	.00052	.0509
%RSD	.81269	.85192	.78227	.87709	.72577	.20817	.67158	.45167	.70243
#1	.26021	.44589	5.1270	.30241	.65149	7.6817	31.793	.11534	7.2941
#2	.25621	.43848	5.0485	.29724	.64210	7.6543	31.395	.11447	7.1933
#3	.25714	.44103	5.0765	.29904	.64689	7.6539	31.468	.11443	7.2324

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	11.448	2.8109	2.1763	2.0151	2.6510	4.7014	2.0037	1.5389	.46563
Stddev	.052	.0110	.0176	.0024	.0064	.0157	.0052	.0119	.00128
%RSD	.45637	.39135	.81053	.11906	.24136	.33359	.26121	.77556	.27434
#1	11.504	2.8196	2.1954	2.0179	2.6584	4.7187	2.0094	1.5522	.46674
#2	11.437	2.7985	2.1606	2.0138	2.6476	4.6974	2.0024	1.5290	.46424
#3	11.402	2.8146	2.1730	2.0136	2.6470	4.6881	1.9992	1.5357	.46592

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.72754	.20078	26.892	2.2983	.31762	.10976	3.0945	.18039	.08041
Stddev	.00204	.00044	.063	.0028	.00261	.00073	.0252	.00136	.00013
%RSD	.27989	.21999	.23575	.12204	.82074	.66612	.81316	.75654	.16007
#1	.72973	.20129	26.871	2.3011	.32041	.11043	3.1224	.18186	.08046
#2	.72571	.20045	26.964	2.2955	.31525	.10987	3.0734	.17917	.08050
#3	.72716	.20061	26.842	2.2981	.31720	.10898	3.0877	.18013	.08026

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.72539	1.4004	4.1790	29.889
Stddev	.00544	.0016	.0093	.174
%RSD	.74965	.11649	.22309	.58341
#1	.73154	1.4018	4.1898	30.056
#2	.72123	1.3986	4.1730	29.709
#3	.72339	1.4008	4.1743	29.903

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S4 Acquired: 9/18/2014 17:29:14 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	132.85	4727.2	60971.	15224.	4798.7
Stddev	.49	35.8	193.	68.	38.2
%RSD	.36610	.75702	.31594	.44616	.79594
#1	133.28	4687.6	60749.	15162.	4756.8
#2	132.32	4757.3	61093.	15213.	4831.7
#3	132.95	4736.6	61072.	15297.	4807.6

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S5 Acquired: 9/18/2014 17:33:17 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.54438	.86484	10.099	.62626	1.3702	15.465	63.500	.22657	14.121
Stddev	.00248	.00274	.027	.00244	.0059	.017	.293	.00040	.040
%RSD	.45526	.31687	.26287	.38954	.43235	.11170	.46219	.17479	.28571
#1	.54397	.86471	10.083	.62673	1.3685	15.467	63.164	.22692	14.107
#2	.54214	.86216	10.083	.62362	1.3653	15.447	63.706	.22614	14.091
#3	.54704	.86764	10.129	.62844	1.3767	15.481	63.629	.22664	14.167

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	22.142	5.3527	4.3315	4.0625	5.1330	9.1582	3.9628	3.0411	.98250
Stddev	.010	.0209	.0134	.0074	.0094	.0127	.0069	.0123	.00043
%RSD	.04595	.39080	.30865	.18323	.18382	.13892	.17289	.40301	.04344
#1	22.146	5.3663	4.3274	4.0656	5.1342	9.1481	3.9683	3.0371	.98204
#2	22.149	5.3286	4.3206	4.0540	5.1230	9.1539	3.9551	3.0314	.98257
#3	22.130	5.3632	4.3464	4.0679	5.1417	9.1725	3.9650	3.0549	.98288

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.4734	.39504	55.519	4.6134	.66475	.21533	6.2623	.37602	.15940
Stddev	.0021	.00102	.268	.0113	.00225	.00014	.0236	.00168	.00066
%RSD	.14186	.25855	.48211	.24466	.33774	.06462	.37669	.44760	.41636
#1	1.4754	.39591	55.313	4.6221	.66494	.21535	6.2568	.37605	.15936
#2	1.4712	.39528	55.423	4.6006	.66241	.21518	6.2418	.37431	.15877
#3	1.4736	.39392	55.822	4.6173	.66689	.21546	6.2881	.37768	.16009

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.4297	2.7708	8.6115	59.949
Stddev	.0052	.0012	.0148	.706
%RSD	.36236	.04295	.17171	1.1779
#1	1.4297	2.7712	8.6135	59.988
#2	1.4245	2.7694	8.5959	59.223
#3	1.4348	2.7717	8.6253	60.634

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S5 Acquired: 9/18/2014 17:33:17 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	121.55	4313.4	57640.	15122.	4395.0
Stddev	.80	12.9	99.	47.	10.3
%RSD	.66008	.29861	.17253	.31111	.23485
#1	121.75	4316.8	57664.	15080.	4397.6
#2	122.23	4324.2	57726.	15173.	4403.7
#3	120.66	4299.2	57531.	15113.	4383.6

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S6 Acquired: 9/18/2014 17:37:39 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	Al3961	Ca3736	Fe2598	Mg2790	Na8183
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	40.329	35.143	13.581	6.4667	4.1745
Stddev	.342	.605	.018	.0163	.0088
%RSD	.84813	1.7225	.13350	.25131	.21130
#1	40.155	34.941	13.561	6.4540	4.1646
#2	40.723	35.823	13.596	6.4850	4.1814
#3	40.110	34.664	13.587	6.4611	4.1776

Int. Std.	Y_3710
Units	Cts/S
Avg	14544.
Stddev	107.
%RSD	.73835
#1	14577.
#2	14424.
#3	14631.

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICV53 Acquired: 9/18/2014 17:51:17 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICV53 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9204544	1.074298	.9854163	.9374955	.9071957	2.426085
Stddev	.0022064	.002434	.0021363	.0023211	.0044977	.014391
%RSD	.2397037	.2265573	.2167934	.2475839	.4957771	.5931844
#1	.9185552	1.071495	.9831875	.9349690	.9032304	2.433414
#2	.9199333	1.075516	.9856151	.9379843	.9062739	2.435336
#3	.9228747	1.075882	.9874462	.9395333	.9120829	2.409504

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5212796	.4897728	.4866552	10.42193	.5339626	.4860670
Stddev	.0018976	.0023084	.0007002	.03039	.0011520	.0014238
%RSD	.3640302	.4713291	.1438763	.2915906	.2157535	.2929231
#1	.5231306	.4871104	.4861266	10.45317	.5341835	.4849104
#2	.5213695	.4912160	.4863897	10.42015	.5349882	.4856335
#3	.5193386	.4909919	.4874494	10.39247	.5327161	.4876572

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5091990	5.452368	.5306062	6.017593	.4961890	.4891329
Stddev	.0020103	.031767	.0016176	.017932	.0014925	.0010626
%RSD	.3947975	.5826300	.3048605	.2979906	.3007864	.2172347
#1	.5113607	5.483478	.5322280	6.009800	.4946089	.4884535
#2	.5073856	5.453645	.5289928	6.038103	.4963833	.4885879
#3	.5088506	5.419982	.5305979	6.004876	.4975748	.4903574

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.748826	.5186455	.9793906	9.365287	F .9125015	F 1.058198
Stddev	.160936	.0018945	.0113435	.041696	.0033622	.006863
%RSD	1.650822	.3652747	1.158216	.4452168	.3684631	.6485390
#1	9.865795	.5203976	.9924768	9.358128	.9105692	1.050495
#2	9.815398	.5166352	.9733341	9.327634	.9105515	1.060439
#3	9.565286	.5189038	.9723608	9.410099	.9163839	1.063661

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICV53 Acquired: 9/18/2014 17:51:17 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICV53 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 1.067448	.9547281	1.082340	F 1.032234	1.083085	1.022321
Stddev	.002511	.0032872	.004137	.000740	.003976	.002753
%RSD	.2352232	.3443110	.3822642	.0717355	.3670738	.2692690
#1	1.065351	.9513583	1.081463	1.031657	1.087049	1.022823
#2	1.066763	.9548999	1.086845	1.031976	1.083109	1.024788
#3	1.070230	.9579260	1.078711	1.033069	1.079098	1.019351

Elem	Sr4077
Units	ppm
Avg	.0129598
Stddev	.0000522
%RSD	.4027724
#1	.0129032
#2	.0130061
#3	.0129700

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	143.8671	5434.784	66825.59	15811.83	5994.687
Stddev	1.8400	10.549	215.05	12.23	7.964
%RSD	1.278972	.1941034	.3218080	.0773670	.1328494
#1	141.7698	5434.007	66597.17	15820.42	5992.336
#2	145.2103	5445.701	67024.14	15797.82	6003.562
#3	144.6211	5424.645	66855.47	15817.24	5988.164

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICB53 Acquired: 9/18/2014 17:55:23 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICB53 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001399	.0001035	-.000452	.0004527	.0014785	-.009151	-.000004
Stddev	.000222	.0006035	.000543	.0018424	.0017643	.006235	.000195
%RSD	15.87990	582.9240	119.9903	406.9450	119.3303	68.13770	4843.244
#1	-.001502	-.000579	-.000772	.0015604	.0027231	-.003452	-.000212
#2	-.001551	.000324	.000174	.0014718	.0022530	-.015811	.000026
#3	-.001144	.000565	-.000759	-.001674	-.000541	-.008190	.000175

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000206	-.000026	.0034436	.0000834	-.000013	.0021810	.0046669
Stddev	.000215	.000022	.0074230	.0001679	.000176	.0018503	.0103874
%RSD	104.0976	82.78451	215.5594	201.2313	1364.550	84.83317	222.5753
#1	.000038	-.000050	.0017257	-.000010	.000184	.0020029	-.004759
#2	-.000293	-.000020	-.002970	.000277	-.000066	.0041139	.015804
#3	-.000364	-.000008	.011575	-.000017	-.000157	.0004263	.002956

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002097	-.009339	.0000693	-.000126	.0632071	.0001128	.0031942
Stddev	.0003375	.015300	.0001594	.000104	.0217874	.0021934	.0020579
%RSD	160.9853	163.8313	229.9197	82.87120	34.46985	1943.926	64.42550
#1	.0002524	.007929	-.000032	-.000237	.0392715	-.002330	.0049192
#2	-.000147	-.014740	-.000013	-.000109	.0818835	.000756	.0037468
#3	.000524	-.021206	.000253	-.000031	.0684663	.001913	.0009164

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0093102	.0008217	.0057885	.0002650	-.005102	.0023486	-.000188
Stddev	.0128480	.0004001	.0018725	.0000983	.001606	.0052513	.000408
%RSD	137.9997	48.68733	32.34838	37.09687	31.48624	223.5917	217.1292
#1	-.004609	.0006519	.0037266	.0003573	-.003619	-.003584	-.000656
#2	.020715	.0012787	.0062560	.0002760	-.006808	.006402	.000004
#3	.011825	.0005345	.0073830	.0001617	-.004878	.004228	.000089

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICB53 Acquired: 9/18/2014 17:55:23 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICB53 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0005977	.0015999	.000004
Stddev	.0004741	.0005321	.000047
%RSD	79.32745	33.25907	1215.936
#1	.0011138	.0019500	-.000053
#2	.0004978	.0018620	.000001
#3	.0001815	.0009876	.000041

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	138.5558	5417.637	66190.24	15235.87	6208.088
Stddev	2.8824	16.348	196.17	76.46	14.826
%RSD	2.080315	.3017555	.2963673	.5018180	.2388146
#1	135.2979	5415.639	66340.48	15156.69	6214.677
#2	139.5945	5434.891	66261.93	15241.63	6218.477
#3	140.7748	5402.379	65968.31	15309.28	6191.109

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICSA53 Acquired: 9/18/2014 17:59:29 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSA53 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0021022	-.000885	-.000502	.0160675	.0041279	241.0439
Stddev	.0006356	.002372	.001611	.0023974	.0017332	.3620
%RSD	30.23527	268.1863	321.0253	14.92076	41.98789	.1501610
#1	.0023540	.001302	.001333	.0167035	.0041738	241.1307
#2	.0013793	-.000549	-.001683	.0134162	.0058377	241.3546
#3	.0025733	-.003407	-.001155	.0180828	.0023722	240.6465

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0070561	.0007651	.0012969	249.0700	.0607751	.0001121
Stddev	.0001277	.0002789	.0000892	.6444	.0005223	.0000954
%RSD	1.810549	36.44985	6.876557	.2587369	.8593705	85.11420
#1	.0069971	.0010038	.0012627	249.4116	.0603634	.0001974
#2	.0072027	.0008330	.0012299	249.4717	.0613626	.0001299
#3	.0069685	.0004586	.0013981	248.3267	.0605993	.0000090

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0039651	102.0846	.0143156	257.3802	.0012249	-.002415
Stddev	.0022311	.0663	.0006621	.3728	.0003272	.000136
%RSD	56.26885	.0649418	4.625297	.1448248	26.71204	5.625184
#1	.0051288	102.0805	.0136493	257.2129	.0014907	-.002275
#2	.0013927	102.1528	.0149735	257.8073	.0013246	-.002547
#3	.0053738	102.0204	.0143240	257.1205	.0008595	-.002423

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1557446	.0007922	.0222255	-.474950	.0075049	F .1072211
Stddev	.1024526	.0026793	.0044411	.045255	.0006642	.0024839
%RSD	65.78248	338.2268	19.98199	9.528459	8.850782	2.316576
#1	.2087859	.0033364	.0221388	-.423512	.0077657	.1044727
#2	.2208018	.0010446	.0178284	-.508648	.0067499	.1078851
#3	.0376460	-.002004	.0267094	-.492690	.0079992	.1093054

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICSA53 Acquired: 9/18/2014 17:59:29 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSA53 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0149792	-.012286	.0416848	F .0247335	.0203212	.0036848
Stddev	.0002707	.001474	.0047941	.0008237	.0001379	.0008182
%RSD	1.807137	11.99763	11.50076	3.330132	.6788653	22.20445
#1	.0146753	-.011877	.0381459	.0249979	.0201732	.0027970
#2	.0150681	-.013921	.0397678	.0253925	.0204463	.0038488
#3	.0151943	-.011059	.0471408	.0238101	.0203440	.0044085

Elem	Sr4077
Units	ppm
Avg	.1063259
Stddev	.0000777
%RSD	.0730971
#1	.1063160
#2	.1064081
#3	.1062536

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	136.5291	5039.949	60858.39	15170.62	5078.677
Stddev	1.6836	6.284	140.66	26.92	4.828
%RSD	1.233167	.1246744	.2311187	.1774547	.0950595
#1	138.4731	5041.042	60807.19	15187.58	5084.087
#2	135.5392	5033.191	60750.51	15139.57	5074.806
#3	135.5750	5045.615	61017.47	15184.70	5077.139

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICSAB53 Acquired: 9/18/2014 18:03:32 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSAB53 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0948667	.0985095	.0467902	.0648429	.5624789	242.5220
Stddev	.0014822	.0017128	.0001496	.0031522	.0020073	.1996
%RSD	1.562404	1.738728	.3197738	4.861291	.3568706	.0822938
#1	.0932923	.0975137	.0469593	.0646633	.5637612	242.5282
#2	.0950724	.1004873	.0467361	.0617844	.5601656	242.3195
#3	.0962352	.0975275	.0466751	.0680811	.5635100	242.7185

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5309794	.5113440	1.023441	251.0647	.5938740	.5033566
Stddev	.0008740	.0013469	.000442	.3701	.0006058	.0007708
%RSD	.1646037	.2634088	.0432313	.1473934	.1020019	.1531326
#1	.5312590	.5126222	1.023074	251.4821	.5945215	.5042183
#2	.5316794	.5099375	1.023932	250.7766	.5933211	.5027328
#3	.5299998	.5114723	1.023318	250.9355	.5937793	.5031187

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5128251	102.7755	.5380280	259.3920	1.011366	.1999690
Stddev	.0033295	.3588	.0011788	1.0456	.001373	.0009258
%RSD	.6492411	.3490919	.2190928	.4030897	.1357420	.4629661
#1	.5156643	103.0161	.5391780	260.2587	1.011878	.2010347
#2	.5136504	102.3631	.5368224	258.2307	1.009811	.1993631
#3	.5091606	102.9473	.5380836	259.6866	1.012409	.1995093

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0570442	.5101502	.9816454	-.957482	.0347339	F .0833822
Stddev	.1308459	.0050120	.0186633	.065321	.0011114	.0082695
%RSD	229.3765	.9824521	1.901226	6.822182	3.199901	9.917593
#1	-.047561	.5152305	1.001909	-.958300	.0356855	.0790270
#2	.203761	.5052095	.965161	-1.02239	.0335123	.0929191
#3	.014932	.5100105	.977866	-.89176	.0350038	.0782006

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICSAB53 Acquired: 9/18/2014 18:03:32 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSAB53 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003629	-.007295	.0300415	-.000970	-.001885	.0027509
Stddev	.0003858	.005367	.0022193	.000694	.000718	.0006418
%RSD	106.2916	73.56638	7.387378	71.59089	38.09551	23.33020
#1	.0006351	-.006195	.0275012	-.001756	-.002678	.0022090
#2	-.000079	-.013127	.0310194	-.000713	-.001278	.0034597
#3	.000532	-.002564	.0316039	-.000441	-.001698	.0025841

Elem	Sr4077
Units	ppm
Avg	.1069857
Stddev	.0001339
%RSD	.1251622
#1	.1071403
#2	.1069079
#3	.1069088

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	136.0655	5041.454	60991.26	15020.91	5068.012
Stddev	1.2788	6.570	247.31	82.81	6.582
%RSD	.9398169	.1303215	.4054899	.5512880	.1298797
#1	135.5145	5038.604	60737.40	14959.19	5065.450
#2	137.5274	5048.968	61004.90	15115.02	5075.490
#3	135.1547	5036.790	61231.46	14988.52	5063.096

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV54 Acquired: 9/18/2014 18:07:27 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV54 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.151468	5.167494	26.31432	5.120370	5.117529	398.3400	10.63150
Stddev	.060323	.062577	.30563	.068522	.063508	4.8365	.05096
%RSD	1.170986	1.210973	1.161469	1.338222	1.240989	1.214151	.4793563
#1	5.144130	5.133640	26.17035	5.101841	5.098870	392.7721	10.68567
#2	5.095149	5.129136	26.10727	5.063019	5.065441	400.7497	10.62432
#3	5.215124	5.239704	26.66535	5.196252	5.188276	401.4982	10.58450

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5229463	2.650883	420.6832	16.59377	2.632285	15.95353	405.2386
Stddev	.0030629	.033955	.2519	.11393	.030313	.04419	.6973
%RSD	.5857076	1.280900	.0598699	.6865987	1.151592	.2770183	.1720827
#1	.5250623	2.638179	420.3937	16.52762	2.617972	15.92149	404.6862
#2	.5194340	2.625111	420.8521	16.52836	2.611778	16.00395	405.0075
#3	.5243427	2.689358	420.8037	16.72532	2.667104	15.93515	406.0222

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.75501	408.5733	2.609474	1.356071	396.8241	2.615950	15.55068
Stddev	.01424	.8434	.033072	.007684	1.1941	.011707	.43610
%RSD	.0903806	.2064147	1.267370	.5666205	.3009160	.4475076	2.804410
#1	15.74065	408.6431	2.595348	1.352182	395.4604	2.609246	15.48745
#2	15.75526	407.6972	2.585811	1.351110	397.6825	2.609138	15.14964
#3	15.76912	409.3795	2.647263	1.364922	397.3293	2.629468	16.01494

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	161.0842	5.180364	5.349623	5.050643	5.299885	5.266038	5.240777
Stddev	.3810	.056407	.012287	.071150	.068045	.015846	.065330
%RSD	.2365109	1.088860	.2296853	1.408725	1.283895	.3009157	1.246563
#1	160.9319	5.160643	5.344180	5.034150	5.253867	5.252899	5.218605
#2	161.5177	5.136465	5.340997	4.989188	5.267741	5.283636	5.189419
#3	160.8028	5.243984	5.363692	5.128590	5.378047	5.261580	5.314307

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV54 Acquired: 9/18/2014 18:07:27 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV54 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.164763	5.377559	5.380808
Stddev	.011337	.019057	.014125
%RSD	.2195108	.3543879	.2624998
#1	5.152185	5.363982	5.365501
#2	5.167908	5.399345	5.383585
#3	5.174196	5.369351	5.393338

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	122.7830	4492.014	56061.45	14321.40	4419.422
Stddev	2.7530	48.788	308.97	10.77	43.628
%RSD	2.242158	1.086112	.5511352	.0752227	.9871837
#1	123.1250	4501.222	56203.89	14317.28	4438.077
#2	125.3490	4535.542	56273.51	14313.30	4450.622
#3	119.8750	4439.278	55706.95	14333.63	4369.569

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB54 Acquired: 9/18/2014 18:11:37 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB54 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001632	.0019857	-.000521	.0016669	.0006245	.0067697	.0000750
Stddev	.000346	.0006164	.000058	.0012301	.0011110	.0050470	.0003643
%RSD	21.21324	31.04457	11.15210	73.79778	177.8932	74.55347	485.4707
#1	-.002030	.0019428	-.000587	.0026069	.0004549	.0113728	.0003082
#2	-.001407	.0026224	-.000475	.0021190	.0018107	.0075634	.0002618
#3	-.001458	.0013918	-.000502	.0002747	-.000392	.0013728	-.000345

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000779	.0000174	.0018065	.0000754	.0000914	.0021786	.0069012
Stddev	.000383	.0000094	.0059189	.0000935	.0000406	.0014218	.0019702
%RSD	49.20630	54.14275	327.6445	124.0096	44.44065	65.26539	28.54825
#1	-.001188	.0000234	.0010563	.0000645	.0001325	.0005651	.0059182
#2	-.000722	.0000065	.0080648	-.000012	.0000905	.0027224	.0091695
#3	-.000427	.0000223	-.003702	.000174	.0000513	.0032482	.0056159

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002834	.0015297	.0000110	-.000129	-.138065	.0001860	.0025102
Stddev	.0002106	.0095684	.0003248	.000060	.037243	.0010798	.0018946
%RSD	74.33335	625.5190	2963.097	46.70929	26.97484	580.4924	75.47863
#1	.0004779	.0075140	-.000023	-.000118	-.102501	-.001053	.0037478
#2	.0000596	-.009506	.000352	-.000075	-.176785	.000684	.0003290
#3	.0003126	.006581	-.000295	-.000194	-.134908	.000927	.0034537

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2985893	.0011841	.0096271	.0006688	-.003744	.0051474	.0001449
Stddev	.0727521	.0005196	.0034095	.0000788	.001224	.0029573	.0005343
%RSD	24.36527	43.88390	35.41568	11.77669	32.69870	57.45264	368.6132
#1	.3459070	.0011118	.0120478	.0007588	-.005118	.0045981	-.000301
#2	.3350441	.0017360	.0057279	.0006126	-.003344	.0083409	.000737
#3	.2148169	.0007043	.0111057	.0006350	-.002770	.0025033	-.000002

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB54 Acquired: 9/18/2014 18:11:37 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB54 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0006205	.0042886	.0000501
Stddev	.0003799	.0005060	.0000662
%RSD	61.22185	11.79825	131.9733
#1	.0008793	.0039371	.0000822
#2	.0007979	.0048685	.0000941
#3	.0001844	.0040601	-.000026

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	140.1437	5423.075	65516.59	14828.36	6153.693
Stddev	.2617	24.130	43.75	80.16	20.347
%RSD	.1867584	.4449522	.0667705	.5406092	.3306487
#1	140.1470	5399.101	65558.48	14744.13	6134.671
#2	140.4038	5447.358	65471.20	14837.24	6175.147
#3	139.8804	5422.767	65520.09	14903.71	6151.261

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV55 Acquired: 9/18/2014 19:39:26 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV55 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.059463	5.086882	25.84456	5.011574	5.033263	391.8098	10.54161
Stddev	.022078	.016285	.05528	.020362	.026128	2.1555	.12809
%RSD	.4363631	.3201361	.2138749	.4062981	.5191134	.5501457	1.215062
#1	5.040951	5.068155	25.78296	4.999870	5.016843	391.5441	10.62341
#2	5.053539	5.094772	25.86091	4.999765	5.019552	389.7995	10.60742
#3	5.083898	5.097720	25.88982	5.035085	5.063392	394.0859	10.39399

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5138366	2.592406	417.0109	16.22967	2.584713	15.70725	398.2046
Stddev	.0015042	.005559	.5677	.02674	.007110	.00762	1.1752
%RSD	.2927293	.2144249	.1361285	.1647510	.2750984	.0485377	.2951252
#1	.5149623	2.587515	416.3863	16.23121	2.578848	15.71601	399.1439
#2	.5121283	2.591251	417.1512	16.20220	2.582669	15.70215	396.8868
#3	.5144191	2.598451	417.4953	16.25561	2.592621	15.70358	398.5831

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.55192	402.1458	2.557491	1.327707	397.7184	2.586060	15.15463
Stddev	.01800	.9549	.010030	.001595	.8369	.003056	.20499
%RSD	.1157414	.2374391	.3921871	.1201617	.2104233	.1181854	1.352680
#1	15.53658	403.2265	2.549579	1.326022	397.0579	2.588437	14.95639
#2	15.54745	401.4161	2.554122	1.327905	397.4377	2.582613	15.14175
#3	15.57174	401.7948	2.568772	1.329194	398.6595	2.587131	15.36577

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	159.1412	5.111597	5.288277	4.957114	5.224211	5.224487	5.134955
Stddev	.1965	.019180	.012571	.022733	.006296	.019762	.018665
%RSD	.1234949	.3752344	.2377111	.4586010	.1205200	.3782668	.3634941
#1	159.1975	5.103429	5.301187	4.944644	5.230381	5.231169	5.119622
#2	158.9226	5.097853	5.287568	4.943344	5.217796	5.202250	5.129503
#3	159.3034	5.133510	5.276075	4.983353	5.224456	5.240042	5.155739

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV55 Acquired: 9/18/2014 19:39:26 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV55 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.102945	5.340975	5.297128
Stddev	.012037	.012300	.071317
%RSD	.2358750	.2302978	1.346326
#1	5.110883	5.328677	5.369073
#2	5.089096	5.340971	5.295854
#3	5.108857	5.353277	5.226456

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	123.5598	4564.194	57428.87	14492.27	4485.461
Stddev	.9054	22.443	47.10	77.60	14.402
%RSD	.7327793	.4917165	.0820203	.5354732	.3210870
#1	124.5513	4576.644	57459.43	14417.16	4495.768
#2	123.3513	4577.653	57374.63	14487.51	4491.609
#3	122.7768	4538.286	57452.57	14572.14	4469.005

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB55 Acquired: 9/18/2014 19:43:36 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB55 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001170	.0019090	-.000367	.0013984	.0002290	.0220755	.0001576
Stddev	.000906	.0005759	.001171	.0003978	.0004693	.0071363	.0002419
%RSD	77.42890	30.17037	318.7268	28.44453	204.9020	32.32678	153.4452
#1	-.001561	.0012489	.000257	.0018080	.0000842	.0254475	.0000459
#2	-.000134	.0021685	.000359	.0013735	.0007537	.0269011	.0004351
#3	-.001815	.0023095	-.001718	.0010136	-.000151	.0138781	-.000008

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000072	.0000479	.0142407	.0003531	.0001810	.0042606	.0198645
Stddev	.000105	.0000285	.0008096	.0001307	.0001261	.0020465	.0020621
%RSD	144.6944	59.55500	5.684854	37.01612	69.64305	48.03316	10.38064
#1	-.000020	.0000708	.0149616	.0005041	.0002914	.0033729	.0215757
#2	-.000004	.0000160	.0133648	.0002757	.0000437	.0028078	.0204426
#3	-.000193	.0000569	.0143958	.0002796	.0002079	.0066011	.0175750

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005498	.0125346	-.000295	-.000254	-.074751	.0002121	.0038185
Stddev	.0001929	.0102826	.000196	.000166	.035739	.0025729	.0013393
%RSD	35.07678	82.03383	66.32385	65.29023	47.81149	1213.258	35.07472
#1	.0007596	.0085262	-.000107	-.000133	-.112341	.0009557	.0022795
#2	.0003801	.0048599	-.000281	-.000185	-.041206	-.002651	.0047197
#3	.0005099	.0242177	-.000498	-.000442	-.070705	.002331	.0044563

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1220503	.0008987	.0084298	.0011434	-.005024	.0055314	-.000148
Stddev	.0259174	.0003410	.0026654	.0004872	.001703	.0020672	.000095
%RSD	21.23499	37.94446	31.61828	42.61051	33.89433	37.37248	64.31651
#1	.1452358	.0012176	.0065574	.0015001	-.005227	.0061403	-.000251
#2	.1268445	.0009392	.0114814	.0013420	-.006616	.0072258	-.000065
#3	.0940705	.0005392	.0072507	.0005883	-.003229	.0032281	-.000127

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB55 Acquired: 9/18/2014 19:43:36 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB55 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000227	.0046388	.0002195
Stddev	.000695	.0004721	.0000856
%RSD	305.6873	10.17706	38.99094
#1	.000455	.0043739	.0002778
#2	-.000203	.0051838	.0002595
#3	-.000934	.0043586	.0001212

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	139.1548	5542.199	66852.08	15157.50	6268.555
Stddev	1.0896	16.690	140.52	51.61	16.341
%RSD	.7829891	.3011528	.2101952	.3405204	.2606798
#1	138.7697	5523.360	66961.59	15161.17	6249.744
#2	140.3846	5555.141	66693.63	15104.15	6276.679
#3	138.3101	5548.095	66901.01	15207.18	6279.242

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV56 Acquired: 9/18/2014 21:08:31 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV56 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.998763	5.044346	25.87583	4.940378	5.000810	390.8488	10.54516
Stddev	.054605	.045635	.25636	.068062	.059250	4.0005	.12180
%RSD	1.092362	.9046697	.9907457	1.377664	1.184805	1.023552	1.155009
#1	4.961211	5.013398	25.68392	4.888891	4.954871	389.6522	10.41269
#2	4.973676	5.022885	25.77660	4.914700	4.979874	395.3110	10.57047
#3	5.061403	5.096755	26.16698	5.017544	5.067686	387.5830	10.65231

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5013045	2.567559	417.7049	15.94594	2.578696	15.53888	394.6190
Stddev	.0009567	.025344	1.7701	.01212	.028006	.02972	.6272
%RSD	.1908493	.9870805	.4237685	.0760316	1.086068	.1912662	.1589441
#1	.5024073	2.548278	416.8504	15.95458	2.556474	15.54202	395.3006
#2	.5008101	2.558134	419.7401	15.93208	2.569460	15.56691	394.4903
#3	.5006962	2.596265	416.5241	15.95115	2.610154	15.50771	394.0661

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.37085	394.1670	2.530774	1.316067	396.8511	2.556264	14.98884
Stddev	.05567	.8840	.026372	.000810	1.3227	.011580	.09647
%RSD	.3621657	.2242830	1.042060	.0615150	.3332943	.4529861	.6435979
#1	15.36719	394.6905	2.510079	1.316963	396.9725	2.553074	14.95796
#2	15.42825	394.6642	2.521775	1.315388	398.1089	2.569104	14.91159
#3	15.31710	393.1463	2.560468	1.315850	395.4719	2.546614	15.09696

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	156.6272	5.069991	5.145503	4.868078	5.204045	5.168032	5.070650
Stddev	.3941	.045526	.016229	.056788	.062244	.006957	.056364
%RSD	.2516103	.8979497	.3154033	1.166538	1.196069	.1346088	1.111573
#1	157.0407	5.037973	5.142584	4.825537	5.154514	5.160091	5.032321
#2	156.5850	5.049892	5.162993	4.846134	5.183706	5.173052	5.044261
#3	156.2560	5.122107	5.130931	4.932564	5.273914	5.170954	5.135368

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV56 Acquired: 9/18/2014 21:08:31 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV56 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.006317	5.304390	5.292603
Stddev	.014914	.005477	.061212
%RSD	.2978956	.1032454	1.156554
#1	5.019088	5.303830	5.223182
#2	5.009936	5.310125	5.338822
#3	4.989927	5.299214	5.315805

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	121.3387	4579.594	57213.34	14388.42	4462.636
Stddev	.6632	13.442	154.78	67.02	9.658
%RSD	.5465624	.2935174	.2705254	.4658102	.2164204
#1	121.3851	4579.640	57121.73	14399.18	4464.026
#2	121.9774	4593.013	57126.25	14316.67	4471.524
#3	120.6535	4566.130	57392.04	14449.41	4452.359

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB56 Acquired: 9/18/2014 21:12:41 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB56 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001827	.0035751	-.000395	.0002481	.0007198	.0068946	-.000158
Stddev	.000453	.0002484	.000562	.0015050	.0004715	.0012496	.000205
%RSD	24.79269	6.947768	142.2108	606.5064	65.50544	18.12407	130.0331
#1	-.001304	.0035458	.000137	-.000938	.0007779	.0070112	-.000394
#2	-.002077	.0033427	-.000984	.001941	.0011597	.0055908	-.000056
#3	-.002100	.0038369	-.000339	-.000259	.0002220	.0080817	-.000023

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000253	.0000371	.0055951	-.000053	.0000930	.0032433	.0134415
Stddev	.000296	.0000320	.0025999	.000190	.0000591	.0016955	.0058787
%RSD	116.6853	86.26197	46.46798	358.2149	63.57909	52.27575	43.73531
#1	.000054	.0000276	.0061512	-.000199	.0000417	.0018654	.0202295
#2	-.000279	.0000110	.0027621	.000162	.0001577	.0051367	.0100197
#3	-.000535	.0000729	.0078720	-.000122	.0000796	.0027278	.0100753

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005877	.0014750	-.000074	-.000309	.0064395	-.000947	.0029546
Stddev	.0001209	.0097429	.000255	.000181	.0376923	.001700	.0020163
%RSD	20.56208	660.5287	346.6616	58.76256	585.3342	179.5771	68.24228
#1	.0007272	.0063229	-.000332	-.000285	-.033478	.000458	.0012903
#2	.0005226	-.009741	-.000067	-.000141	.041419	-.000461	.0051967
#3	.0005135	.007843	.000179	-.000501	.011377	-.002837	.0023767

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2122429	.0009284	.0055201	.0013551	.0061577	.0076835	.0000783
Stddev	.0409543	.0012657	.0019595	.0002334	.0013176	.0028968	.0000899
%RSD	19.29596	136.3296	35.49816	17.22271	21.39838	37.70156	114.9024
#1	.2266560	.0023741	.0040921	.0015333	.0072724	.0103896	.0001789
#2	.2440422	.0003915	.0047141	.0010909	.0047035	.0080332	.0000502
#3	.1660306	.0000197	.0077541	.0014410	.0064970	.0046277	.0000057

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB56 Acquired: 9/18/2014 21:12:41 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB56 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000600	.0036782	.0000938
Stddev	.000659	.0014109	.0000368
%RSD	109.8920	38.35838	39.25683
#1	-.001262	.0053072	.0000604
#2	.000056	.0028397	.0000876
#3	-.000594	.0028878	.0001333

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	139.3355	5581.733	67630.13	15143.79	6289.683
Stddev	1.2410	7.577	40.93	126.79	8.662
%RSD	.8906863	.1357383	.0605134	.8372125	.1377221
#1	138.0962	5581.748	67588.50	15034.95	6289.884
#2	140.5783	5589.302	67670.31	15113.41	6298.244
#3	139.3320	5574.149	67631.58	15283.00	6280.922

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: PB78992BL Acquired: 9/18/2014 21:41:19 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: PBS01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001676	.0000742	-.000531	.0001782	-.000466	-.000474	-.000392
Stddev	.002117	.0013497	.000539	.0007767	.000644	.006799	.000171
%RSD	126.2781	1819.514	101.4980	435.9665	138.1691	1434.487	43.79588
#1	-.000271	.0001122	-.000134	-.000234	-.000794	-.006589	-.000258
#2	-.004111	.0014045	-.001146	.001074	-.000879	-.001681	-.000332
#3	-.000647	-.001294	-.000315	-.000305	.000276	.006848	-.000585

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000179	.0000147	-.005299	-.000350	-.000015	.0025718	-.001733
Stddev	.000398	.0000212	.004136	.000235	.000273	.0006094	.004990
%RSD	222.0002	143.8704	78.05995	67.14572	1804.419	23.69332	287.9351
#1	-.000630	.0000198	-.002416	-.000372	-.000226	.0025361	-.007495
#2	.000126	-.000009	-.010038	-.000105	-.000113	.0031982	.001200
#3	-.000034	.000033	-.003442	-.000574	.000293	.0019811	.001096

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002034	-.003511	.0000900	-.000037	-.049439	.0003513	.0004037
Stddev	.0003002	.008555	.0001890	.000214	.056077	.0011810	.0014696
%RSD	147.5994	243.6880	210.0417	585.2006	113.4260	336.1595	364.0161
#1	.0004135	.003439	.0001929	.000205	-.113137	-.000330	-.001200
#2	-.000140	-.013066	.0002053	-.000205	-.027667	-.000331	.000726
#3	.000337	-.000906	-.000128	-.000110	-.007513	.001715	.001685

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1201487	.0009254	-.003537	-.000036	.0078844	.0038365	-.000068
Stddev	.0809731	.0001734	.004602	.000075	.0003747	.0045077	.000475
%RSD	67.39409	18.73948	130.1156	206.1781	4.751733	117.4937	693.9138
#1	.0278300	.0007259	-.006349	-.000017	.0078204	-.000657	-.000389
#2	.1791375	.0010105	-.006037	-.000119	.0075459	.003808	.000477
#3	.1534786	.0010399	.001774	.000027	.0082870	.008358	-.000293

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: PB78992BL Acquired: 9/18/2014 21:41:19 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: PBS01 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000248	.0008091	.0000440
Stddev	.000340	.0010533	.0000488
%RSD	137.1529	130.1807	110.9209
#1	.000104	.0019451	-.000011
#2	-.000575	-.000135	.000059
#3	-.000274	.000618	.000084

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	138.9894	5587.220	67222.15	15086.31	6277.615
Stddev	2.0309	9.503	189.34	61.86	5.181
%RSD	1.461193	.1700831	.2816632	.4100249	.0825292
#1	137.8724	5576.379	67437.99	15018.45	6274.707
#2	141.3337	5591.171	67084.11	15100.95	6283.597
#3	137.7622	5594.109	67144.35	15139.54	6274.542

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: PB78992BS Acquired: 9/18/2014 21:45:26 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: LCS01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0163935	.0510240	.0198274	.0648018	.1096557	.3830928	.4282202
Stddev	.0019677	.0010530	.0007204	.0010781	.0014646	.0059774	.0020195
%RSD	12.00289	2.063707	3.633331	1.663623	1.335670	1.560287	.4716002
#1	.0159143	.0507742	.0201598	.0641408	.1087559	.3844728	.4303147
#2	.0147097	.0501184	.0190009	.0642188	.1088655	.3765462	.4262852
#3	.0185566	.0521795	.0203216	.0660458	.1113457	.3882595	.4280605

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0101048	.0099259	10.75803	.0210667	.0979019	.0540104	.2448355
Stddev	.0003814	.0000791	.03878	.0002616	.0004550	.0002946	.0046233
%RSD	3.774589	.7971802	.3605033	1.241805	.4647671	.5454997	1.888330
#1	.0099203	.0098396	10.75406	.0211931	.0976911	.0540602	.2499879
#2	.0098507	.0099431	10.72139	.0212412	.0975905	.0536940	.2410490
#3	.0105434	.0099950	10.79865	.0207659	.0984241	.0542769	.2434696

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0334341	10.01024	.0788815	.0192809	10.08424	.1065378	.1173134
Stddev	.0005444	.08819	.0001367	.0003297	.02671	.0019080	.0051967
%RSD	1.628169	.8809651	.1733651	1.709920	.2648568	1.790883	4.429766
#1	.0331396	9.93556	.0787808	.0196598	10.07617	.1044385	.1222902
#2	.0331003	9.98763	.0788265	.0191234	10.11405	.1070085	.1119217
#3	.0340622	10.10753	.0790372	.0190595	10.06249	.1081663	.1177282

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.851092	.0042279	.0171186	.0194187	.1819498	.2016437	.0133087
Stddev	.082635	.0017821	.0019196	.0000805	.0018820	.0043133	.0000329
%RSD	.8388390	42.15029	11.21334	.4144474	1.034357	2.139089	.2470970
#1	9.785510	.0051355	.0185181	.0194302	.1802501	.2060576	.0132905
#2	9.823859	.0021747	.0179073	.0194927	.1839723	.1974385	.0132890
#3	9.943906	.0053734	.0149303	.0193330	.1816269	.2014349	.0133467

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: PB78992BS Acquired: 9/18/2014 21:45:26 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: LCS01 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2016721	.1005115	.2181717
Stddev	.0023978	.0003768	.0002721
%RSD	1.188934	.3749230	.1247094
#1	.2031591	.1004193	.2182329
#2	.1989061	.1001893	.2178743
#3	.2029513	.1009259	.2184080

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	138.7618	5514.326	66697.60	15093.03	5993.203
Stddev	1.3694	19.279	418.79	15.79	20.381
%RSD	.9868355	.3496149	.6278894	.1046096	.3400715
#1	137.3777	5516.555	66414.39	15111.00	5999.098
#2	138.7917	5532.394	66499.75	15081.40	6009.987
#3	140.1159	5494.030	67178.65	15086.67	5970.524

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-01 Acquired: 9/18/2014 22:25:17 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0411713	-.009536	.0843651	.0434498	.0061762	125.4869	.7554240
Stddev	.0013336	.001474	.0014373	.0021177	.0010940	.1100	.0011427
%RSD	3.239128	15.45319	1.703618	4.873952	17.71292	.0876718	.1512652
#1	.0425134	-.010893	.0827295	.0448811	.0068331	125.4382	.7552129
#2	.0398464	-.009747	.0854264	.0444513	.0049133	125.6128	.7566576
#3	.0411540	-.007969	.0849394	.0410171	.0067821	125.4096	.7544016

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0049929	.0033529	42.17163	.2222715	.0700024	.2613697	277.7485
Stddev	.0001470	.0000820	.04911	.0002692	.0005528	.0026754	.6867
%RSD	2.943694	2.445059	.1164634	.1210944	.7897296	1.023600	.2472538
#1	.0050506	.0033281	42.19060	.2219653	.0696000	.2612026	278.4643
#2	.0051023	.0032861	42.20844	.2224707	.0697743	.2587818	277.6862
#3	.0048259	.0034444	42.11586	.2223785	.0706327	.2641247	277.0951

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.958481	54.07791	.1288341	-.004401	1.253421	.4687301	.4086356
Stddev	.000629	.15360	.0007100	.000405	.065014	.0017319	.0054168
%RSD	.0212553	.2840302	.5511043	9.194687	5.186932	.3694868	1.325590
#1	2.958953	54.25497	.1287192	-.004015	1.184389	.4674531	.4030222
#2	2.958723	53.98044	.1281886	-.004822	1.262388	.4707014	.4090528
#3	2.957767	53.99833	.1295946	-.004365	1.313486	.4680358	.4138318

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	32.77578	4.788398	.2127894	.0153843	8.708058	4.503364	.0103331
Stddev	.05325	.013872	.0004844	.0001341	.023006	.010643	.0003229
%RSD	.1624611	.2897090	.2276531	.8716708	.2641902	.2363349	3.124484
#1	32.83349	4.785044	.2122580	.0154647	8.692526	4.498955	.0102420
#2	32.72856	4.776511	.2132064	.0154587	8.697161	4.515503	.0100655
#3	32.76527	4.803640	.2129039	.0152295	8.734488	4.495634	.0106917

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-01 Acquired: 9/18/2014 22:25:17 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF1 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	7.438463	.2458108	.0988273
Stddev	.014199	.0007651	.0001288
%RSD	.1908889	.3112630	.1303663
#1	7.445030	.2449275	.0986791
#2	7.448190	.2462406	.0988906
#3	7.422169	.2462645	.0989122

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	149.1977	5763.233	69760.79	16694.65	5540.333
Stddev	1.5128	6.310	88.21	43.87	9.981
%RSD	1.013989	.1094807	.1264452	.2627728	.1801469
#1	150.5580	5758.152	69658.98	16651.08	5534.259
#2	149.4668	5770.296	69814.18	16738.81	5551.852
#3	147.5684	5761.253	69809.22	16694.05	5534.889

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-02 Acquired: 9/18/2014 22:29:13 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0595639	-.012330	.1387246	.0592713	.0086827	143.3373	.5903343
Stddev	.0013056	.000579	.0015518	.0014394	.0012447	.9461	.0039752
%RSD	2.191966	4.696197	1.118611	2.428415	14.33590	.6600660	.6733724
#1	.0599894	-.011707	.1402764	.0576129	.0079128	143.5553	.5910914
#2	.0580986	-.012852	.1371729	.0600045	.0101187	142.3012	.5860351
#3	.0606037	-.012432	.1387245	.0601964	.0080165	144.1554	.5938765

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0059972	.0044248	24.92862	.2635331	.0481515	.1594651	366.7454
Stddev	.0003619	.0000345	.18368	.0009513	.0004681	.0018013	2.4449
%RSD	6.033843	.7793463	.7368166	.3609654	.9721076	1.129580	.6666351
#1	.0056529	.0043961	24.98209	.2634674	.0477237	.1606475	366.7150
#2	.0063743	.0044153	24.72414	.2645155	.0480794	.1573920	364.3159
#3	.0059643	.0044631	25.07963	.2626164	.0486515	.1603558	369.2053

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.549054	28.41126	.0781625	-.005492	1.032652	.5691281	.2653476
Stddev	.012477	.17825	.0002187	.000347	.072111	.0059302	.0012630
%RSD	.8054834	.6274044	.2798086	6.316733	6.983112	1.041984	.4759753
#1	1.553186	28.44931	.0782618	-.005697	1.110599	.5733153	.2651509
#2	1.535035	28.21705	.0779118	-.005091	.968317	.5623421	.2666975
#3	1.558942	28.56741	.0783140	-.005688	1.019041	.5717267	.2641945

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	18.67864	2.614443	.2688674	.0117944	2.614888	3.878902	.0130676
Stddev	.13800	.009451	.0052038	.0004112	.017757	.038250	.0011558
%RSD	.7388198	.3615062	1.935445	3.486824	.6790630	.9861042	8.845087
#1	18.76396	2.617641	.2711368	.0122028	2.618310	3.867465	.0135120
#2	18.51942	2.603808	.2629143	.0117998	2.595670	3.847675	.0139354
#3	18.75253	2.621881	.2725510	.0113804	2.630685	3.921566	.0117556

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-02 Acquired: 9/18/2014 22:29:13 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF2 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.543976	.1548866	.0692968
Stddev	.016717	.0007863	.0004891
%RSD	.6571189	.5076907	.7058538
#1	2.541649	.1546376	.0696425
#2	2.528545	.1542549	.0687372
#3	2.561735	.1557673	.0695109

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	151.8199	5854.451	70908.28	16950.71	5605.205
Stddev	1.2605	18.105	235.86	87.53	18.909
%RSD	.8302441	.3092462	.3326245	.5163659	.3373491
#1	152.5390	5852.341	70682.92	16891.14	5614.815
#2	150.3645	5873.518	70888.53	17051.20	5617.379
#3	152.5563	5837.493	71153.40	16909.78	5583.421

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-03 Acquired: 9/18/2014 22:33:11 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0349616	-.002583	.1981128	.0132365	.0019067	67.13500	.4106381
Stddev	.0017138	.001262	.0009739	.0011396	.0008703	.07164	.0013979
%RSD	4.901954	48.85214	.4915990	8.609317	45.64489	.1067069	.3404121
#1	.0357234	-.001155	.1974195	.0125988	.0009779	67.18133	.4102741
#2	.0329990	-.003046	.1976925	.0145521	.0020388	67.05248	.4094582
#3	.0361624	-.003548	.1992262	.0125584	.0027035	67.17117	.4121819

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0046582	.0010630	1.931568	.0981005	.0299968	.0492256	74.69078
Stddev	.0001835	.0000231	.004397	.0005211	.0001918	.0010794	.14025
%RSD	3.939099	2.168796	.2276539	.5312180	.6395508	2.192677	.1877804
#1	.0046694	.0010775	1.936407	.0977867	.0298081	.0480587	74.76788
#2	.0048358	.0010751	1.930481	.0987021	.0301916	.0501882	74.52889
#3	.0044693	.0010364	1.927816	.0978128	.0299905	.0494299	74.77558

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.327498	4.695928	.0437113	-.001144	.4109847	.1538819	.1923893
Stddev	.004975	.060285	.0004320	.000186	.0711272	.0015585	.0066629
%RSD	.2137539	1.283765	.9883958	16.28421	17.30653	1.012809	3.463229
#1	2.333243	4.758027	.0432529	-.001262	.3662468	.1538157	.1874232
#2	2.324588	4.637639	.0437701	-.001240	.4930024	.1554725	.1897833
#3	2.324664	4.692117	.0441109	-.000929	.3737051	.1523575	.1999613

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8002816	2.209596	.0707309	.0052875	1.453427	3.643944	.0111475
Stddev	.0322483	.006026	.0012479	.0002519	.010944	.012333	.0003727
%RSD	4.029615	.2727062	1.764215	4.764878	.7529463	.3384504	3.343438
#1	.8346983	2.210440	.0705428	.0055035	1.455947	3.658078	.0107560
#2	.7707619	2.203193	.0695878	.0053482	1.441444	3.635372	.0114981
#3	.7953847	2.215155	.0720621	.0050107	1.462891	3.638381	.0111884

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-03 Acquired: 9/18/2014 22:33:11 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF3 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.6116933	.0337119	.0368347
Stddev	.0027056	.0011637	.0000179
%RSD	.4423171	3.451808	.0486495
#1	.6117213	.0350545	.0368148
#2	.6089738	.0330893	.0368495
#3	.6143849	.0329920	.0368399

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	151.8479	5971.443	72426.21	16761.43	6034.439
Stddev	1.0813	14.856	715.97	81.21	18.353
%RSD	.7121169	.2487918	.9885474	.4844917	.3041333
#1	153.0882	5974.537	72784.52	16672.80	6023.613
#2	151.3526	5984.509	71601.82	16779.25	6055.629
#3	151.1030	5955.284	72892.28	16832.25	6024.074

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV57 Acquired: 9/18/2014 22:37:12 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV57 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.968160	4.992872	25.52655	4.914890	4.997003	392.0151	10.58241
Stddev	.022861	.003622	.02320	.033808	.023374	1.7123	.03352
%RSD	.4601469	.0725444	.0908835	.6878684	.4677579	.4368071	.3167903
#1	4.956300	4.994356	25.50259	4.900400	4.985565	390.1920	10.57444
#2	4.953666	4.988743	25.52813	4.890742	4.981551	393.5895	10.61919
#3	4.994514	4.995516	25.54891	4.953528	5.023893	392.2638	10.55358

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4969448	2.521784	419.5705	15.83592	2.550034	15.53375	393.9845
Stddev	.0022959	.005077	1.3000	.02363	.004231	.02645	.8033
%RSD	.4620077	.2013384	.3098446	.1492446	.1659354	.1703037	.2038870
#1	.4963288	2.516649	419.8683	15.81044	2.547724	15.53072	393.8118
#2	.4950198	2.521900	418.1474	15.85713	2.547460	15.50893	393.2816
#3	.4994860	2.526802	420.6958	15.84019	2.554917	15.56158	394.8601

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.35374	391.6336	2.496905	1.314844	403.3605	2.562849	14.99497
Stddev	.03227	.5262	.007071	.001374	.5469	.003345	.34721
%RSD	.2102090	.1343562	.2831709	.1045245	.1355772	.1305115	2.315479
#1	15.36941	391.6724	2.489359	1.315654	402.9141	2.561445	15.21206
#2	15.31662	391.0891	2.497979	1.315622	403.1969	2.560435	15.17832
#3	15.37519	392.1393	2.503377	1.313258	403.9705	2.566667	14.59452

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	156.3486	5.050292	5.105854	4.828741	5.121420	5.135963	4.995859
Stddev	.2124	.028053	.027537	.028415	.028775	.012318	.018615
%RSD	.1358779	.5554756	.5393154	.5884560	.5618531	.2398461	.3726015
#1	156.1902	5.046023	5.085018	4.810345	5.119291	5.140006	4.977252
#2	156.2657	5.024617	5.095471	4.814410	5.093769	5.122131	4.995843
#3	156.5901	5.080234	5.137072	4.861468	5.151200	5.145752	5.014481

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV57 Acquired: 9/18/2014 22:37:12 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV57 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.029746	5.344323	5.312294
Stddev	.001020	.017339	.050632
%RSD	.0202810	.3244291	.9531129
#1	5.028726	5.328118	5.331428
#2	5.029746	5.342242	5.350571
#3	5.030766	5.362608	5.254883

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	121.8837	4561.865	57900.03	14543.64	4454.784
Stddev	3.1190	23.373	63.14	48.80	11.279
%RSD	2.558968	.5123629	.1090438	.3355530	.2531924
#1	119.8395	4574.575	57864.86	14495.51	4461.654
#2	120.3381	4576.128	57862.31	14593.09	4460.931
#3	125.4737	4534.890	57972.92	14542.33	4441.766

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB57 Acquired: 9/18/2014 22:41:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB57 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000724	.0021521	.0002256	.0016193	-.000176	.0085665	-.000959
Stddev	.000963	.0001810	.0008184	.0009249	.000611	.0110575	.000207
%RSD	133.0041	8.410693	362.7153	57.11840	347.1571	129.0795	21.60208
#1	-.001823	.0023344	-.000045	.0024797	-.000142	.0153710	-.000721
#2	-.000030	.0019724	-.000423	.0006412	-.000804	-.004192	-.001058
#3	-.000319	.0021495	.001145	.0017369	.000417	.014521	-.001099

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000202	.0000020	-.000112	-.000036	.0000244	.0020609	.0126464
Stddev	.000562	.0000173	.000747	.000180	.0000415	.0008325	.0047795
%RSD	277.8066	886.5621	668.7109	492.8858	169.8874	40.39382	37.79378
#1	-.000236	.0000129	-.000507	.000114	.0000018	.0011045	.0110418
#2	-.000746	-.000018	.000750	.000012	-.000001	.0026224	.0180217
#3	.000375	.000011	-.000578	-.000235	.000072	.0024559	.0088756

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004379	.0033951	-.000025	-.000127	.1009882	.0011266	.0007749
Stddev	.0003257	.0131856	.000077	.000091	.0944857	.0022298	.0012459
%RSD	74.39301	388.3681	305.3584	71.88966	93.56109	197.9281	160.7750
#1	.0005926	-.011272	.000017	-.000212	.0844789	-.001098	-.000191
#2	.0000636	.007191	-.000114	-.000138	.2026405	.001116	.002181
#3	.0006574	.014266	.000022	-.000031	.0158452	.003362	.000334

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3030087	.0002780	.0052161	.0011993	-.006667	.0088098	-.000173
Stddev	.0451560	.0005237	.0009228	.0002462	.001343	.0040346	.000169
%RSD	14.90253	188.4094	17.69098	20.52602	20.14399	45.79670	97.70441
#1	.3535492	-.000312	.0049624	.0013652	-.008199	.0131684	-.000212
#2	.2888425	.000459	.0062393	.0013163	-.005690	.0080553	.000012
#3	.2666343	.000687	.0044468	.0009165	-.006113	.0052058	-.000318

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB57 Acquired: 9/18/2014 22:41:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB57 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000941	.0035541	.0000918
Stddev	.000447	.0004352	.0000411
%RSD	47.57905	12.24571	44.79745
#1	-.000467	.0031033	.0001123
#2	-.001356	.0035871	.0001187
#3	-.000998	.0039718	.0000445

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	139.2714	5576.036	68014.21	15349.31	6257.962
Stddev	1.4622	15.871	257.83	65.62	13.743
%RSD	1.049857	.2846219	.3790863	.4275326	.2196069
#1	138.4704	5593.333	67771.25	15274.85	6271.621
#2	138.3849	5572.631	67986.66	15374.38	6258.130
#3	140.9590	5562.144	68284.71	15398.70	6244.136

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-04 Acquired: 9/18/2014 22:45:32 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.451023	-.003701	.3084888	.0297463	.0158010	88.16628	1.066296
Stddev	.001413	.001313	.0007032	.0027465	.0009107	.28513	.000776
%RSD	.0409426	35.48741	.2279478	9.233227	5.763785	.3234029	.0727876
#1	3.450034	-.003864	.3082704	.0278527	.0153914	88.40406	1.066999
#2	3.450394	-.002314	.3079208	.0284899	.0151669	88.24462	1.065463
#3	3.452642	-.004925	.3092753	.0328964	.0168446	87.85017	1.066426

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0051305	.0065628	46.90410	5.263177	.1395822	3.318960	174.2957
Stddev	.0004348	.0000515	.18688	.005667	.0005140	.004898	.6231
%RSD	8.475335	.7844130	.3984367	.1076759	.3682708	.1475870	.3574838
#1	.0056029	.0065378	47.11571	5.269508	.1397781	3.323107	174.9774
#2	.0050416	.0065285	46.83491	5.261448	.1389991	3.320218	174.1541
#3	.0047470	.0066219	46.76168	5.258576	.1399696	3.313556	173.7556

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.466757	8.417878	.0876931	-.001345	.7468147	.2155057	1.168723
Stddev	.035917	.076234	.0002792	.000139	.0426554	.0024939	.015276
%RSD	.3793966	.9056173	.3183744	10.31856	5.711644	1.157242	1.307088
#1	9.507430	8.494991	.0876597	-.001195	.7064738	.2182625	1.165731
#2	9.453438	8.416089	.0874321	-.001469	.7914584	.2134063	1.155164
#3	9.439402	8.342555	.0879875	-.001371	.7425118	.2148484	1.185274

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.278350	4.420293	.1574193	.0111359	3.990779	3.077285	.0169490
Stddev	.073701	.001156	.0034117	.0002908	.006531	.010656	.0007806
%RSD	2.248098	.0261466	2.167271	2.611026	.1636415	.3462757	4.605690
#1	3.322892	4.418958	.1536071	.0108551	3.993583	3.088191	.0176438
#2	3.318878	4.420966	.1584653	.0111169	3.983314	3.066898	.0170990
#3	3.193279	4.420955	.1601856	.0114357	3.995438	3.076767	.0161043

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-04 Acquired: 9/18/2014 22:45:32 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF4 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.349160	.0742148	.2831511
Stddev	.004673	.0004279	.0002671
%RSD	.3463707	.5765706	.0943182
#1	1.353208	.0737289	.2828901
#2	1.350225	.0743803	.2834238
#3	1.344046	.0745353	.2831394

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	147.8488	5689.561	71250.68	16901.99	5797.629
Stddev	1.4126	4.460	154.23	80.05	17.787
%RSD	.9554024	.0783831	.2164669	.4736178	.3068055
#1	148.2645	5689.977	71175.56	16810.27	5796.623
#2	149.0068	5693.797	71428.08	16957.78	5815.898
#3	146.2750	5684.907	71148.40	16937.92	5780.366

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-05 Acquired: 9/18/2014 22:49:28 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.654768	-.004459	.2773141	.0321013	.0106889	81.47297	.7638972
Stddev	.015064	.000239	.0010714	.0016136	.0016787	.11079	.0010514
%RSD	.5674308	5.365144	.3863625	5.026448	15.70550	.1359887	.1376398
#1	2.656336	-.004452	.2783059	.0303343	.0098907	81.49131	.7629032
#2	2.638982	-.004224	.2774588	.0324731	.0095582	81.35415	.7637904
#3	2.668987	-.004702	.2761777	.0334966	.0126178	81.57344	.7649979

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0059110	.0059701	24.49949	3.661524	.1009062	1.822291	193.3139
Stddev	.0004637	.0000850	.00533	.007563	.0001217	.002809	.3106
%RSD	7.843864	1.424636	.0217569	.2065539	.1206244	.1541316	.1606800
#1	.0064092	.0060408	24.50013	3.670143	.1009353	1.820526	193.0694
#2	.0054922	.0058757	24.50447	3.658434	.1007726	1.820817	193.6634
#3	.0058317	.0059939	24.49387	3.655996	.1010107	1.825530	193.2089

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.155534	6.938803	.0799084	-.002597	.7572412	.2194696	1.258367
Stddev	.004290	.037035	.0000961	.000089	.0930477	.0035370	.031010
%RSD	.1032395	.5337309	.1202202	3.431098	12.28772	1.611606	2.464325
#1	4.160470	6.952054	.0800193	-.002567	.6951715	.2154422	1.259293
#2	4.153426	6.967389	.0798516	-.002527	.8642259	.2208957	1.288904
#3	4.152705	6.896966	.0798542	-.002698	.7123262	.2220709	1.226904

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.664142	4.235532	.1694489	.0131141	2.199097	3.784582	.0153412
Stddev	.054004	.007846	.0027243	.0004244	.010898	.018937	.0010613
%RSD	2.027066	.1852342	1.607774	3.236166	.4955658	.5003779	6.918165
#1	2.668014	4.240078	.1694838	.0135011	2.203837	3.764986	.0165285
#2	2.608306	4.226473	.1721557	.0126602	2.186631	3.802783	.0144845
#3	2.716106	4.240046	.1667073	.0131808	2.206821	3.785976	.0150107

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-05 Acquired: 9/18/2014 22:49:28 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF5 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.226086	.0659180	.1613516
Stddev	.002132	.0008186	.0003733
%RSD	.1738785	1.241869	.2313746
#1	1.225175	.0661511	.1613869
#2	1.224561	.0650081	.1609619
#3	1.228522	.0665948	.1617060

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	148.0257	5615.846	70552.86	16605.26	5829.418
Stddev	2.6561	5.868	365.63	47.25	7.036
%RSD	1.794339	.1044918	.5182312	.2845743	.1206909
#1	147.4506	5619.270	70170.20	16551.01	5828.097
#2	145.7043	5619.198	70589.71	16627.27	5837.020
#3	150.9222	5609.070	70898.66	16637.49	5823.136

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-06 Acquired: 9/18/2014 22:53:25 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF6 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8056367	-.002853	.1979318	.0188044	.0060656	49.79532	.7363745
Stddev	.0020079	.000952	.0010356	.0003650	.0007096	.19796	.0024517
%RSD	.2492314	33.37631	.5232188	1.941016	11.69882	.3975460	.3329472
#1	.8035871	-.001758	.1989127	.0187776	.0060100	49.84407	.7349189
#2	.8057228	-.003488	.1980337	.0184535	.0053854	49.57755	.7349995
#3	.8076001	-.003313	.1968490	.0191820	.0068013	49.96436	.7392052

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0030253	.0029302	34.70945	.9864573	.0380162	.6383209	90.80304
Stddev	.0003610	.0000916	.10735	.0011989	.0001038	.0009855	.22658
%RSD	11.93237	3.126664	.3092785	.1215340	.2729451	.1543833	.2495342
#1	.0034417	.0028311	34.70575	.9872707	.0379599	.6385866	90.76678
#2	.0028013	.0029477	34.60399	.9850805	.0379527	.6391463	90.59677
#3	.0028329	.0030119	34.81859	.9870208	.0381359	.6372299	91.04557

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.225423	6.556898	.0432489	-.000976	1.064540	.1251572	.8128238
Stddev	.015625	.014849	.0003939	.000081	.134005	.0015856	.0217557
%RSD	.3697962	.2264606	.9107372	8.254907	12.58804	1.266879	2.676556
#1	4.225099	6.540629	.0432084	-.001015	1.208742	.1248011	.7877855
#2	4.209962	6.569720	.0428768	-.001030	.943842	.1237800	.8271096
#3	4.241207	6.560344	.0436615	-.000884	1.041037	.1268906	.8235764

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7774461	3.111292	.0884596	.0066569	4.000775	3.682156	.0113364
Stddev	.0313003	.013080	.0004841	.0001855	.016012	.012270	.0004753
%RSD	4.026048	.4203970	.5472125	2.786353	.4002259	.3332292	4.192650
#1	.8071678	3.099960	.0889756	.0068445	3.985248	3.677689	.0109141
#2	.7447757	3.108311	.0880155	.0064736	3.999845	3.672745	.0118511
#3	.7803947	3.125605	.0883878	.0066526	4.017232	3.696034	.0112441

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-06 Acquired: 9/18/2014 22:53:25 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF6 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.056394	.0404646	.2077418
Stddev	.002906	.0004999	.0007599
%RSD	.2750950	1.235289	.3657722
#1	1.056541	.0400745	.2072787
#2	1.053417	.0402913	.2073280
#3	1.059223	.0410281	.2086188

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	144.7257	5621.506	68434.22	16243.93	5925.737
Stddev	3.8634	5.703	204.64	29.22	6.336
%RSD	2.669472	.1014412	.2990366	.1798653	.1069318
#1	149.0154	5619.713	68484.68	16263.32	5931.296
#2	141.5203	5627.889	68608.92	16210.32	5927.078
#3	143.6414	5616.915	68209.07	16258.14	5918.837

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-07 Acquired: 9/18/2014 22:57:25 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7801173	-.003227	.1508648	.0176466	.0053019	46.04365	.6109384
Stddev	.0100347	.001129	.0022736	.0015248	.0010428	.05752	.0008389
%RSD	1.286308	34.98317	1.507074	8.640949	19.66831	.1249352	.1373044
#1	.7861698	-.002379	.1518727	.0193868	.0050792	45.98902	.6100318
#2	.7685341	-.002793	.1482614	.0165439	.0064380	46.03824	.6110965
#3	.7856478	-.004508	.1524603	.0170093	.0043884	46.10369	.6116870

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0032070	.0024582	27.67239	1.012620	.0337280	.6079543	89.94667
Stddev	.0001249	.0001065	.01230	.027011	.0004168	.0011005	.13918
%RSD	3.893517	4.332450	.0444320	2.667416	1.235695	.1810163	.1547351
#1	.0031823	.0023857	27.68606	.997781	.0340307	.6072916	90.09771
#2	.0030964	.0024085	27.66225	.996282	.0332526	.6092246	89.91869
#3	.0033424	.0025805	27.66886	1.043798	.0339006	.6073466	89.82360

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.141320	5.286674	.0384998	-.001075	.7200021	.1200282	.6607929
Stddev	.003264	.006477	.0010925	.000355	.0663656	.0032336	.0084035
%RSD	.1039027	.1225135	2.837778	33.04013	9.217415	2.694068	1.271736
#1	3.140501	5.293508	.0392383	-.000777	.6790619	.1165924	.6511338
#2	3.138544	5.285888	.0372448	-.000979	.7965731	.1204802	.6648183
#3	3.144915	5.280626	.0390162	-.001468	.6843712	.1230121	.6664265

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1762678	2.641724	.0860793	.0061887	3.263959	3.972154	.0103648
Stddev	.0282651	.031839	.0019818	.0001253	.046708	.040849	.0002360
%RSD	16.03534	1.205223	2.302238	2.024339	1.431012	1.028385	2.277046
#1	.2044230	2.659421	.0883358	.0060866	3.283971	3.927531	.0101152
#2	.1478940	2.604968	.0846216	.0061511	3.210579	3.981225	.0103946
#3	.1764864	2.660782	.0852806	.0063285	3.297326	4.007704	.0105844

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-07 Acquired: 9/18/2014 22:57:25 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF7 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.9163805	.0353573	.1670871
Stddev	.0003343	.0003674	.0003001
%RSD	.0364812	1.039025	.1795911
#1	.9164594	.0355145	.1669064
#2	.9166683	.0356199	.1674335
#3	.9160138	.0349375	.1669213

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	144.4250	5654.668	68111.39	16325.67	5973.270
Stddev	1.7136	67.137	1507.77	85.52	75.352
%RSD	1.186474	1.187284	2.213689	.5238197	1.261489
#1	145.9996	5621.136	69119.49	16313.32	5933.739
#2	142.6000	5731.965	68836.63	16247.00	6060.162
#3	144.6752	5610.902	66378.03	16416.69	5925.909

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-08 Acquired: 9/18/2014 23:01:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF7D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7838052	-.001320	.1574942	.0177548	.0069959	46.68737	.6188714
Stddev	.0033340	.001255	.0009585	.0010954	.0013914	.09101	.0019126
%RSD	.4253663	95.02554	.6085950	6.169850	19.88852	.1949377	.3090525
#1	.7872235	-.002151	.1580614	.0167663	.0068511	46.73534	.6200793
#2	.7805623	-.001933	.1563875	.0175655	.0084540	46.58241	.6166662
#3	.7836298	.000123	.1580337	.0189325	.0056826	46.74435	.6198686

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0030529	.0029772	28.06831	1.010019	.0343687	.6178044	90.91211
Stddev	.0002352	.0000412	.06148	.000122	.0001326	.0031814	.23954
%RSD	7.705628	1.382655	.2190394	.0121016	.3859124	.5149522	.2634847
#1	.0030267	.0029459	28.10753	1.009884	.0344962	.6212079	91.11556
#2	.0033001	.0029618	27.99745	1.010122	.0343784	.6149053	90.97266
#3	.0028318	.0030238	28.09995	1.010052	.0342314	.6173002	90.64810

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.182404	5.432187	.0392499	-.000844	.7018680	.1195089	.6681059
Stddev	.004463	.024832	.0002627	.000088	.1993348	.0008796	.0109026
%RSD	.1402304	.4571226	.6691700	10.38671	28.40061	.7360141	1.631870
#1	3.184868	5.457815	.0395250	-.000765	.8587509	.1196057	.6806802
#2	3.177252	5.430510	.0390018	-.000831	.4775664	.1185849	.6612876
#3	3.185091	5.408237	.0392227	-.000938	.7692866	.1203361	.6623500

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3441172	2.660415	.0835837	.0072529	3.276321	4.066987	.0107713
Stddev	.0280187	.010611	.0006734	.0001782	.011762	.019285	.0003354
%RSD	8.142199	.3988660	.8057041	2.457486	.3589901	.4741749	3.113546
#1	.3132694	2.669474	.0833817	.0074210	3.282520	4.082467	.0106408
#2	.3679886	2.648740	.0843351	.0072718	3.262757	4.045384	.0111523
#3	.3510935	2.663032	.0830345	.0070660	3.283687	4.073109	.0105209

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-08 Acquired: 9/18/2014 23:01:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF7D Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.9255402	.0363708	.1695626
Stddev	.0004511	.0000985	.0001830
%RSD	.0487390	.2708222	.1079417
#1	.9251185	.0364814	.1696514
#2	.9260158	.0363385	.1693521
#3	.9254862	.0362925	.1696842

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	142.2899	5624.822	68632.76	16080.23	5937.588
Stddev	1.5959	18.651	136.95	50.36	15.335
%RSD	1.121618	.3315782	.1995456	.3131486	.2582664
#1	140.4472	5605.752	68479.43	16026.50	5923.411
#2	143.1918	5643.023	68675.89	16126.35	5953.864
#3	143.2307	5625.689	68742.96	16087.84	5935.487

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-09 Acquired: 9/18/2014 23:05:25 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF7S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7079711	.0900481	.1730673	.1017807	.1398113	43.67108	4.978000
Stddev	.0026603	.0004346	.0013691	.0025761	.0010273	.05240	.021661
%RSD	.3757692	.4826198	.7910665	2.531020	.7347932	.1199780	.4351371
#1	.7102146	.0902966	.1735064	.1045064	.1406247	43.72662	5.001809
#2	.7050321	.0903015	.1715325	.1014495	.1401522	43.66410	4.972734
#3	.7086667	.0895463	.1741630	.0993862	.1386568	43.62253	4.959458

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1011888	.0992732	25.19110	1.292455	1.035237	1.056905	79.03230
Stddev	.0003247	.0000243	.08223	.002587	.000724	.005825	.09454
%RSD	.3209234	.0244575	.3264321	.2001967	.0699422	.5511455	.1196258
#1	.1013671	.0992542	25.26561	1.290219	1.034892	1.063204	79.00726
#2	.1013854	.0992648	25.20483	1.291856	1.034750	1.055798	79.13684
#3	.1008140	.0993006	25.10287	1.295289	1.036069	1.051713	78.95279

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.903796	4.592120	1.031954	.0946425	.6335217	1.172771	1.550219
Stddev	.006629	.038510	.001248	.0003973	.0715987	.005378	.017946
%RSD	.1698049	.8386078	.1209783	.4198087	11.30169	.4585400	1.157640
#1	3.908663	4.589677	1.031882	.0942223	.5539883	1.175790	1.550528
#2	3.906478	4.631793	1.030743	.0946930	.6537384	1.175961	1.568008
#3	3.896246	4.554890	1.033237	.0950122	.6928384	1.166562	1.532120

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.237520	2.270642	.0780260	.0055360	2.762709	4.005217	.0106157
Stddev	.033813	.002313	.0033880	.0001199	.001699	.017848	.0003327
%RSD	14.23570	.1018521	4.342106	2.165485	.0614804	.4456291	3.134520
#1	-.259259	2.270677	.0778607	.0054143	2.764670	4.021845	.0103236
#2	-.254736	2.268312	.0747237	.0055397	2.761707	4.007449	.0109779
#3	-.198564	2.272937	.0814936	.0056540	2.761751	3.986358	.0105455

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-09 Acquired: 9/18/2014 23:05:25 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF7S Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.7716275	.0292267	.1514949
Stddev	.0010290	.0004266	.0007353
%RSD	.1333509	1.459543	.4853783
#1	.7725796	.0289848	.1522720
#2	.7717669	.0289759	.1514028
#3	.7705359	.0297192	.1508100

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	142.9466	5599.919	69225.80	16080.20	5963.011
Stddev	1.6312	7.591	156.02	71.19	7.569
%RSD	1.141120	.1355558	.2253738	.4427174	.1269366
#1	142.4790	5595.430	69390.29	16070.02	5961.293
#2	141.6002	5608.684	69207.20	16014.66	5971.292
#3	144.7605	5595.644	69079.92	16155.94	5956.449

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-07LX5 Acquired: 9/18/2014 23:09:19 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF7L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1587250	-.000224	.0320796	.0041681	.0010604	9.447174	.1250387
Stddev	.0007322	.000847	.0005364	.0011127	.0003525	.022777	.0002808
%RSD	.4612735	378.2760	1.672016	26.69531	33.24429	.2410992	.2245819
#1	.1585186	.000673	.0321872	.0033999	.0009406	9.464727	.1251746
#2	.1581182	-.000335	.0314976	.0036603	.0007834	9.455359	.1252257
#3	.1595382	-.001010	.0325541	.0054441	.0014573	9.421435	.1247158

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006205	.0006145	5.718573	.2055753	.0070420	.1270149	18.68468
Stddev	.0001639	.0000209	.009201	.0007076	.0001763	.0028486	.04095
%RSD	26.41639	3.404695	.1608901	.3442141	2.503927	2.242706	.2191800
#1	.0006740	.0006299	5.708749	.2062882	.0069120	.1278969	18.63778
#2	.0007511	.0005907	5.719981	.2055646	.0069713	.1238297	18.70286
#3	.0004366	.0006229	5.726989	.2048731	.0072427	.1293181	18.71339

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6498281	1.116319	.0083845	-.000142	.2362198	.0236625	.1363913
Stddev	.0006423	.022248	.0003112	.000166	.0569044	.0014973	.0048233
%RSD	.0988425	1.992937	3.712089	117.4749	24.08960	6.327619	3.536362
#1	.6491272	1.090772	.0085454	-.000320	.2721046	.0230383	.1418352
#2	.6503886	1.131429	.0085824	-.000113	.1706085	.0253709	.1326511
#3	.6499685	1.126757	.0080257	.000009	.2659462	.0225784	.1346874

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.154673	.5411390	.0161260	.0014746	.6434805	.8211238	.0022333
Stddev	.050527	.0009001	.0014195	.0001026	.0027996	.0110236	.0005458
%RSD	32.66704	.1663384	8.802218	6.959554	.4350767	1.342500	24.44171
#1	-.098776	.5421712	.0153188	.0013823	.6465703	.8318169	.0023412
#2	-.197100	.5405173	.0177650	.0015851	.6427588	.8097971	.0016415
#3	-.168142	.5407285	.0152943	.0014565	.6411124	.8217574	.0027171

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-07LX5 Acquired: 9/18/2014 23:09:19 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF7L Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1862828	.0078382	.0340867
Stddev	.0015567	.0003012	.0000173
%RSD	.8356646	3.842228	.0507926
#1	.1880657	.0075799	.0340876
#2	.1855893	.0081690	.0340690
#3	.1851933	.0077657	.0341036

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	140.9511	5635.665	68320.07	15606.72	6188.027
Stddev	2.3298	17.198	221.59	60.45	12.753
%RSD	1.652926	.3051662	.3243479	.3873242	.2060947
#1	140.3662	5616.445	68270.83	15629.67	6174.809
#2	138.9694	5649.601	68127.23	15538.16	6200.258
#3	143.5176	5640.950	68562.14	15652.34	6189.016

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-10 Acquired: 9/18/2014 23:13:22 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF8 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0636417	-.004274	.1605897	.0174655	.0022542	69.49004	.6612946
Stddev	.0015255	.000469	.0004882	.0011601	.0013290	.16654	.0006386
%RSD	2.397060	10.97908	.3040293	6.642128	58.95444	.2396597	.0965653
#1	.0640712	-.003847	.1609327	.0186270	.0033573	69.51319	.6614326
#2	.0619475	-.004199	.1600307	.0174626	.0007788	69.64380	.6618530
#3	.0649065	-.004777	.1608056	.0163069	.0026266	69.31314	.6605983

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0082504	.0026767	15.56945	.2330475	.0473213	.1198576	90.60402
Stddev	.0003439	.0000345	.02835	.0005902	.0002301	.0011943	.18990
%RSD	4.168872	1.288954	.1820554	.2532604	.4861810	.9963967	.2095968
#1	.0086016	.0026579	15.55965	.2335376	.0475867	.1212278	90.48449
#2	.0082352	.0027165	15.60139	.2332126	.0471775	.1190377	90.82299
#3	.0079142	.0026557	15.54730	.2323924	.0471998	.1193073	90.50458

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7799496	3.795542	.0512989	-.001255	.5740293	.1993700	.3543797
Stddev	.0012420	.025619	.0000166	.000044	.1714047	.0013721	.0042144
%RSD	.1592405	.6749721	.0323508	3.485236	29.85992	.6882178	1.189226
#1	.7792164	3.823663	.0512951	-.001215	.6611633	.1979513	.3546172
#2	.7813836	3.789432	.0512846	-.001249	.3765619	.1994685	.3584703
#3	.7792488	3.773530	.0513171	-.001302	.6843626	.2006902	.3500516

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8592116	3.109723	.0785124	.0076191	6.354101	3.927188	.0108068
Stddev	.0599483	.010780	.0015708	.0000041	.015549	.013599	.0007389
%RSD	6.977128	.3466641	2.000677	.0541125	.2447024	.3462753	6.836953
#1	.7953035	3.114615	.0774042	.0076228	6.361363	3.927492	.0112409
#2	.9142007	3.117189	.0778230	.0076146	6.364690	3.940632	.0099537
#3	.8681304	3.097364	.0803100	.0076198	6.336250	3.913439	.0112258

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-10 Acquired: 9/18/2014 23:13:22 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF8 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.3954166	.0560608	.0975422
Stddev	.0007926	.0007682	.0001486
%RSD	.2004418	1.370267	.1523258
#1	.3956088	.0552556	.0974376
#2	.3960955	.0567857	.0974768
#3	.3945456	.0561410	.0977123

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	159.5356	6183.346	75461.16	17552.57	5920.603
Stddev	2.2528	14.246	233.81	28.18	9.329
%RSD	1.412115	.2304006	.3098416	.1605322	.1575697
#1	157.1550	6172.460	75623.86	17554.60	5910.981
#2	159.8177	6178.108	75193.23	17523.44	5921.219
#3	161.6341	6199.470	75566.40	17579.68	5929.608

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-11 Acquired: 9/18/2014 23:17:22 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF9 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0492409	-.003454	.1887972	.0187588	.0035693	67.88075	.6170802
Stddev	.0012685	.001169	.0006277	.0020072	.0009872	.21317	.0018538
%RSD	2.576113	33.84037	.3324817	10.70017	27.65938	.3140300	.3004140
#1	.0491743	-.002220	.1889423	.0164418	.0033149	67.74523	.6149464
#2	.0480070	-.004544	.1881097	.0198668	.0027341	68.12646	.6179990
#3	.0505414	-.003599	.1893398	.0199679	.0046588	67.77057	.6182951

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0079638	.0031044	11.50448	.1139753	.0562068	.0506150	96.80359
Stddev	.0001494	.0000355	.04768	.0004924	.0002201	.0009288	.35640
%RSD	1.875847	1.144170	.4144772	.4319820	.3914929	1.834950	.3681659
#1	.0079643	.0031430	11.45893	.1134883	.0564550	.0495841	96.79166
#2	.0081129	.0030970	11.55405	.1139646	.0560355	.0508743	97.16581
#3	.0078141	.0030731	11.50047	.1144729	.0561299	.0513865	96.45331

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.055026	3.369262	.0476954	-.001453	.5829754	.1908615	.2507550
Stddev	.000978	.034998	.0000637	.000012	.1456591	.0027971	.0048381
%RSD	.0926747	1.038737	.1336104	.8327303	24.98547	1.465516	1.929405
#1	1.054364	3.340517	.0477688	-.001463	.6253307	.1917518	.2465187
#2	1.056149	3.408234	.0476543	-.001439	.7027626	.1877277	.2497192
#3	1.054566	3.359036	.0476632	-.001455	.4208328	.1931052	.2560271

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1406518	2.736958	.0788416	.0068592	3.741340	4.113269	.0104385
Stddev	.0289334	.004887	.0041585	.0001191	.010438	.036006	.0002888
%RSD	20.57091	.1785646	5.274491	1.736423	.2789959	.8753597	2.766342
#1	.1667501	2.736591	.0832610	.0067812	3.736863	4.089000	.0101329
#2	.1095389	2.732265	.0782580	.0069963	3.733887	4.154639	.0104756
#3	.1456665	2.742019	.0750057	.0068002	3.753270	4.096168	.0107068

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-11 Acquired: 9/18/2014 23:17:22 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF9 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.3488284	.0538140	.0806628
Stddev	.0018127	.0010239	.0002968
%RSD	.5196492	1.902684	.3679079
#1	.3499198	.0549528	.0803239
#2	.3498295	.0529695	.0807884
#3	.3467359	.0535197	.0808762

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	158.7411	6226.529	76057.66	17701.95	5974.107
Stddev	2.6886	17.718	246.51	117.20	9.219
%RSD	1.693720	.2845487	.3241159	.6620970	.1543117
#1	161.8455	6236.719	76209.28	17783.95	5974.427
#2	157.1678	6236.796	76190.48	17567.71	5983.161
#3	157.2098	6206.070	75773.21	17754.19	5964.732

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-12 Acquired: 9/18/2014 23:21:22 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AG0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.459725	-.006476	.2900091	.0317124	.0133808	85.31410	.7999696
Stddev	.014003	.000449	.0011181	.0018115	.0012565	.33297	.0030418
%RSD	.3139779	6.929678	.3855466	5.712343	9.390344	.3902872	.3802377
#1	4.465063	-.005957	.2912369	.0301295	.0119299	85.46432	.8008327
#2	4.470273	-.006731	.2897409	.0336881	.0141138	84.93249	.7965895
#3	4.443838	-.006738	.2890495	.0313195	.0140986	85.54549	.8024865

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0057280	.0047980	28.92663	6.753408	.1570024	3.202631	192.6699
Stddev	.0003411	.0001596	.15303	.006569	.0005218	.005369	.5636
%RSD	5.955117	3.326928	.5290395	.0972694	.3323645	.1676466	.2925414
#1	.0061030	.0047613	29.02301	6.746129	.1571737	3.201352	192.9828
#2	.0054362	.0049728	28.75017	6.758896	.1574171	3.198017	192.0192
#3	.0056448	.0046600	29.00670	6.755197	.1564165	3.208524	193.0077

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.379280	8.318850	.0840227	-.001768	.7994703	.2219656	.7267425
Stddev	.048723	.066947	.0002845	.000174	.0448227	.0007638	.0078632
%RSD	.6602709	.8047643	.3386417	9.856047	5.606547	.3441196	1.081975
#1	7.410444	8.353220	.0842716	-.001599	.7529902	.2216308	.7283067
#2	7.323133	8.241699	.0840840	-.001756	.8029932	.2214264	.7337059
#3	7.404263	8.361633	.0837125	-.001947	.8424276	.2228397	.7182148

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.322396	4.058825	.1667783	.0119311	3.067494	4.168188	.0168932
Stddev	.031936	.015422	.0082103	.0000953	.017005	.029670	.0009954
%RSD	.7388595	.3799544	4.922908	.7990257	.5543681	.7118286	5.892097
#1	4.352066	4.064528	.1729194	.0119605	3.068839	4.172991	.0174277
#2	4.288595	4.070583	.1574528	.0120083	3.083787	4.136409	.0175071
#3	4.326528	4.041364	.1699629	.0118246	3.049857	4.195164	.0157448

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-12 Acquired: 9/18/2014 23:21:22 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AG0 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.382220	.0755700	.1885882
Stddev	.006045	.0002037	.0007756
%RSD	.4373442	.2695682	.4112490
#1	1.384348	.0756092	.1889012
#2	1.375399	.0753495	.1877051
#3	1.386914	.0757512	.1891585

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	147.8943	5695.630	70756.57	16518.98	5806.136
Stddev	.6297	7.705	66.16	143.67	12.111
%RSD	.4257744	.1352752	.0935036	.8697070	.2085958
#1	147.3116	5693.991	70768.45	16375.12	5805.485
#2	147.8089	5688.877	70815.99	16662.46	5794.364
#3	148.5623	5704.023	70685.28	16519.34	5818.560

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-13 Acquired: 9/18/2014 23:25:18 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AG1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1052803	-.005430	.1794284	.0218727	.0019088	77.37282	.6966683
Stddev	.0014757	.000779	.0011191	.0009282	.0005656	.11418	.0005435
%RSD	1.401677	14.34772	.6236865	4.243509	29.62896	.1475696	.0780214
#1	.1035926	-.005356	.1792605	.0209308	.0013653	77.40219	.6971789
#2	.1063277	-.004690	.1784028	.0219008	.0024941	77.24683	.6960969
#3	.1059206	-.006243	.1806220	.0227865	.0018671	77.46945	.6967291

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0083147	.0031085	15.95764	.2546742	.0651424	.1142199	112.9454
Stddev	.0001299	.0000760	.01260	.0010873	.0003079	.0010916	.0692
%RSD	1.561810	2.445931	.0789796	.4269325	.4725930	.9556931	.0612594
#1	.0084063	.0030803	15.97000	.2534736	.0649876	.1151889	112.9853
#2	.0081661	.0030507	15.94481	.2555926	.0649427	.1144333	112.9853
#3	.0083718	.0031947	15.95810	.2549563	.0654970	.1130373	112.8655

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.793085	4.169749	.0539229	-.001808	.6470676	.2111476	.3226481
Stddev	.005009	.015457	.0002490	.000101	.0677623	.0018350	.0099657
%RSD	.2793646	.3706906	.4617593	5.574877	10.47221	.8690746	3.088731
#1	1.797800	4.178348	.0538307	-.001806	.7216646	.2094900	.3321655
#2	1.787826	4.178994	.0537332	-.001709	.5893195	.2108332	.3234911
#3	1.793628	4.151905	.0542049	-.001910	.6302186	.2131195	.3122876

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3996412	3.132381	.0930171	.0073831	4.852579	3.607809	.0107866
Stddev	.0427397	.010411	.0039147	.0001039	.006368	.011187	.0007005
%RSD	10.69452	.3323581	4.208575	1.406634	.1312205	.3100703	6.494164
#1	.3853959	3.132389	.0947990	.0074613	4.852668	3.613042	.0100777
#2	.3658434	3.121966	.0957238	.0074228	4.846168	3.594965	.0114784
#3	.4476844	3.142787	.0885284	.0072653	4.858902	3.615420	.0108036

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-13 Acquired: 9/18/2014 23:25:18 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AG1 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.3576562	.0637756	.1044635
Stddev	.0020727	.0003343	.0001158
%RSD	.5795292	.5241578	.1108932
#1	.3584461	.0637674	.1045856
#2	.3592178	.0641139	.1043552
#3	.3553046	.0634455	.1044496

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	156.9746	6170.230	75055.22	17585.59	5882.701
Stddev	2.6519	9.697	188.44	67.11	6.822
%RSD	1.689405	.1571568	.2510719	.3816105	.1159704
#1	153.9133	6169.280	75240.96	17518.54	5883.236
#2	158.4430	6180.367	74864.19	17652.76	5889.240
#3	158.5676	6161.043	75060.52	17585.48	5875.627

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-14 Acquired: 9/18/2014 23:29:19 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AG2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0750127	-.004207	.1536710	.0120558	.0013871	65.00314	.5345242
Stddev	.0009484	.000411	.0007813	.0012206	.0001928	.21786	.0018238
%RSD	1.264322	9.779659	.5084491	10.12464	13.89829	.3351493	.3412016
#1	.0739611	-.004548	.1530014	.0121869	.0013843	65.19055	.5366298
#2	.0758032	-.004323	.1534821	.0107750	.0011957	65.05476	.5335028
#3	.0752739	-.003750	.1545295	.0132056	.0015812	64.76411	.5334399

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0063951	.0017476	8.085971	.2200279	.0276156	.0972931	59.34513
Stddev	.0001712	.0000335	.031702	.0006052	.0002728	.0013039	.06255
%RSD	2.677207	1.916476	.3920654	.2750688	.9880442	1.340186	.1053988
#1	.0065555	.0017261	8.122543	.2197912	.0275110	.0986219	59.39322
#2	.0064148	.0017861	8.069057	.2195767	.0274105	.0972417	59.36776
#3	.0062148	.0017305	8.066312	.2207157	.0279253	.0960156	59.27442

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3209483	3.330596	.0393391	-.000960	.4872264	.1923163	.2036003
Stddev	.0020836	.022130	.0001767	.000049	.0477409	.0028729	.0081935
%RSD	.6491894	.6644308	.4492558	5.117882	9.798506	1.493831	4.024303
#1	.3232824	3.333663	.0392886	-.000955	.5406586	.1955200	.2098385
#2	.3202864	3.307093	.0391930	-.001011	.4487655	.1899692	.2066414
#3	.3192760	3.351032	.0395355	-.000914	.4722550	.1914596	.1943211

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0158295	2.632451	.0547044	.0062051	5.522738	3.815452	.0099830
Stddev	.0257799	.007205	.0043572	.0001351	.015515	.008825	.0007282
%RSD	162.8598	.2737143	7.964971	2.177830	.2809251	.2312907	7.294821
#1	.0428368	2.628075	.0528751	.0062364	5.510700	3.823644	.0094970
#2	.0131680	2.628512	.0515601	.0063218	5.517268	3.806107	.0096317
#3	-.008516	2.640768	.0596780	.0060570	5.540247	3.816605	.0108203

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-14 Acquired: 9/18/2014 23:29:19 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AG2 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.3354965	.0508419	.0711712
Stddev	.0013951	.0000760	.0001474
%RSD	.4158455	.1495639	.2071423
#1	.3363634	.0508018	.0713237
#2	.3362389	.0509296	.0710295
#3	.3338871	.0507942	.0711605

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	156.0121	6127.850	74788.91	17355.88	5987.145
Stddev	1.1598	11.086	273.65	77.54	8.694
%RSD	.7433873	.1809159	.3658968	.4467433	.1452079
#1	155.6510	6119.303	74494.60	17268.02	5985.694
#2	155.0759	6123.869	75035.68	17384.92	5996.473
#3	157.3095	6140.377	74836.44	17414.71	5979.268

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-15 Acquired: 9/18/2014 23:33:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AG3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0225846	-.002907	.0961605	.0080746	.0005862	29.16823	.3727663
Stddev	.0011404	.000416	.0006176	.0014721	.0006411	.05777	.0001449
%RSD	5.049595	14.30180	.6422511	18.23180	109.3666	.1980709	.0388783
#1	.0220156	-.003384	.0963887	.0090592	-.000149	29.22363	.3727766
#2	.0218407	-.002618	.0954613	.0087823	.001031	29.10834	.3726165
#3	.0238976	-.002720	.0966316	.0063822	.000876	29.17273	.3729058

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0013199	.0024184	27.80104	.0632324	.0068544	.0484849	42.36642
Stddev	.0004348	.0000423	.04599	.0000988	.0000819	.0005969	.02058
%RSD	32.93720	1.750512	.1654311	.1562155	1.194720	1.231086	.0485850
#1	.0017976	.0024502	27.79299	.0632939	.0069158	.0490518	42.38970
#2	.0012150	.0023704	27.85053	.0632848	.0068860	.0478620	42.35893
#3	.0009473	.0024347	27.75961	.0631185	.0067614	.0485408	42.35062

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.666705	3.150207	.0195522	-.000341	.2718186	.1032492	.1418854
Stddev	.001754	.029685	.0002224	.000112	.1394651	.0008605	.0042571
%RSD	.1052341	.9423272	1.137650	32.81061	51.30816	.8333861	3.000404
#1	1.666814	3.158434	.0193141	-.000212	.4287758	.1024292	.1438134
#2	1.664899	3.117276	.0197546	-.000406	.1621334	.1041451	.1448374
#3	1.668402	3.174911	.0195880	-.000406	.2245465	.1031731	.1370053

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.550650	2.633217	.0473355	.0030362	1.932217	3.010189	.0068405
Stddev	.017120	.003216	.0010788	.0001429	.004825	.002340	.0004683
%RSD	3.109097	.1221318	2.279111	4.707640	.2497245	.0777266	6.846559
#1	-.570310	2.634873	.0464134	.0030623	1.927310	3.007645	.0071929
#2	-.539028	2.629511	.0485220	.0028819	1.932387	3.012248	.0063091
#3	-.542611	2.635268	.0470712	.0031642	1.936955	3.010674	.0070197

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3941-15 Acquired: 9/18/2014 23:33:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AG3 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.4311005	.0208660	.1569194
Stddev	.0010915	.0008026	.0002700
%RSD	.2531791	3.846333	.1720717
#1	.4318825	.0206884	.1570480
#2	.4315656	.0217425	.1571011
#3	.4298536	.0201671	.1566091

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	142.8345	5621.389	68481.38	15792.61	6049.907
Stddev	1.9272	5.370	209.69	44.77	12.851
%RSD	1.349231	.0955324	.3062015	.2834661	.2124088
#1	141.4421	5625.143	68446.73	15812.40	6045.027
#2	142.0273	5623.786	68291.17	15824.07	6064.483
#3	145.0340	5615.238	68706.23	15741.36	6040.211

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV58 Acquired: 9/19/2014 00:05:29 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV58 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.943108	5.018864	25.84684	4.849716	4.970442	393.0317	10.74439
Stddev	.051136	.064429	.35090	.049352	.060020	3.4297	.09669
%RSD	1.034493	1.283742	1.357620	1.017625	1.207541	.8726308	.8999434
#1	4.919352	4.976074	25.59637	4.812596	4.927903	394.9634	10.72659
#2	5.001801	5.092964	26.24790	4.905722	5.039095	395.0600	10.84874
#3	4.908171	4.987552	25.69624	4.830830	4.944326	389.0718	10.65783

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4897630	2.520821	424.5614	15.71590	2.567549	15.56441	390.3042
Stddev	.0027372	.031635	1.9798	.04840	.030388	.02925	1.5606
%RSD	.5588858	1.254937	.4663114	.3079928	1.183526	.1879442	.3998454
#1	.4919291	2.500110	425.4136	15.68431	2.547022	15.58092	391.2545
#2	.4906733	2.557235	425.9723	15.77163	2.602457	15.58168	391.1550
#3	.4866866	2.505117	422.2982	15.69177	2.553166	15.53064	388.5031

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.38912	388.7807	2.492818	1.317506	404.9627	2.551219	15.07674
Stddev	.06565	1.8843	.030200	.003137	1.5224	.010140	.25489
%RSD	.4266263	.4846667	1.211480	.2381180	.3759463	.3974609	1.690603
#1	15.41053	390.1256	2.472148	1.315800	405.1619	2.551947	15.34558
#2	15.44140	389.5894	2.527476	1.321127	406.3758	2.560976	15.04604
#3	15.31544	386.6271	2.478829	1.315593	403.3505	2.540735	14.83859

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	156.6188	5.071192	5.053344	4.763379	5.123507	5.154977	4.985325
Stddev	.3846	.047321	.030486	.050415	.063115	.030030	.064594
%RSD	.2455509	.9331372	.6032828	1.058395	1.231877	.5825400	1.295685
#1	156.9546	5.038562	5.053643	4.725505	5.077228	5.175962	4.940379
#2	156.7026	5.125464	5.083680	4.820603	5.195403	5.168392	5.059347
#3	156.1992	5.049550	5.022710	4.744029	5.097888	5.120578	4.956249

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV58 Acquired: 9/19/2014 00:05:29 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV58 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.966190	5.378402	5.350672
Stddev	.017576	.003324	.026800
%RSD	.3539035	.0617973	.5008799
#1	4.981375	5.375687	5.320628
#2	4.970257	5.382109	5.372119
#3	4.946937	5.377411	5.359268

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	119.7025	4589.322	57807.35	14438.01	4432.913
Stddev	2.5204	41.218	258.89	106.05	44.647
%RSD	2.105512	.8981191	.4478446	.7344980	1.007178
#1	116.8799	4623.577	57898.75	14332.38	4469.186
#2	120.5000	4543.579	57515.16	14437.17	4383.050
#3	121.7276	4600.810	58008.14	14544.46	4446.502

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB58 Acquired: 9/19/2014 00:09:40 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB58 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001608	.0015821	-.000176	-.000316	-.000027	.0077727	-.000463
Stddev	.000481	.0012143	.000213	.000199	.000584	.0031025	.000194
%RSD	29.89117	76.75135	120.9698	63.13700	2143.252	39.91559	42.02569
#1	-.001072	.0002321	-.000050	-.000425	-.000696	.0051740	-.000376
#2	-.001999	.0019291	-.000422	-.000436	.000385	.0112076	-.000685
#3	-.001755	.0025852	-.000056	-.000086	.000228	.0069365	-.000326

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000023	.0000319	.0076946	.0001082	-.000015	.0031550	.0096472
Stddev	.000177	.0000067	.0060324	.0003000	.000097	.0006688	.0050676
%RSD	784.1753	20.95039	78.39806	277.3903	657.4491	21.19662	52.52861
#1	.000175	.0000268	.0123525	.0003065	-.000110	.0024044	.0151279
#2	-.000079	.0000295	.0098508	.0002550	-.000018	.0033735	.0051316
#3	-.000164	.0000395	.0008804	-.000237	.000084	.0036872	.0086822

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005952	-.008586	.0001397	-.000160	.0953588	-.000846	.0016198
Stddev	.0003601	.011239	.0002151	.000054	.0690797	.002147	.0018549
%RSD	60.49627	130.9059	154.0258	33.96547	72.44182	253.8807	114.5118
#1	.0007021	.003744	-.000054	-.000221	.1120360	-.002491	.0034326
#2	.0008897	-.011243	.000371	-.000142	.1545733	.001583	-.000275
#3	.0001938	-.018258	.000102	-.000118	.0194673	-.001629	.001702

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2636133	.0000859	.0033770	.0016069	-.007673	.0086820	-.000179
Stddev	.0827666	.0003888	.0033014	.0002749	.002294	.0052082	.000373
%RSD	31.39696	452.5707	97.76229	17.10872	29.89276	59.98820	207.8452
#1	.1730253	.0003191	.0021146	.0019244	-.008194	.0051637	.000040
#2	.3352828	-.000363	.0008930	.0014488	-.005164	.0146650	-.000609
#3	.2825318	.000302	.0071234	.0014476	-.009662	.0062173	.000032

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB58 Acquired: 9/19/2014 00:09:40 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB58 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0000745	.0038595	.0000946
Stddev	.0002366	.0002594	.0000537
%RSD	317.3301	6.721578	56.76529
#1	-.000140	.0038708	.0001374
#2	.000036	.0041131	.0001121
#3	.000328	.0035947	.0000344

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	141.5932	5648.847	68531.61	15393.78	6321.751
Stddev	1.7865	16.468	56.59	56.51	16.702
%RSD	1.261681	.2915219	.0825729	.3670746	.2641976
#1	142.1872	5646.658	68472.68	15443.62	6318.775
#2	139.5854	5666.300	68536.63	15332.39	6339.740
#3	143.0070	5633.584	68585.52	15405.32	6306.737

284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Daily Analysis Runlog For Sequence/QCBatch ID # LB72805

Review By BIN Review On 9/19/2014 12:41:16 PM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

Sr#	SampleId	ClientID	QcType	Date	Comment	Status
1	S0	S0	CAL1	09/18/14 17:13		OK
2	S1	S1	CAL2	09/18/14 17:17		OK
3	S2	S2	CAL3	09/18/14 17:21		OK
4	S3	S3	CAL4	09/18/14 17:25		OK
5	S4	S4	CAL5	09/18/14 17:29		OK
6	S5	S5	CAL6	09/18/14 17:33		OK
7	S6	S6	CAL7	09/18/14 17:37		OK
8	ICV53	ICV53	ICV	09/18/14 17:51		OK
9	ICB53	ICB53	ICB	09/18/14 17:55		OK
10	ICSA53	ICSA53	ICSA	09/18/14 17:59		OK
11	ICSAB53	ICSAB53	ICSAB	09/18/14 18:03		OK
12	CCV54	CCV54	CCV	09/18/14 18:07		OK
13	CCB54	CCB54	CCB	09/18/14 18:11		OK
14	PB79026BL	PBS01	MB	09/18/14 18:15	Contamination for Cu,K(Below RL)	OK
15	PB79026BS	LCS01	LCS	09/18/14 18:19		OK
16	F3961-01	MB0AB6	SAM	09/18/14 18:23		OK
17	F3961-02	MB0AB7	SAM	09/18/14 18:27		OK
18	F3961-03	MB0AC0	SAM	09/18/14 18:31		OK
19	F3961-04	MB0AC1	SAM	09/18/14 18:36		OK
20	F3961-05	MB0AC2	SAM	09/18/14 18:40		OK
21	F3961-06	MB0AC3	SAM	09/18/14 18:44		OK

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ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

22	F3961-07	MB0AC4	SAM	09/18/14 18:48		OK
23	F3961-08	MB0AC5	SAM	09/18/14 18:51		OK
24	F3961-09	MB0AF4	SAM	09/18/14 18:55		OK
25	F3961-10	MB0AF5	SAM	09/18/14 18:59		OK
26	F3961-11	MB0AF6	SAM	09/18/14 19:04		OK
27	F3961-12	MB0AF7	SAM	09/18/14 19:08		OK
28	PB78990BS	LCS01	LCS	09/18/14 19:12	Do not use	Not Ok
29	F3961-13	MB0AF8	SAM	09/18/14 19:19		OK
30	F3961-14	MB0AF9	SAM	09/18/14 19:23		OK
31	F3961-15	MB0AF9D	DUP	09/18/14 19:27		OK
32	F3961-16	MB0AF9S	MS	09/18/14 19:31	MS fail for Sb(Below RL)	OK
33	F3961-14L	MB0AF9L	SD	09/18/14 19:35		OK
34	CCV55	CCV55	CCV	09/18/14 19:39		OK
35	CCB55	CCB55	CCB	09/18/14 19:43		OK
36	F3961-17	MB0AG0	SAM	09/18/14 19:47		OK
37	F3961-18	MB0AG1	SAM	09/18/14 19:51		OK
38	F3961-19	MB0AG2	SAM	09/18/14 19:55		OK
39	F3961-20	MB0AG3	SAM	09/18/14 19:59		OK
40	F3961-21	MB0AQ8	SAM	09/18/14 20:03		OK
41	F3930-14	MG8Q62	SAM	09/18/14 20:07		OK
42	F3930-15	MG8Q63	SAM	09/18/14 20:11		OK
43	F3914-01	MB0AA4	SAM	09/18/14 20:15	Report for Zn	Confirms
44	F3914-02	MB0AA4D	DUP	09/18/14 20:19	Report for Zn	Confirms

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STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

45	F3914-03	MB0AA4S	MS	09/18/14 20:23	Report for Zn	Confirms
46	F3914-01L	MB0AA4L	SD	09/18/14 20:27	Report for Zn	Confirms
47	F3942-16	MC0AH2	SAM	09/18/14 20:31		OK
48	F3942-17	MC0AH3	SAM	09/18/14 20:35		OK
49	F3942-18	MC0AH4	SAM	09/18/14 20:39		OK
50	F3942-13A	MC0AH1A	PS	09/18/14 20:43	PS for Ba,Cr,Cu,Pb,Mn,V	OK
51	F3914-01A	MB0AA4A	PS	09/18/14 20:48	Not required	Not Ok
52	PB78990BL	PBF01	MB	09/18/14 20:52	Do not use	Not Ok
53	F3936-01	MH0609	SAM	09/18/14 20:56	Do not use	Not Ok
54	F3936-02	MH0609D	DUP	09/18/14 21:00	Do not use	Not Ok
55	F3936-03	MH0609S	MS	09/18/14 21:04	Do not use	Not Ok
56	CCV56	CCV56	CCV	09/18/14 21:08		OK
57	CCB56	CCB56	CCB	09/18/14 21:12		OK
58	F3936-01L	MH0609L	SD	09/18/14 21:16	Do not use	Not Ok
59	F3936-04	MH0613	SAM	09/18/14 21:20	Do not use	Not Ok
60	F3936-05	MH0617	SAM	09/18/14 21:24	Do not use	Not Ok
61	F3936-06	MH0597	SAM	09/18/14 21:29	Do not use	Not Ok
62	F3936-07	MH0601	SAM	09/18/14 21:33	Do not use	Not Ok
63	F3936-08	MH0605	SAM	09/18/14 21:37	Do not use	Not Ok
64	PB78992BL	PBS01	MB	09/18/14 21:41	Contamination for K(Below RL)	OK
65	PB78992BS	LCS01	LCS	09/18/14 21:45		OK
66	F3935-01	MH0608	SAM	09/18/14 21:49		OK
67	F3935-02	MH0608D	DUP	09/18/14 21:53		OK

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Daily Analysis Runlog For Sequence/QCBatch ID # LB72805

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STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

68	F3935-03	MH0608S	MS	09/18/14 21:57	MS fail for Cr(831.48ppb)	OK
69	F3935-01L	MH0608L	SD	09/18/14 22:01		OK
70	F3935-04	MH0612	SAM	09/18/14 22:05		OK
71	F3935-05	MH0616	SAM	09/18/14 22:09	Cu high	Dilution
72	F3935-06	MH0596	SAM	09/18/14 22:13	Cu high	Dilution
73	F3935-07	MH0600	SAM	09/18/14 22:17		OK
74	F3935-08	MH0604	SAM	09/18/14 22:21	Cu high	Dilution
75	F3941-01	MC0AF1	SAM	09/18/14 22:25		OK
76	F3941-02	MC0AF2	SAM	09/18/14 22:29		OK
77	F3941-03	MC0AF3	SAM	09/18/14 22:33		OK
78	CCV57	CCV57	CCV	09/18/14 22:37		OK
79	CCB57	CCB57	CCB	09/18/14 22:41		OK
80	F3941-04	MC0AF4	SAM	09/18/14 22:45		OK
81	F3941-05	MC0AF5	SAM	09/18/14 22:49		OK
82	F3941-06	MC0AF6	SAM	09/18/14 22:53		OK
83	F3941-07	MC0AF7	SAM	09/18/14 22:57		OK
84	F3941-08	MC0AF7D	DUP	09/18/14 23:01		OK
85	F3941-09	MC0AF7S	MS	09/18/14 23:05	MS fail for Sb(Below RL)	OK
86	F3941-07L	MC0AF7L	SD	09/18/14 23:09		OK
87	F3941-10	MC0AF8	SAM	09/18/14 23:13		OK
88	F3941-11	MC0AF9	SAM	09/18/14 23:17		OK
89	F3941-12	MC0AG0	SAM	09/18/14 23:21		OK
90	F3941-13	MC0AG1	SAM	09/18/14 23:25		OK

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ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

91	F3941-14	MC0AG2	SAM	09/18/14 23:29		OK
92	F3941-15	MC0AG3	SAM	09/18/14 23:33		OK
93	PB78987BL	PBS01	MB	09/18/14 23:37	Contamination for K,Se(Below RL)	OK
94	PB78987BS	LCS01	LCS	09/18/14 23:41		OK
95	F3939-01	MC0AJ3	SAM	09/18/14 23:45		OK
96	F3939-02	MC0AJ4	SAM	09/18/14 23:49		OK
97	F3939-03	MC0AJ5	SAM	09/18/14 23:53		OK
98	F3939-04	MC0AJ7	SAM	09/18/14 23:57		OK
99	F3939-05	MC0AJ8	SAM	09/19/14 00:01		OK
100	CCV58	CCV58	CCV	09/19/14 00:05		OK
101	CCB58	CCB58	CCB	09/19/14 00:09		OK
102	F3939-06	MC0AJ9	SAM	09/19/14 00:13	CCV fail for Ba,Ca	Not Ok
103	F3939-07	MC0AK0	SAM	09/19/14 00:17	CCV fail for Ba,Ca	Not Ok
104	F3939-08	MC0AK1	SAM	09/19/14 00:21	CCV fail for Ba,Ca	Not Ok
105	F3939-09	MC0AK1D	DUP	09/19/14 00:26	CCV fail for Ba,Ca	Not Ok
106	F3939-10	MC0AK1S	MS	09/19/14 00:30	CCV fail for Ba,Ca	Not Ok
107	F3939-08L	MC0AK1L	SD	09/19/14 00:34	CCV fail for Ba,Ca	Not Ok
108	F3939-11	MC0AK2	SAM	09/19/14 00:38	CCV fail for Ba,Ca	Not Ok
109	F3939-12	MC0AK3	SAM	09/19/14 00:42	CCV fail for Ba,Ca	Not Ok
110	F3939-13	MC0AK4	SAM	09/19/14 00:46	CCV fail for Ba,Ca	Not Ok
111	F3939-14	MC0AK5	SAM	09/19/14 00:50	CCV fail for Ba,Ca	Not Ok
112	F3939-15	MC0AK6	SAM	09/19/14 00:54	CCV fail for Ba,Ca	Not Ok
113	F3939-16	MC0AK7	SAM	09/19/14 00:58	CCV fail for Ba,Ca	Not Ok

CHEMTECH

Instrument ID: 25

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Daily Analysis Runlog For Sequence/QCBatch ID # LB72805

Review By	BIN	Review On	9/19/2014 12:41:16 PM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

114	F3939-17	MC0AK8	SAM	09/19/14 01:02	CCV fail for Ba,Ca	Not Ok
115	F3939-18	MC0AK9	SAM	09/19/14 01:06	CCV fail for Ba,Ca	Not Ok
116	F3939-19	MC0AL0	SAM	09/19/14 01:10	CCV fail for Ba,Ca	Not Ok
117	F3939-20	MC0AL1	SAM	09/19/14 01:14	CCV fail for Ba,Ca	Not Ok
118	F3939-21	MC0AL2	SAM	09/19/14 01:18	CCV fail for Ba,Ca	Not Ok
119	CCV59	CCV59	CCV	09/19/14 01:35	Fail for Ba,Ca	OK
120	CCB59	CCB59	CCB	09/19/14 01:39		OK

Prep Standard - Chemical Standard Summary

Order ID : F3941

Test : Metals CLP Full

Prepbatch ID : PB78992

Sequence ID/Qc Batch ID: LB72805

Standard ID :
MP23410,MP23642,MP23639,MP23643,MP23655,MP23656,MP23658,MP23654,MP23659,MP23660,MP23661,MP23662,MP23663,MP23664,MP23665,MP23666,MP23667,MP23668,MP23410,MP23639,MP23642,MP23643,MP23654,MP23655,MP23656,MP23658,MP23659,MP23660,MP23661,MP23662,MP23663,MP23664,MP23665,MP23666,MP23667,MP23668,

Chemical ID :
M3245,M3207,M3218,M2942,V1456,M3215,M3047,W1152,M3218,M3227,M3057,M3156,M2988,M2961,M3081,M3187,M3242,M3240,M2782,M3151,M3096,M3099,M3100,M3102,M3115,M3224,M2979,M3112,M3124,M3122,M3110,M3185,M3225,M2975,M2991,M3113,M3118,M3098,M3117,M3106,M3121,M3101,M3097,M3108,M2987,M3111,M3104,M3123,M2962,M3145,M3148,M2782,M2942,M2961,M2962,M2975,M2979,M2987,M2988,M2991,M3047,M3057,M3081,M3096,M3097,M3098,M3099,M3100,M3101,M3102,M3104,M3106,M3108,M3110,M3111,M3112,M3113,M3115,M3117,M3118,M3121,M3122,M3123,M3124,M3145,M3148,M3151,M3156,M3185,M3187,M3207,M3215,M3218,M3224,M3225,M3227,M3240,M3242,M3245,V1456,W1152,

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
169	1:1HNO3	MP23410	09/02/2014	03/02/2015	BHUPENDRA

FROM 1250.000ml of M3215 + 1250.000ml of V1456 = Final Quantity: 2500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23639	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
904	ICP AES ICSA SOLN	MP23642	09/17/2014	09/30/2014	BIN

FROM 25.000ml of M3047 + 225.000ml of MP23639 = Final Quantity: 250.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
905	ICP AES ICSAB SOLN	MP23643	09/17/2014	09/30/2014	BIN

FROM 25.000ml of M3047 + 25.000ml of M3057 + 200.000ml of MP23639 = Final Quantity: 250.000 ml

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STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23654	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
903	ICP AES RINSE SOLN	MP23655	09/17/2014	09/30/2014	BIN

FROM 200.000ml of M3227 + 9800.000ml of W1152 = Final Quantity: 10000.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
919	ICP AES INTERNAL STD	MP23656	09/17/2014	09/30/2014	BIN

FROM 1.000ml of M2988 + 10.000ml of M3156 + 1969.000ml of W1152 + 20.000ml of M3227 = Final Quantity: 2000.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
2054	ICV-ICPAES	MP23658	09/17/2014	09/30/2014	BIN

FROM 0.500ml of M2961 + 0.500ml of M3187 + 10.000ml of M3081 + 89.000ml of MP23654 = Final Quantity: 100.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
921	ICPAES SPIKE SOL#6	MP23659	09/17/2014	09/30/2014	BIN

FROM 10.000ml of M3240 + 10.000ml of M3242 + 80.000ml of MP23654 = Final Quantity: 100.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
994	ICPAES ISM01.2 S1 (CONC.)	MP23660	09/17/2014	09/30/2014	BIN

FROM 0.100ml of M3100 + 0.100ml of M3112 + 0.100ml of M3115 + 0.140ml of M2987 + 0.200ml of M2979 + 0.200ml of M2991 + 0.200ml of M3096 + 0.200ml of M3102 + 0.200ml of M3106 + 0.200ml of M3110 + 0.200ml of M3122 + 0.300ml of M2975 + 0.300ml of M3187 + 0.400ml of M2782 + 0.500ml of M3108 + 0.500ml of M3124 + 0.700ml of M3098 + 0.800ml of M3113 + 1.000ml of M3104 + 1.000ml of M3185 + 1.200ml of M3123 + 1.200ml of M3151 + 10.000ml of M3118 + 10.000ml of M3121 + 10.000ml of M3224 + 10.000ml of M3225 + 2.000ml of M3097 + 2.000ml of M3101 + 2.000ml of M3111 + 2.000ml of M3117 + 4.000ml of M3099 + 37.360ml of MP23654 = Final Quantity: 100.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1003	ICPAES ISM01.2 S1	MP23661	09/17/2014	09/18/2014	BIN

FROM 1.000ml of MP23660 + 199.000ml of MP23654 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1004	ICPAES ISM01.2 (S5)	MP23662	09/17/2014	09/30/2014	BIN

FROM 0.375ml of M3100 + 18.750ml of M2975 + 18.750ml of M3118 + 18.750ml of M3121 + 18.750ml of M3123 + 20.625ml of M3124 + 21.750ml of M2782 + 21.750ml of M2979 + 21.750ml of M3122 + 30.000ml of M3110 + 33.750ml of M3224 + 33.750ml of M3225 + 7.500ml of M2962 + 7.500ml of M3097 + 7.500ml of M3101 + 7.500ml of M3145 + 7.500ml of M3148 + 7.500ml of M3151 + 7.500ml of M3185 + 7.500ml of M3187 + 431.250ml of MP23654 = Final Quantity: 750.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1119	ICPAES ISM01.2(CCV)	MP23663	09/17/2014	09/30/2014	BIN

FROM 12.250ml of M2782 + 12.500ml of M3121 + 12.500ml of M3122 + 7.500ml of M3224 + 7.500ml of M3225 + 197.750ml of MP23654 + 250.000ml of MP23662 = Final Quantity: 500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1005	ICPAES ISM01.2(S4)	MP23664	09/17/2014	09/30/2014	BIN

FROM 100.000ml of MP23654 + 100.000ml of MP23662 = Final Quantity: 200.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1007	ICPAES ISM01.2(S3)	MP23665	09/17/2014	09/30/2014	BIN

FROM 150.000ml of MP23654 + 50.000ml of MP23662 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1008	ICPAES ISM01.2(S2)	MP23666	09/17/2014	09/30/2014	BIN

FROM 175.000ml of MP23654 + 25.000ml of MP23662 = Final Quantity: 200.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
2480	ICP AES STD 6 ISM01.3	MP23667	09/17/2014	09/30/2014	BIN

FROM 16.000ml of M2782 + 16.000ml of M3121 + 16.000ml of M3122 + 16.000ml of M3224 + 16.000ml of M3225 + 120.000ml of MP23654 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23668	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Aluminum (Al) 10,000PPM	082812	08/28/2015	12/28/2012 / Janet	12/28/2012 / Janet	M2782

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Labpure	0919120 / Boiling Stones	4368-7F031	08/22/2018	08/22/2013 / bhupendra	08/22/2013 / bhupendra	M2942

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CHEM-QC-4 / CHEM-QC-4, Second Source, 1000 ug/ml, B, Mo, Si, Sn, Ti	F2-MEB452072	10/01/2014	09/03/2013 / aesha	08/26/2013 / aesha	M2961

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	G2-MEB491013	10/01/2014	09/03/2013 / aesha	08/26/2013 / aesha	M2962

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58025 / Manganese, Mn, 500 ml, 1000 PPM	070313	07/03/2016	09/25/2013 / jaswal	09/25/2013 / jaswal	M2975

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58024 / Chromium, Cr, 500 ml, 1000 PPM	072913	07/29/2016	09/25/2013 / jaswal	09/25/2013 / jaswal	M2979

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSNCL1-1 / TIN/HCL 125mL 1000ug/mL	G2-SN02062	11/01/2014	10/21/2013 / BIN	10/18/2013 / BIN	M2987

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	F2-Y02004	11/01/2014	10/21/2013 / BIN	10/18/2013 / BIN	M2988

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57042 / Molybdeum, Mo, 100 ml, 1000 PPM	080913	08/09/2016	10/30/2013 / BIN	09/25/2013 / BIN	M2991

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3047

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3057

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV1-0307	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3081

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGAS1-1 / ARSENIC 125mL 1000ug/mL	G2-AS02102	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3096

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGS1-1 / SULFUR 125mL 1000ug/mL	G2-S02007	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3097

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSE(4)1-1 / SELENIUM 125mL 1000ug/mL	E2-SE02033	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3098

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGBA1-1 / BARIUM 125mL 1000ug/mL	F2-BA02076	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3099

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGBE1-1 / BERYLLIUM 125mL 1000ug/mL	F2-BE02021	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3100

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSR1-1 / Strontium, 125 ml, 1000 PPM	F2-SR02036	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3101

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGB1-1 / BORON 125mL 1000ug/mL	F2-B02109	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3102

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGV1-1 / VANADIUM 125mL 1000ug/mL	G2-V02081	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3104

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGAG1-1 / SILVER 125mL 1000ug/mL	G2-AG03035	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3106

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTL1-1 / THALLIUM 125mL 1000ug/mL	F2-TL02003	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3108

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGPB1-1 / LEAD 125mL 1000ug/mL	G2-PB03044	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3110

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	F2-TI02094	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3111

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCO1-1 / COBALT 125mL 1000ug/mL	F2-CO02052	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3112

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGNI1-1 / NICKEL 125mL 1000ug/mL	G2-NI02086	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3113

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCD1-1 / CADMIUM, 125mL 1000ug/mL	G2-CD02043	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3115

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSI1-1 / SILICON 125mL 1000ug/mL	G2-SI03023	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3117

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGK10-5 / Potassium, 500 ml, 10000 PPM	F2-K03033	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3118

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGNA10-5 / Sodium, 500 ml, 10000 PPM	G2-NA03110	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3121

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGFE10-5 / Iron, 500 ml, 10000 PPM	G2-FE04029	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3122

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGZN1-5 / Zinc, 500 ml, 1000 PPM	F2-ZN02088	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3123

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCU1-5 / Copper, 500 ml, 1000 PPM	F2-CU02147	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3124

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	G2-MEB479124	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3145

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	G2-MEB467069	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3148

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSBF1-1 / Antimony, Sb, 125 ml	G2-SB03021	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3151

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGIN10-1 / INDIUM 125mL 10,000ug/mL	F2-IN01095	04/01/2015	03/07/2014 / jaswal	03/07/2014 / jaswal	M3156

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57003 / Lithium, Li, 100 ml, 1000 PPM	122713	12/27/2016	05/19/2014 / BIN	05/09/2014 / jaswal	M3185

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGP1-1 / Phosphorus, 125 ml	G2-P02048	06/01/2015	09/02/2014 / BIN	05/09/2014 / jaswal	M3187

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-2186-03 / Hydrogen Peroxide (cs/4x4L)	0000064775	05/27/2015	07/15/2014 / bhupendra	07/03/2014 / bhupendra	M3207

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000077192	04/15/2019	08/22/2014 / bhupendra	08/12/2014 / bhupendra	M3215

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	0000075649	03/25/2019	09/02/2014 / BHUPENDRA	08/20/2014 / bhupendra	M3218

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCA10-5 / Calcium, 500 ml, 10000 PPM	G2-CA04095	09/01/2015	09/02/2014 / BIN	08/12/2014 / jaswal	M3224

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGMG10-5 / Magnesium, 500 ml, 10000 PPM	G2-MG03120	09/01/2015	09/02/2014 / BIN	08/12/2014 / jaswal	M3225

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000077192	04/15/2019	09/05/2014 / bhupendra	09/03/2014 / bhupendra	M3227

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-1 / SOIL/WATER SPIKE SOLN 1, 125mL	F2-MEB427123	10/01/2015	09/05/2014 / BIN	09/05/2014 / BIN	M3240

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-5 / CLP Spike Standard 5	G2-MEB474100	10/01/2015	09/05/2014 / BIN	09/05/2014 / BIN	M3242

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000084115	07/01/2019	09/23/2014 / bhupendra	09/12/2014 / BHUPENDRA	M3245

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Res-Kem General water	DIW / DI Water	DAILY	12/31/2019	03/01/2010 / apatel	03/02/2010 / apatel	V1456

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Res-Kem General water	DIW / DI Water	Lab certified	02/23/2015	02/23/2010 /	02/23/2010 / divya	W1152

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

ISO 9001 QS Registered
ISO 17025-34-35-[illegible] Accredited
Scopes: http://Absolute[illegible]andards.com

Standard ID : M2782

CERTIFIED WEIGHT REPORT:

D: 12/28/12
R: 12/28/12

Part Number:	**58113**	**Solvent:**	**Lot #** C142199	Nitric Acid
Lot Number:	**082812**			
Description:	**Aluminum (Al)**	2%	40.0 (mL)	Nitric Acid
Expiration Date:	082815			

Storage: 20 °C

Nominal Concentration (µg/mL): **10000**

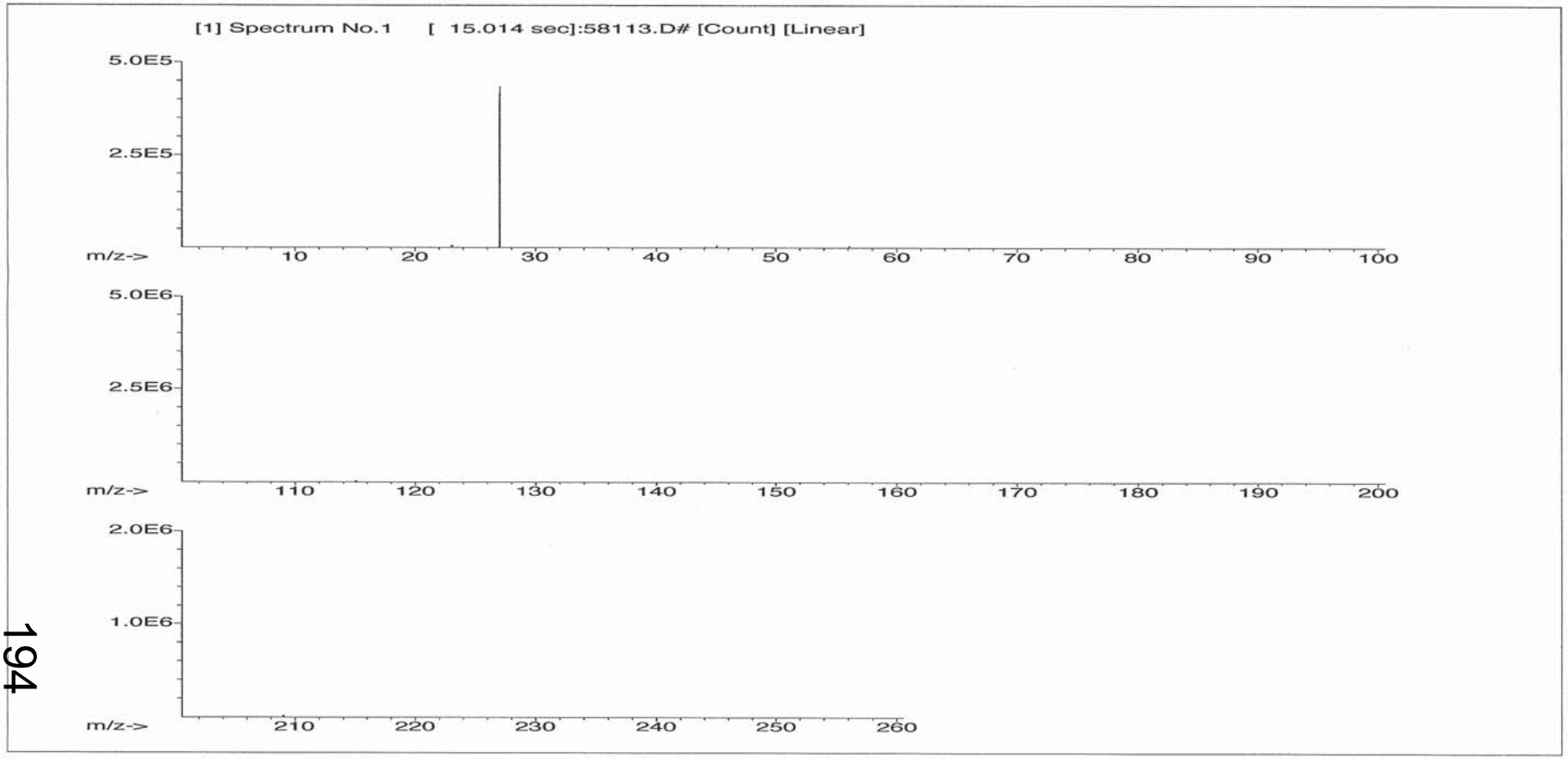
5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): 1999.68 0.100 Flask Uncertainty

M2782

Formulated By:	Lawrence Barry	082812
Reviewed By:	Pedro L. Rentas	082812

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity	Uncertainty Purity	Assay (%)	Target Weight (g)	Actual Weight (g)	**Actual Conc. (µg/mL)**	Expanded Uncertainty (+/-)	CAS#	MSDS Information (Solvent Safety Info. On Attached pg.) OSHA PEL (TWA)	LD50	NIST SRM
1. Aluminum Nitrate Nonahydrate (Al)	IN022	D312ALA1	10000.0	99.999	0.10	7.10	281.6484	281.6803	**10001.1**	0.00200	07784-27-2	5 mg/m3	orl-rat 264 mg/kg	3101a



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INORGANIC VENTURES™
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CERTIFICATE OF ANALYSIS

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M2961

R: 08/26/13

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Custom Second Source Solution**

Catalog No.: CHEM-QC-4

Lot Number: **F2-MEB452072**

Matrix: 3% HNO3(v/v), 2.7% HF(v/v)

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

1,000 µg/mL ea:
B, Mo, Si, Sn, Ti

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Boron, B	1,000 ± 7 µg/mL	Molybdenum, Mo	1,000 ± 6 µg/mL	Silicon, Si	1,000 ± 5 µg/mL
Tin, Sn	1,000 ± 5 µg/mL	Titanium, Ti	1,000 ± 7 µg/mL		

Certified Density: 1.033 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2 [\Sigma(s_i)^2]^{½}$ 2 = the coverage factor.

$[\Sigma(s_i)^2]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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Standard ID : M2962

CERTIFICATE OF ANALYSIS

M2962

R: 08/26/13

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Custom Solution**

Catalog No.: CHEM-CLP-4

Lot Number: **G2-MEB491013**

Matrix: 3% HNO3(v/v), 2.7% HF(v/v)

1,000 µg/mL ea:
B, Mo, Si, Sn, Ti

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Boron, B	1,000 ± 7 µg/mL	Molybdenum, Mo	1,000 ± 5 µg/mL	Silicon, Si	1,000 ± 7 µg/mL
Tin, Sn	1,001 ± 7 µg/mL	Titanium, Ti	1,000 ± 7 µg/mL		

Certified Density: 1.035 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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Certified Reference Material CRM

RD: 09/25/13
M2975

ISO 9001 QS Registered
ISO 17025-34-35- Accredited
Scopes: http://Absolute ndards.com

Standard ID : M2975

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**58025**		C257285	Nitric Acid	
Lot Number:	**070313**				
Description:	**Manganese (Mn)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	070316				
	Storage:	20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty		

Gabriel Helland

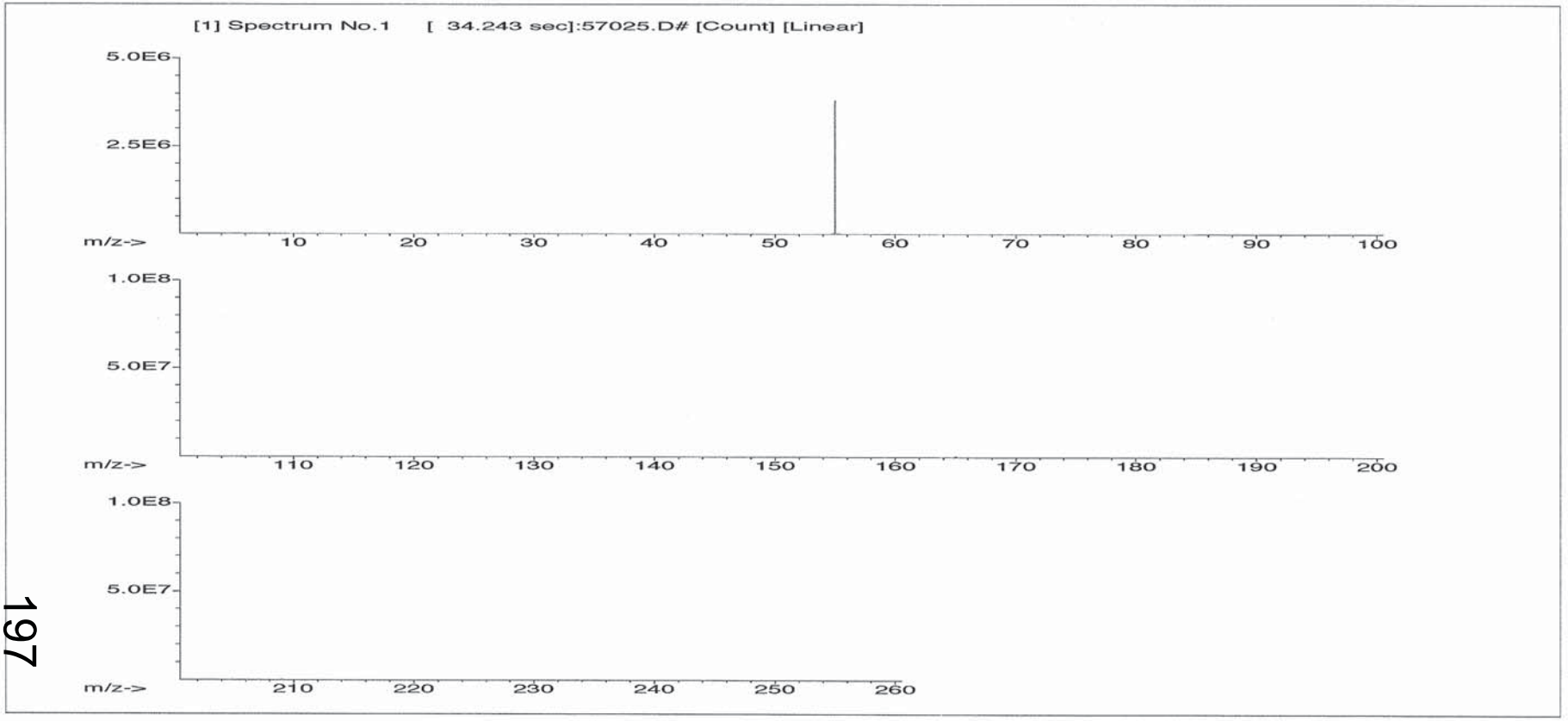
Formulated By:	Gabriel Helland	070313

Pedro Rentas

Reviewed By:	Pedro L. Rentas	070313

MSDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	ty Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Manganese (II) nitrate Hydrate (Mn)	58125	122712	0.1000	200.0	0.013	10000.9	**1000.2**	0.00201	15710-66-4	5 mg/m3	N/A	3132



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Certified Reference Material CRM

RD: 09/25/13
M2979

ISO 9001 QS Registered
ISO 17025-34-35[illegible] Accredited
Scopes: http://Absolute[illegible]andards.com

Standard ID : M2979

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**58024**		C257285	Nitric Acid	
Lot Number:	**072913**				
Description:	**Chromium (Cr)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	072916				
	Storage:	20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty		

Gabriel Helland

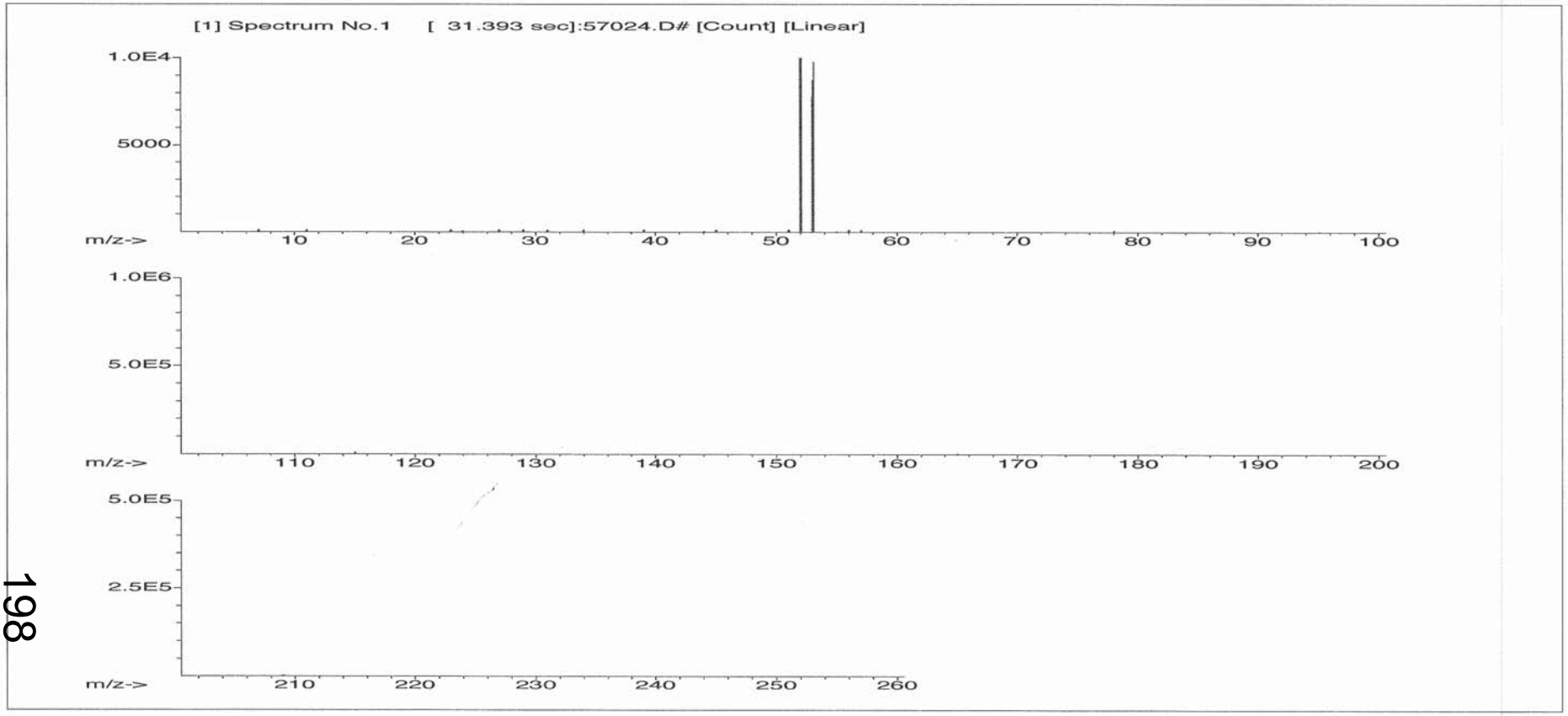
Formulated By:	Gabriel Helland	072913

Pedro Rentas

Reviewed By:	Pedro L. Rentas	072913

MSDS Information
(Solvent Safety Info. On Attached pg.)

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	**Final Conc. (µg/mL)**	Expanded Uncertainty (+/-)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Chromium (III) nitrate nonahydrate (Cr)	58124	022213	0.100	200.0	0.013	10000.9	**1000.2**	0.00201	07789-02-8	0.5 mg(Cr)/m3	orl-rat 3250 mg/kg	3112a



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M2987

RV: 10/18/2013

Standard ID : M2987

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CERTIFICATE OF ANALYSIS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Tin HCl in 20% (v/v) HCl**

Catalog Number:	CGSNCL1-1, CGSNCL1-2, and CGSNCL1-5
Lot Number:	**G2-SN02062**
Starting Material:	Sn shot
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1744
Matrix:	20% (v/v) HCl

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 3 µg/mL -weighted mean-
Certified Density:	1.042 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

RD : 10/18/2013

Standard ID : M2988

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Yttrium in 2% (v/v) HNO3**

Catalog Number:	CGY10-1, CGY10-2, and CGY10-5
Lot Number:	**F2-Y02004**
Starting Material:	Y2O3
Starting Material Purity (%):	99.9999
Starting Material Lot No:	0623052
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,006 ± 53 µg/mL - weighted mean
Certified Density:	1.034 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M2991

RD : 09/25/13

Certified Reference Material CRM

ISO 9001 QS R
ISO 17025 24-35-43 A
Scopes: http:/ soluteStan

Standard ID : M2991

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:
Part Number:	**57042**	Y47057	Ammonium hydroxide
Lot Number:	**080913**		
Description:	**Molybdenum (Mo)**		
		0.5%	10.0 (mL) Ammonium hydroxide
Expiration Date:	080916		
	Storage: 20 °C		
Nominal Concentration (µg/mL):	**1000**		
		5E-05	Balance Uncertainty
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty

Gabriel Helland

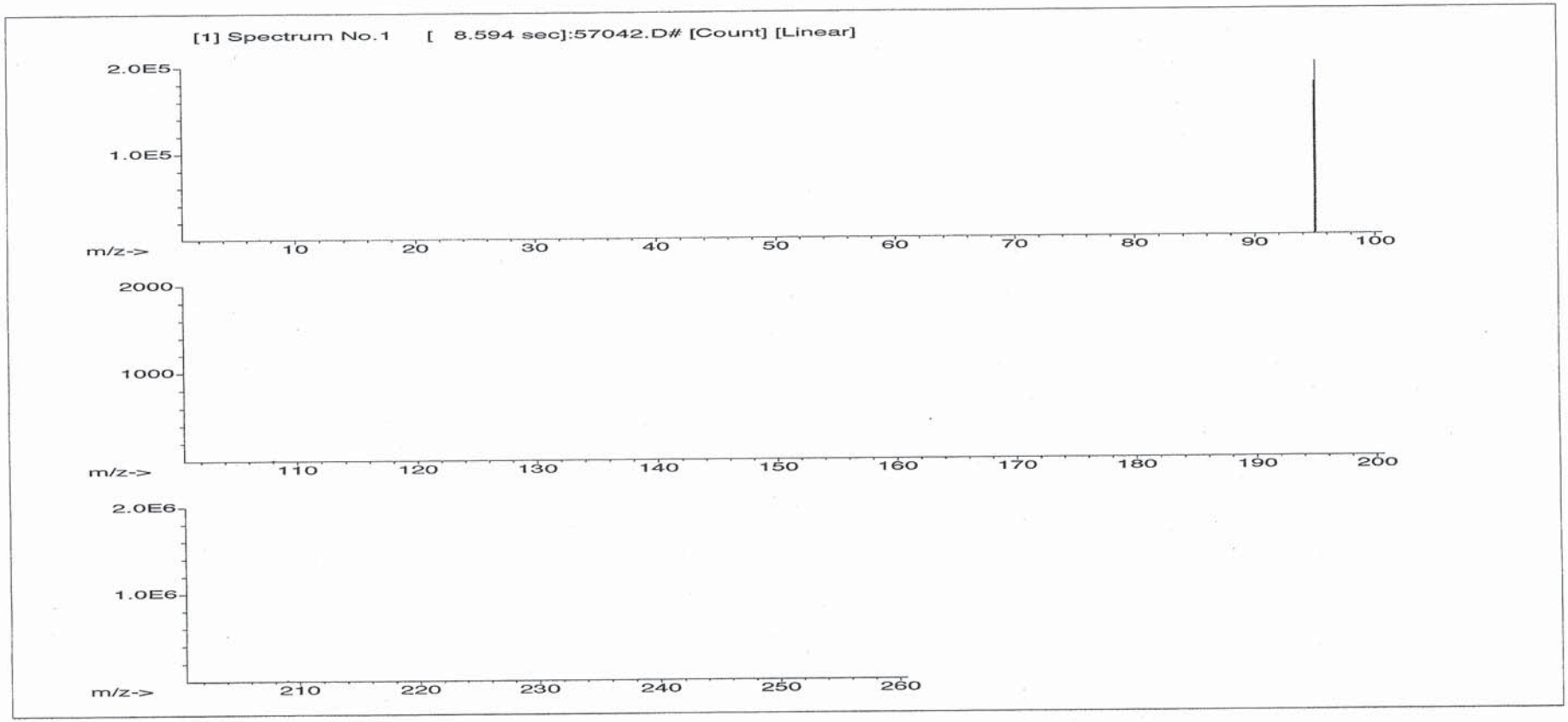
Formulated By:	Gabriel Helland	080913

Pedro Rentas

Reviewed By:	Pedro L. Rentas	080913

MSDS Information
(Solvent Safety Info. On Attached pg.)

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium molybdate (Mo)	58142	072613	0.1000	200.0	0.013	10001.3	**1000.3**	0.00201	12054-85-2	5 mg(Mo)/m3	orl-rat 333 mg/kg	3134



interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:
ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSA solution by ICP-AES.
ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSAB solution by ICP-AES.

(D) *"CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)*

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB) events, CLP pre-award events, and external referee laboratories.

ICSA M3046 ↓ to M3055

ICSB M3056 ↓ to M3065

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	254900	203920	305880	246800	197440	296160
Sb	60	(0)*	-60	60	618	494	742
As	10	(0)	-10	10	104	83	125
Ba	200	(6)	-194	206	(537)	337	737
Be	5	(0)	-5	5	495	396	594
Cd	5	(1)	-4	6	972	778	1166
Ca	5000	244500	195600	293400	234900	187920	281880
Cr	10	52	42	62	542	434	650
Co	50	(0)	-50	50	476	381	571
Cu	25	(2)	-23	27	511	409	613
Fe	100	100700	80560	120840	99320	79456	119184
Pb	10	(0)	-10	10	(49)	39	59
Mg	5000	255400	204320	306480	248000	198400	297600
Mn	15	(7)	-8	22	507	406	608
Ni	40	(2)	-38	42	954	763	1145
Se	35	(0)	-35	35	(46)	11	81
Ag	10	(0)	-10	10	201	161	241
Tl	25	(0)	-25	25	(108)	83	133
V	50	(0)	-50	50	491	393	589
Zn	60	(0)	-60	60	952	762	1142

* The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 20 percent of the listed certified value.

(D) *CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS*

M3081 To M3090

ICV1-0307		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2521	504
Sb	994	199
As	999	200
Ba	497	99
Be	495	99
Cd	496	99
Ca	10026	2005
Cr	490	98
Co	499	100
Cu	492	98
Fe	5082	1016
Pb	1002	200
Mg	6074	1215
Mn	499	100
Ni	503	101
K	10021	2004
Se	1029	206
Ag	501	100
Na	10097	2019
Tl	1028	206
V	501	100
Zn	1025	205

ICV5-0508		ICV6-0400	
Element	Concentration (µg/L) (after 100-fold dilution)	Analyte	Concentration (µg/L) (after 100-fold dilution)
Hg	4.0	CN^-	99

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R: 01517JM

M3096-

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ACCREDITED Testing Laboratory Certificate 883.01 — ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Arsenic in 2% (v/v) HNO3**

Catalog Number:	CGAS1-1, CGAS1-2, and CGAS1-5
Lot Number:	**G2-AS02102**
Starting Material:	As Lump
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1814
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 5 µg/mL -weighted mean-

Certified Density: 1.012 (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2);$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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CERTIFICATE OF ANALYSIS

R1. 01/17/14

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M3097

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2.0 DESCRIPTION OF CRM **1000 µg/mL Sulfur in H2O**

Catalog Number:	CGS1-1, CGS1-2, and CGS1-5
Lot Number:	**G2-S02007**
Starting Material:	H2SO4
Starting Material Purity (%):	100.0000
Starting Material Lot No:	H44F03
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,005 ± 5 µg/mL -weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Selenium(+4) in 2% (v/v) HNO3**

Catalog Number:	CGSE(4)1-1, CGSE(4)1-2, and CGSE(4)1-5
Lot Number:	**E2-SE02033**
Starting Material:	Se shot
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1616
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 6 µg/mL - weighted mean

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1	**Assay Method #1**	**1,002 ± 4 µg/mL** ICP Assay NIST SRM 3149 Lot Number: 100901
	Assay Method #2	**1,000 ± 3 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

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2.0 DESCRIPTION OF CRM **1000 µg/mL Barium in 0.1%(v/v) HNO3**

Catalog Number:	CGBA1-1, CGBA1-2, and CGBA1-5
Lot Number:	**F2-BA02076**
Starting Material:	Ba(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	BAE42012A1
Matrix:	0.1%(v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	996 ± 5 µg/mL -No weighted mean-
Certified Density:	1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2\ [\ \Sigma(s_i)^2\ ]^{½}$ 2 = the coverage factor.

$[\ \Sigma(s_i)^2\ ]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Beryllium in 3% (v/v) HNO3**

Catalog Number:	CGBE1-1, CGBE1-2, and CGBE1-5
Lot Number:	**F2-BE02021**
Starting Material:	Be4O(OOCCH3)6
Starting Material Purity (%):	99.9999
Starting Material Lot No:	1772
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,003 ± 4 µg/mL - weighted mean

Certified Density: 1.022 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **1000 µg/mL Strontium in 0.1% (v/v) HNO3**

Catalog Number:	CGSR1-1, CGSR1-2, and CGSR1-5
Lot Number:	**F2-SR02036**
Starting Material:	SrCO3
Starting Material Purity (%):	99.9988
Starting Material Lot No:	1610
Matrix:	0.1% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,000 ± 5 µg/mL - weighted mean

Certified Density: 1.001 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Boron in H2O**

Catalog Number:	CGB1-1, CGB1-2, and CGB1-5
Lot Number:	**F2-B02109**
Starting Material:	H3BO3
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1631
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 999 ± 5 µg/mL -weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **1000 µg/mL Vanadium in 2% (v/v) HNO3**

Catalog Number:	CGV1-1, CGV1-2, and CGV1-5
Lot Number:	**G2-V02081**
Starting Material:	V2O5
Starting Material Purity (%):	99.9991
Starting Material Lot No:	1782
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Silver in 5% (v/v) HNO3**

Catalog Number:	CGAG1-1, CGAG1-2, and CGAG1-5
Lot Number:	**G2-AG03035**
Starting Material:	Ag shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1641
Matrix:	5% (v/v) HNO3

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration:	1,002 ± 6 µg/mL -weighted mean-
Certified Density:	1.026 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

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2.0 DESCRIPTION OF CRM **1000 µg/mL Thallium in 0.7% (v/v) HNO3**

Catalog Number:	CGTL1-1, CGTL1-2, and CGTL1-5
Lot Number:	**F2-TL02003**
Starting Material:	TlNO3
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1576
Matrix:	0.7% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 5 µg/mL - weighted mean

Certified Density: 1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **1000 µg/mL Lead in 0.5%(v/v) HNO3**

Catalog Number:	CGPB1-1, CGPB1-2, and CGPB1-5
Lot Number:	**G2-PB03044**
Starting Material:	Pb(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1717
Matrix:	0.5%(v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 3 µg/mL -weighted mean-
Certified Density:	1.002 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

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2.0 DESCRIPTION OF CRM **1000 µg/mL Titanium in 2% (v/v) HNO3 / tr. HF**

Catalog Number:	CGTI1-1, CGTI1-2, and CGTI1-5
Lot Number:	**F2-TI02094**
Starting Material:	Ti powder
Starting Material Purity (%):	99.9948
Starting Material Lot No:	1769
Matrix:	2% (v/v) HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 6 µg/mL - weighted mean
Certified Density:	1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **1000 µg/mL Cobalt in 3% (v/v) HNO3**

Catalog Number:	CGCO1-1, CGCO1-2, and CGCO1-5
Lot Number:	**F2-CO02052**
Starting Material:	Co powder
Starting Material Purity (%):	99.9982
Starting Material Lot No:	1749
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,003 ± 5 µg/mL - weighted mean

Certified Density: 1.018 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Nickel in 2% (v/v) HNO3**

Catalog Number:	CGNI1-1, CGNI1-2, and CGNI1-5
Lot Number:	**G2-NI02086**
Starting Material:	Ni pieces
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1559
Matrix:	2% (v/v) HNO3

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration:	1,002 ± 4 µg/mL -weighted mean-
Certified Density:	1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2 [\Sigma(s_i)^2]^{½}$ 2 = the coverage factor.

$[\Sigma(s_i)^2]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1	**Assay Method #1**	**1,001 ± 3 µg/mL** ICP Assay NIST SRM 3136 Lot Number: 000612
	Assay Method #2	**1,002 ± 3 µg/mL** EDTA NIST SRM 928 Lot Number: 928

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Cadmium in 3% (v/v) HNO3**

Catalog Number:	CGCD1-1, CGCD1-2, and CGCD1-5
Lot Number:	**G2-CD02043**
Starting Material:	Cd shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1714
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,004 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Silicon in tr. HNO3 / tr. HF**

Catalog Number:	CGSI1-1, CGSI1-2, and CGSI1-5
Lot Number:	**G2-SI03023**
Starting Material:	SiO2
Starting Material Purity (%):	99.9993
Starting Material Lot No:	1551
Matrix:	tr. HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 5 µg/mL -weighted mean-
Certified Density:	1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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M3118

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Potassium in 2% (v/v) HNO3**

Catalog Number:	CGK10-1, CGK10-2, and CGK10-5
Lot Number:	**F2-K03033**
Starting Material:	KNO3
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1727
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 10,022 ± 60 µg/mL - weighted mean

Certified Density: 1.025 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **10000 µg/mL Sodium in 2% (v/v) HNO3**

Catalog Number:	CGNA10-1, CGNA10-2, and CGNA10-5
Lot Number:	**G2-NA03110**
Starting Material:	Na2CO3
Starting Material Purity (%):	99.9992
Starting Material Lot No:	1628
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,008 ± 17 µg/mL -weighted mean-
Certified Density:	1.033 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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2.0 DESCRIPTION OF CRM — 10000 µg/mL Iron in 5 % (v/v) HNO3

Catalog Number:	CGFE10-1, CGFE10-2, and CGFE10-5
Lot Number:	**G2-FE04029**
Starting Material:	Fe pieces
Starting Material Purity (%):	99.9977
Starting Material Lot No:	1762
Matrix:	5 % (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 9,977 ± 24 µg/mL -weighted mean-

Certified Density: 1.035 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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2.0 DESCRIPTION OF CRM **1000 µg/mL Zinc in 2% (v/v) HNO3**

Catalog Number:	CGZN1-1, CGZN1-2, and CGZN1-5
Lot Number:	**F2-ZN02088**
Starting Material:	Zn shot
Starting Material Purity (%):	99.9999
Starting Material Lot No:	1689
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	998 ± 5 µg/mL -weighted mean-
Certified Density:	1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

INORGANIC VENTURES™
Standard ID : M3124
...ology Drive
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inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 • 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

R:011114

M3124

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Copper in 3% (v/v) HNO3**

Catalog Number:	CGCU1-1, CGCU1-2, and CGCU1-5
Lot Number:	**F2-CU02147**
Starting Material:	Cu shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1718
Matrix:	3% (v/v) HNO3

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration:	999 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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inorganicventures.com

Standard ID : M3145

CERTIFICATE OF ANALYSIS

M3145 TO M3147

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Stock Solution**

Catalog No.: CLPP-CAL-1

Lot Number: **G2-MEB479124**

Matrix: 5% HNO3(v/v)

5,000 µg/mL ea:
Ca, K, Mg, Na,

2,000 µg/mL ea:
Al, Ba,

1,000 µg/mL ea:
Fe,

500 µg/mL ea:
Co, Mn, Ni, V, Zn,

250 µg/mL ea:
Ag, Cu,

200 µg/mL ea:
Cr3,

50 µg/mL ea:
Be

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	2,002 ± 13 µg/mL	Barium, Ba	2,002 ± 13 µg/mL	Beryllium, Be	50.03 ± 0.28 µg/mL
Calcium, Ca	5,004 ± 35 µg/mL	Chromium+3, Cr3	200.2 ± 1.3 µg/mL	Cobalt, Co	500.5 ± 3.3 µg/mL
Copper, Cu	250.2 ± 1.6 µg/mL	Iron, Fe	1,001 ± 6 µg/mL	Magnesium, Mg	5,004 ± 33 µg/mL
Manganese, Mn	500.4 ± 3.2 µg/mL	Nickel, Ni	500.5 ± 3.3 µg/mL	Potassium, K	5,004 ± 22 µg/mL
Silver, Ag	250.2 ± 1.6 µg/mL	Sodium, Na	5,004 ± 33 µg/mL	Vanadium, V	500.4 ± 3.4 µg/mL
Zinc, Zn	500.4 ± 3.3 µg/mL				

Certified Density: 1.117 g/mL (measured at 20 ± 1° C)

INORGANIC VENTURES
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CERTIFICATE OF ANALYSIS

M3148 To M3150

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1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM**

	Stock Solution
Catalog No.:	CLPP-CAL-3
Lot Number:	**G2-MEB467069**
Matrix:	7% HNO3(v/v)

1,000 µg/mL ea:
As, Pb, Se, Tl,

500 µg/mL ea:
Cd

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Arsenic, As	1,000 ± 7 µg/mL	Cadmium, Cd	500.0 ± 3.2 µg/mL	Lead, Pb	1,000 ± 7 µg/mL
Selenium, Se	1,000 ± 7 µg/mL	Thallium, Tl	1,000 ± 7 µg/mL		

Certified Density: 1.043 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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Standard ID : M3151

R: 2/22/14

CERTIFICATE OF ANALYSIS

M3151

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M3151

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Antimony in HF in 2% (v/v) HNO3 / tr. HF**

Catalog Number:	CGSBF1-1, CGSBF1-2, and CGSBF1-5
Lot Number:	**G2-SB03021**
Starting Material:	Sb shot
Starting Material Purity (%):	99.9997
Starting Material Lot No:	1647
Matrix:	2% (v/v) HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,006 ± 5 µg/mL -No weighted mean-
Certified Density:	1.010 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. **w_a and w_b** = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

INORGANIC VENTURES™
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inorganicventures.com

R: 03/07/14

CERTIFICATE OF ANALYSIS

M3156 TO M3160

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1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Indium in 5% (v/v) HNO3**

Catalog Number:	CGIN10-1, CGIN10-2, and CGIN10-5
Lot Number:	**F2-IN01095**
Starting Material:	In shot
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1775, 1777
Matrix:	5% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,050 ± 51 µg/mL -weighted mean-
Certified Density:	1.033 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M3185

R : 05/08/14

ISO 9001 QS Registered
ISO 17025-34-35-43 Accredited
Scopes: http://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**57003**		C363101	Nitric Acid	
Lot Number:	**122713**				
Description:	**Lithium (Li)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	122716				
	Storage:	20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.98	0.090	Flask Uncertainty		

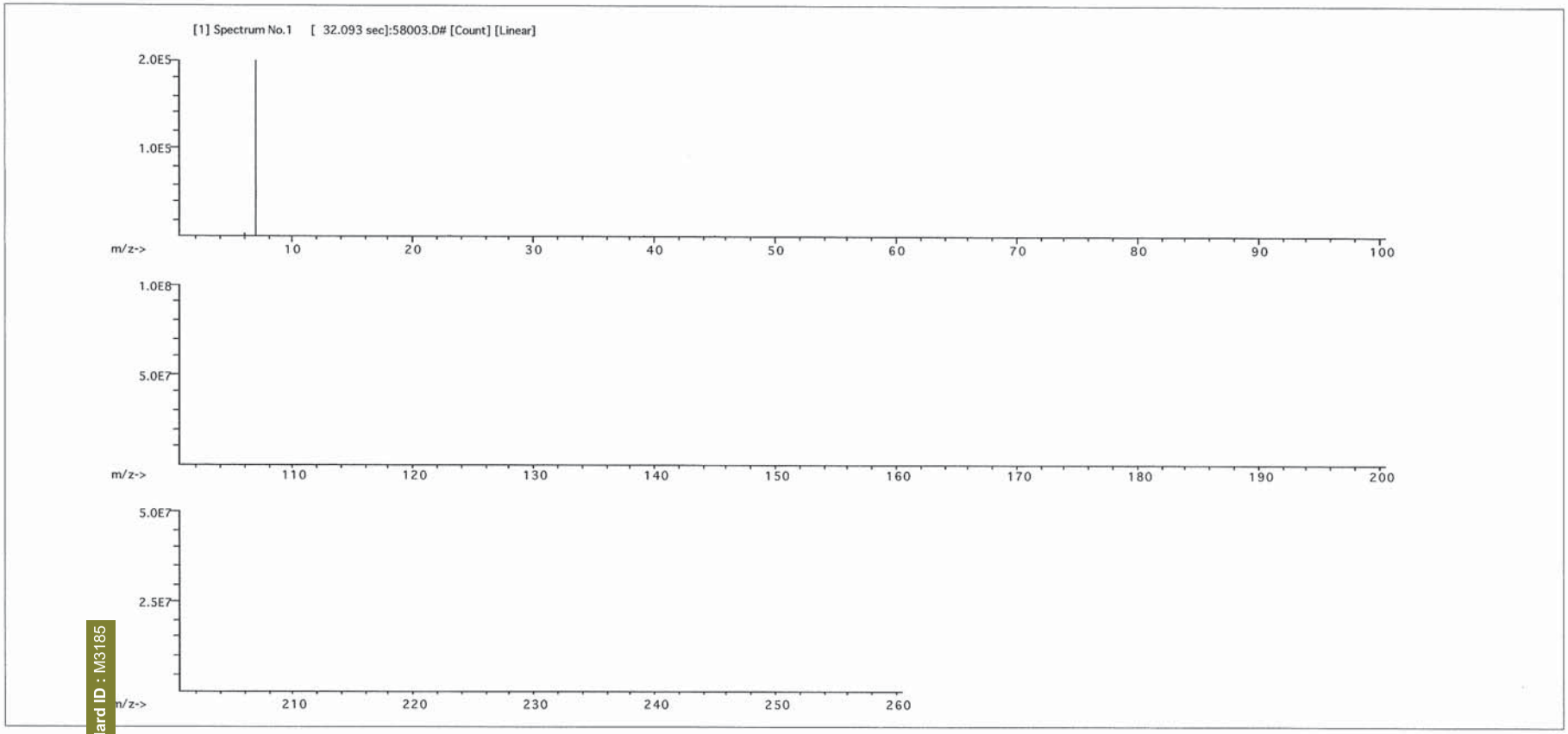
Gabriel Helland

Formulated By:	Gabriel Helland	122713

Pedro Rentas

Reviewed By:	Pedro L. Rentas	122713

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	**Final Conc. (µg/mL)**	Expanded Uncertainty (+/-)	MSDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lithium nitrate (Li)	58103	111412	0.1000	200.0	0.013	10001.5	**1000.2**	0.00201	07790-69-4	5 mg/m3	N/A	N/A



Standard ID : M3185

INORGANIC VENTURES™

Standard ID : M3187

R: 05/09/19

CERTIFICATE OF ANALYSIS

M3187

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0	**DESCRIPTION OF CRM**	**1000 µg/mL Phosphorus in H2O**
	Catalog Number:	CGP1-1, CGP1-2, and CGP1-5
	Lot Number:	**G2-P02048**
	Starting Material:	H3PO4
	Starting Material Purity (%):	99.9997
	Starting Material Lot No:	1704
	Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 4 µg/mL -weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	**Characterization of CRM by one method**
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$ CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$ $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results: X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$ $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

Standard ID : M3207

Hydrogen Peroxide, 30%
BAKER ANALYZED® A.C.S. Reagent
(Stabilized)

M3207.
Received Date 7/3/14
Exp. Date 5/27/15 7/3/14.

Material No.: 2186-03
Batch No.: 0000064775
Manufactured Date: 2013/11/26
Expiration Date: 2015/05/27

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay (H_2O_2)	30.0 - 32.0 %	31.7
Color (APHA)	<= 10	5
Residue after Evaporation	<= 0.0020 %	0.0002
Titrable Acid (meq/g)	<= 0.0006	< 0.0001
Chloride (Cl)	<= 3 ppm	< 1
Nitrate (NO_3)	<= 2 ppm	< 2
Phosphate (PO_4)	<= 2 ppm	< 1
ACS - Sulfate (SO_4)	<= 5 ppm	< 3
Ammonium (NH_4)	<= 5 ppm	< 3
Trace Impurities - Copper (Cu)	<= 50.0 ppb	< 1.0
Trace Impurities - Iron (Fe)	<= 100.0 ppb	4.1
Heavy Metals (as Pb)	<= 1000 ppb	< 250
Trace Impurities - Lead (Pb)	<= 100.0 ppb	< 10.0
Trace Impurities - Nickel (Ni)	<= 50.0 ppb	< 5.0

For Laboratory, Research or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs

Country of Origin: US
Packaging Site: Paris Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Nitric Acid, 69.0-70.0%
Standard ID : M3215 ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

M 3215
Received D. 08/12/14
Exp. D. 04/15/19.

Material No.: 9598-34
Batch No.: 0000077192
Manufactured Date: 2014/04/16
Retest Date: 2019/04/15

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.7
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.419
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	< 0.7
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.3
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	2.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	< 1.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000077192

Test	Specification	Result
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	< 1.0
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.3
Trace Impurities - Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities - Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities - Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities - Silicon (Si)	<= 20.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 200.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Standard ID : M3218

Hydrochloric Acid, 36.5-38.0%
[illegible]ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

M 3218
Received d. 8/20/14
Exp. D. 25/03/19
By

Material No.: 9530-33
Batch No.: 0000075649
Manufactured Date: 2014/03/26
Retest Date: 2019/03/25

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	< 1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.190
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	< 1
ACS - Free Chlorine (as Cl_2)	<= 0.5 ppm	< 0.5
Phosphate (PO_4)	<= 0.05 ppm	< 0.03
Sulfate (SO_4)	<= 0.5 ppm	< 0.3
Sulfite (SO_3)	<= 0.8 ppm	0.2
Ammonium (NH_4)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	9.3
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9530-33
Batch No.: 0000075649

Test	Specification	Result
Trace Impurities - Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 15.0 ppb	< 1.0
Trace Impurities - Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 10.0 ppb	0.2
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.1
Trace Impurities - Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities - Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.2
Trace Impurities - Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities - Selenium (Se), For Information Only	ppb	1.0
Trace Impurities - Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Titanium (Ti)	<= 1.0 ppb	0.5
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

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Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

INORGANIC VENTURES

Standard ID : M3224

CERTIFICATE OF ANALYSIS

M3224

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number (010105).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.03

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGCA10
Lot Number:	G2-CA04095
Matrix:	2% (v/v) HNO3
Value/Analyte(s):	10,000 µg/mL Calcium
Starting Material:	CaO
Starting Material Lot#:	Multiple Lots
Starting Material Purity:	99.9990%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10,027 ± 23 µg/mL weighted mean

Certified Density: 1.040 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	**10031 ± 41 µg/mL** ICP Assay NIST SRM 3109a Lot Number: 050825
Assay Method #2	**10025 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

INORGANIC VENTURES

Standard ID : M3225

CERTIFICATE OF ANALYSIS

M3225

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number (010105).

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGMG10
Lot Number:	G2-MG03120
Matrix:	2% (v/v) HNO3
Value/Analyte(s):	10,000 µg/mL Magnesium
Starting Material:	Mg chips
Starting Material Lot#:	1484
Starting Material Purity:	99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9,973 ± 20 µg/mL -weighted mean-

Certified Density: 1.053 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	**9,955 ± 29 µg/mL** ICP Assay NIST SRM 3131a Lot Number: 050302
Assay Method #2	**9,986 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Standard ID : M3227 0-70.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

SEIDLER CHEMICAL COMPANY
537 Raymond Boulevard
Newark, NJ 07105

Material No.: 9598-34
Batch No.: 0000077192
Manufactured Date: 2014/04/16
Retest Date: 2019/04/15

M3227.
Received D. 9/3/14
Expired d. 4/15/19.
BS 9/3/14.

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.7
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.419
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	< 0.7
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.3
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	2.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	< 1.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000077192

Test	Specification	Result
Trace Impurities – Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities – Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities – Magnesium (Mg)	<= 7.0 ppb	< 1.0
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities – Mercury (Hg)	<= 0.5 ppb	0.3
Trace Impurities – Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities – Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities – Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities – Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities – Silicon (Si)	<= 20.0 ppb	< 10.0
Trace Impurities – Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities – Sodium (Na)	<= 200.0 ppb	< 5.0
Trace Impurities – Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities – Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities – Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities – Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities – Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities – Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities – Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600

Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

INORGANIC VENTURES

CERTIFICATE OF ANALYSIS

Standard ID : M3240

M3240 R:09/05/14

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM**

	Stock Solution
Catalog No.:	CLPP-SPK-1
Lot Number:	**F2-MEB427123**
Matrix:	7% HNO3(v/v)

2,000 µg/mL ea:
Al, Ba,

1,000 µg/mL ea:
Fe,

500 µg/mL ea:
Co, Mn, Ni, V, Zn,

250 µg/mL ea:
Cu,

200 µg/mL ea:
Cr3,

50 µg/mL ea:
Ag, Be

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	2,000 ± 14 µg/mL	Barium, Ba	2,000 ± 13 µg/mL	Beryllium, Be	50.01 ± 0.34 µg/mL
Chromium+3, Cr3	200.0 ± 1.4 µg/mL	Cobalt, Co	500.0 ± 3.2 µg/mL	Copper, Cu	250.1 ± 1.6 µg/mL
Iron, Fe	1,000 ± 7 µg/mL	Manganese, Mn	500.0 ± 3.2 µg/mL	Nickel, Ni	499.9 ± 3.3 µg/mL
Silver, Ag	50.02 ± 0.32 µg/mL	Vanadium, V	500.0 ± 3.5 µg/mL	Zinc, Zn	500.0 ± 3.2 µg/mL

Certified Density: 1.070 g/mL (measured at 20 ± 1° C)

M3242 R: 09/05/14

INORGANIC VENTURES™
Standard ID : M3242
[redacted] gy Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Stock Solution**

Catalog No.: CLPP-SPK-5

Lot Number: **G2-MEB474100**

Matrix: 5% HNO3(v/v)

100 µg/mL ea:
Sb,

50 µg/mL ea:
Cd, Se, Tl,

40 µg/mL ea:
As,

20 µg/mL ea:
Pb

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Antimony, Sb	100.0 ± 0.8 µg/mL	Arsenic, As	40.01 ± 0.27 µg/mL	Cadmium, Cd	50.03 ± 0.32 µg/mL
Lead, Pb	20.00 ± 0.13 µg/mL	Selenium, Se	50.02 ± 0.33 µg/mL	Thallium, Tl	49.96 ± 0.33 µg/mL

Certified Density: 1.025 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

Standard ID : M3245 -70.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

M3245
Received 9/12/14
Exp. 07/01/19.
BS

Part of AVANTOR™ PERFORMANCE MATERIALS

Material No.: 9598-34
Batch No.: 0000084115
Manufactured Date: 2014/07/02
Retest Date: 2019/07/01

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.5
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	< 1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.420
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	0.5
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	0.8
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.0
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	3.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 0.2
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	0.5

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000084115

Test	Specification	Result
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	0.2
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	< 0.1
Trace Impurities - Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities - Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities - Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities - Silicon (Si)	<= 20.0 ppb	2.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 200.0 ppb	< 0.5
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	0.2

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

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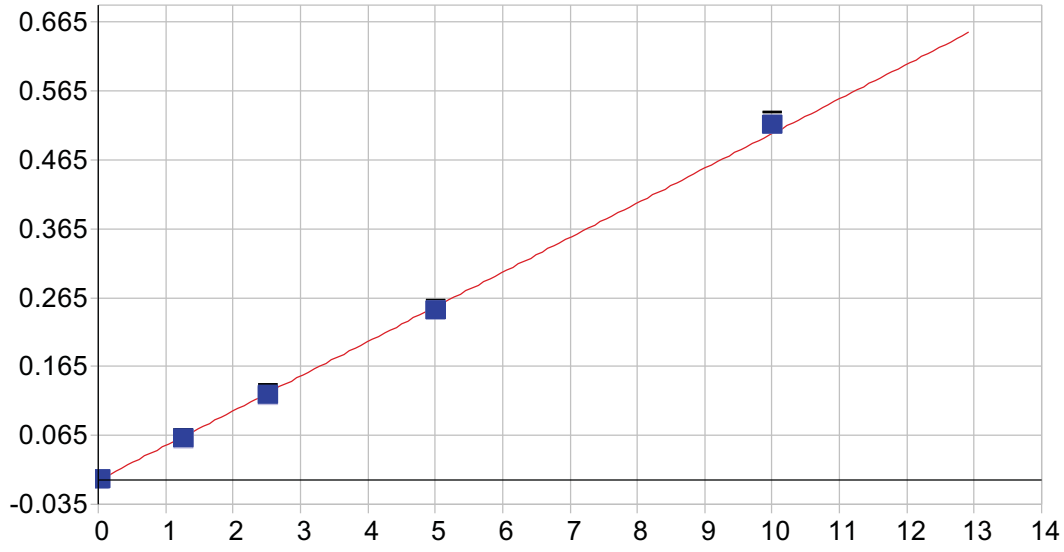
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



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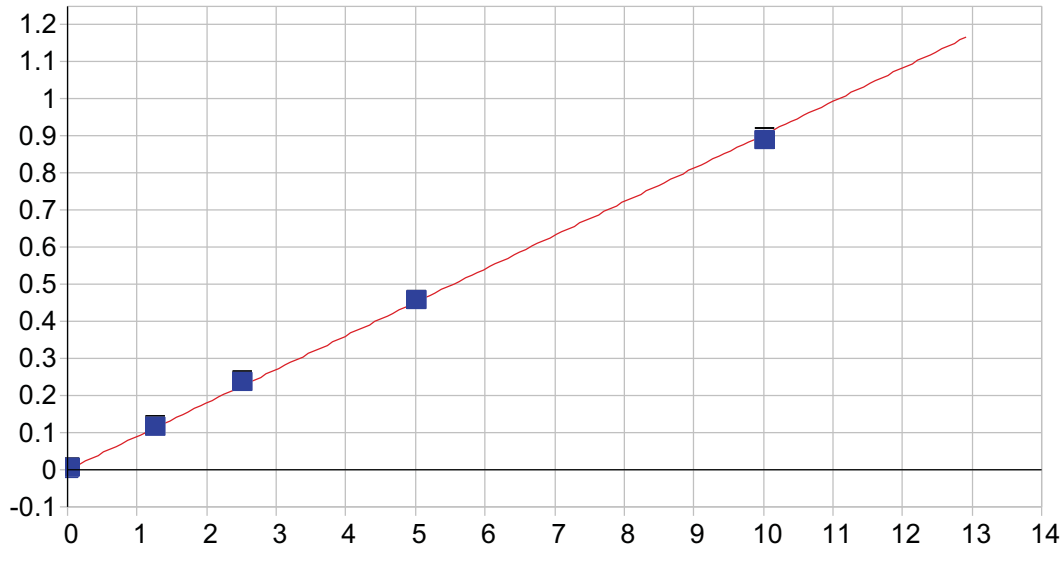
A0 (Offset):	-0.000102	Re-Slope:	1.000000
A1 (Gain):	0.050347	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999594	Status:	OK.
Std Error of Est:	0.000024		
Predicted MDL:	0.001737		
Predicted MQL:	0.005789		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00010	.000	1
S1	.01000	.00817	-.002	-18.3	.00031	.000	1
S2	1.2500	1.1731	-.077	-6.15	.05886	.000	1
S3	2.5000	2.4307	-.069	-2.77	.12207	.002	1
S4	5.0000	4.8995	-.100	-2.01	.24617	.001	1
S5	10.000	10.249	.249	2.49	.51506	.005	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



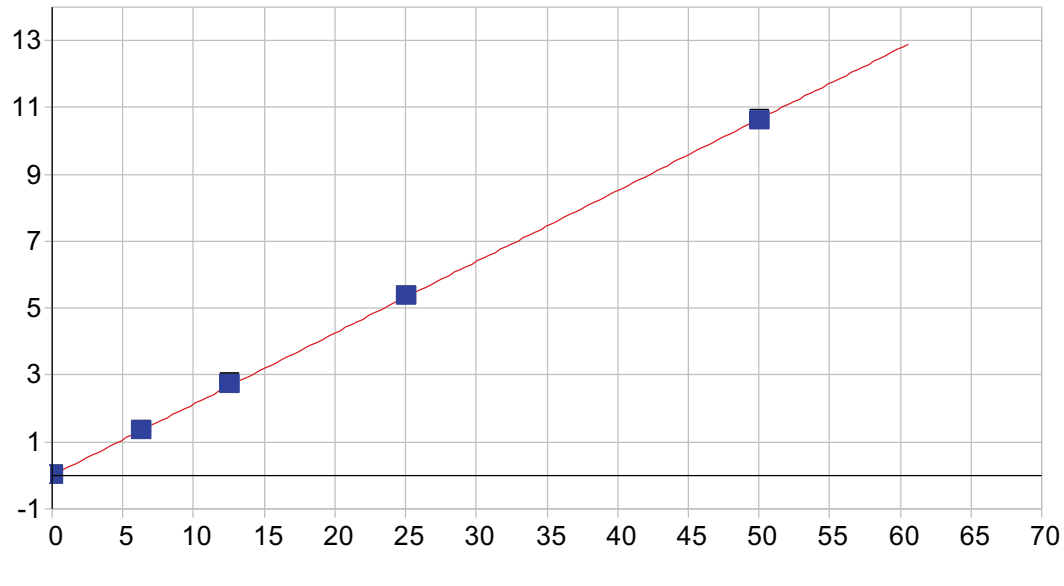
Tl 190.856 {477}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000118	Re-Slope:	1.000000
A1 (Gain):	0.090348	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999786	Status:	OK.
Std Error of Est:	0.000050		
Predicted MDL:	0.001150		
Predicted MQL:	0.003833		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00012	.000	1
S1	.02500	.02562	.001	2.48	.00219	.000	1
S2	1.2500	1.2815	.031	2.52	.11559	.000	1
S3	2.5000	2.6017	.102	4.07	.23481	.004	1
S4	5.0000	5.0347	.035	.695	.45450	.002	1
S5	10.000	9.8314	-.169	-1.69	.88760	.006	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



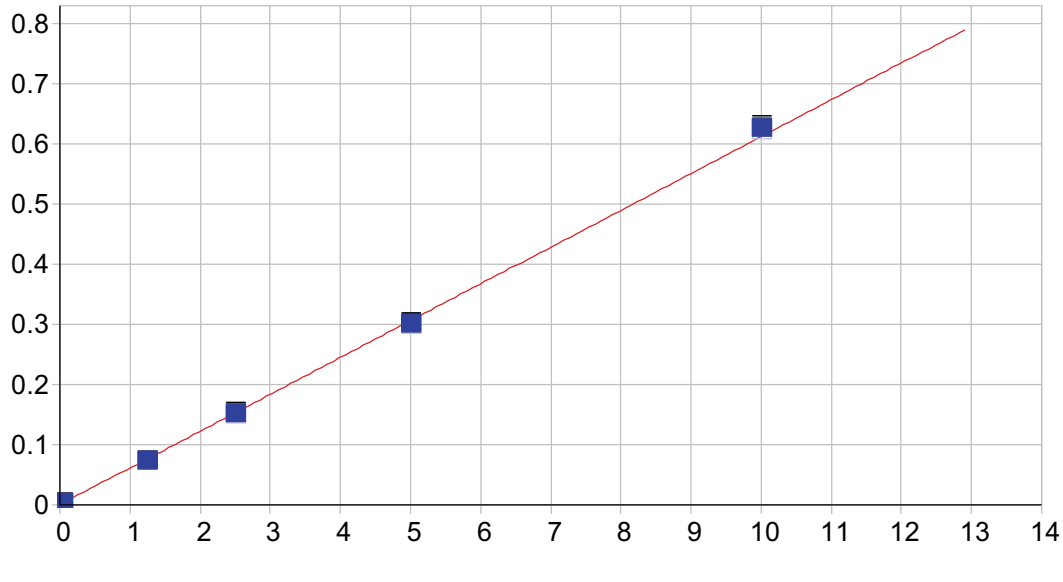
Pb 220.353 {453}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000112	Re-Slope:	1.000000
A1 (Gain):	0.212950	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999962	Status:	OK.
Std Error of Est:	0.000070		
Predicted MDL:	0.001083		
Predicted MQL:	0.003609		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00011	.000	1
S1	.01000	.00854	-.001	-14.6	.00169	.000	1
S2	6.2500	6.1936	-.056	-.902	1.3184	.003	1
S3	12.500	12.733	.233	1.86	2.7104	.055	1
S4	25.000	25.111	.111	.443	5.3454	.017	1
S5	50.000	49.714	-.286	-.571	10.583	.058	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

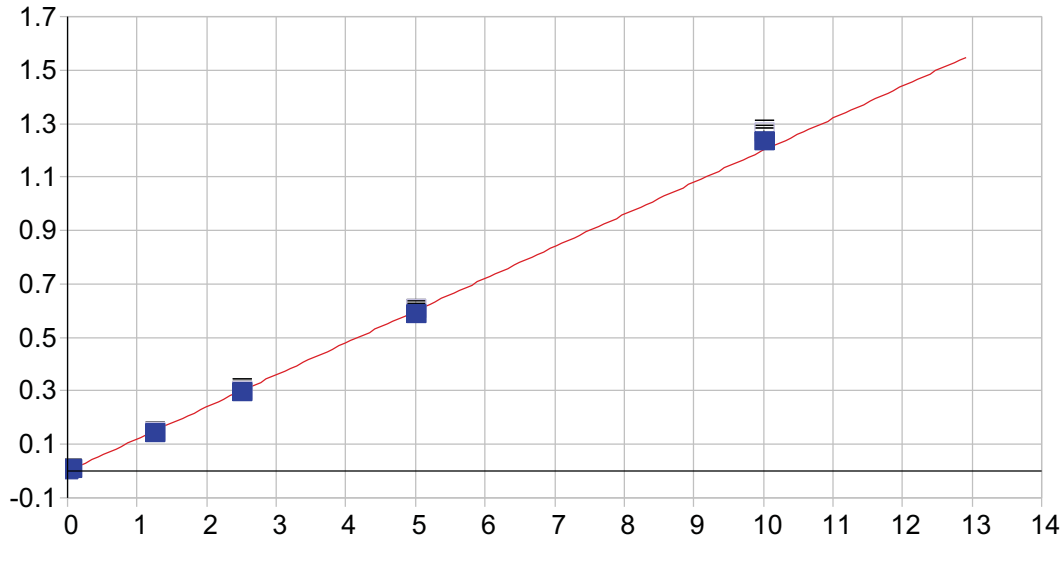


Se 196.090 {472}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000162			Re-Slope:	1.000000	
A1 (Gain):	0.061213			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.999703		Status:	OK.		
Std Error of Est:	0.000047					
Predicted MDL:	0.001996					
Predicted MQL:	0.006653					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00016	.000	1
S1	.03500	.03150	-.004	-10.0	.00209	.000	1
S2	1.2500	1.1837	-.066	-5.30	.07213	.000	1
S3	2.5000	2.4491	-.051	-2.04	.14910	.004	1
S4	5.0000	4.9092	-.091	-1.82	.29871	.002	1
S5	10.000	10.211	.211	2.11	.62132	.004	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

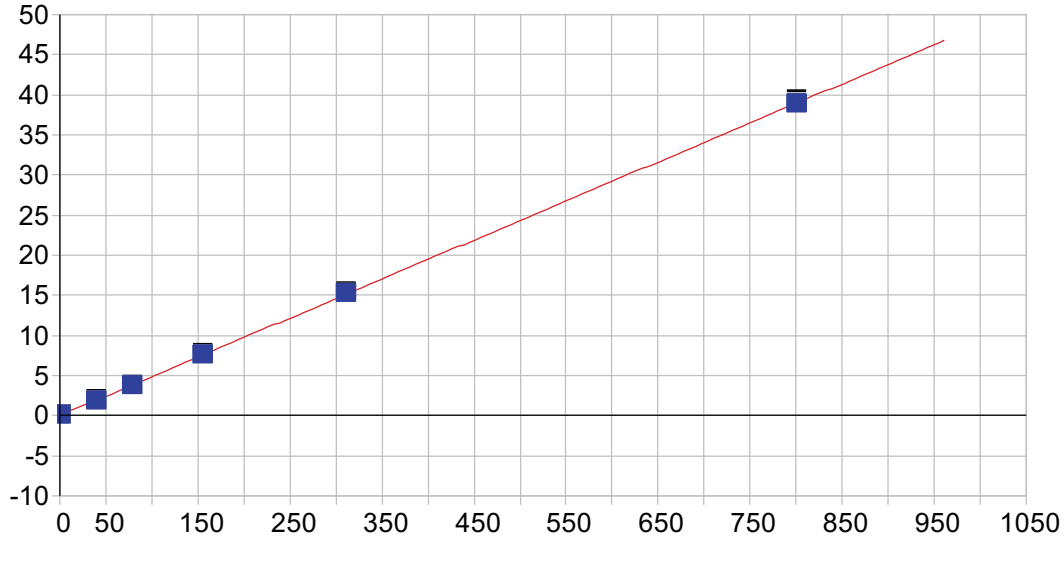


Sb 206.833 {463}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000064		Re-Slope:	1.000000		
A1 (Gain):	0.119924		Y-int:	0.000000		
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.999508		Status:	OK.		
Std Error of Est:	0.000159					
Predicted MDL:	0.001235					
Predicted MQL:	0.004115					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00007	.000	1
S1	.06000	.05381	-.006	-10.3	.00652	.000	1
S2	1.2500	1.1607	-.089	-7.14	.14321	.000	1
S3	2.5000	2.4248	-.075	-3.01	.29875	.006	1
S4	5.0000	4.8904	-.110	-2.19	.60232	.002	1
S5	10.000	10.280	.280	2.80	1.2644	.010	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



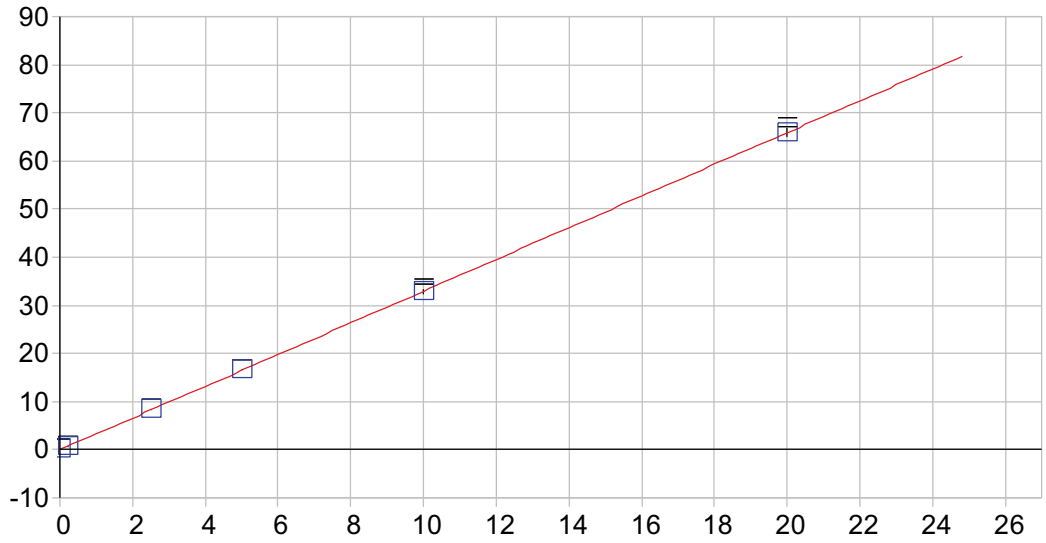
Al 396.152 { 85}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000117	Re-Slope:	1.000000
A1 (Gain):	0.048657	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999988	Status:	OK.
Std Error of Est:	0.000147		
Predicted MDL:	0.008481		
Predicted MQL:	0.028269		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00003	.000	.000	-.00012	.000	1
S1	.20000	.17504	-.025	-12.5	.00933	.000	1
S2	38.750	38.369	-.381	-.983	1.8805	.014	1
S3	77.500	76.561	-.939	-1.21	3.7524	.008	1
S4	155.00	155.32	.322	.208	7.6120	.031	1
S5	310.00	311.98	1.98	.639	15.289	.041	1
S6	800.00	799.04	-.958	-.120	39.023	.233	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



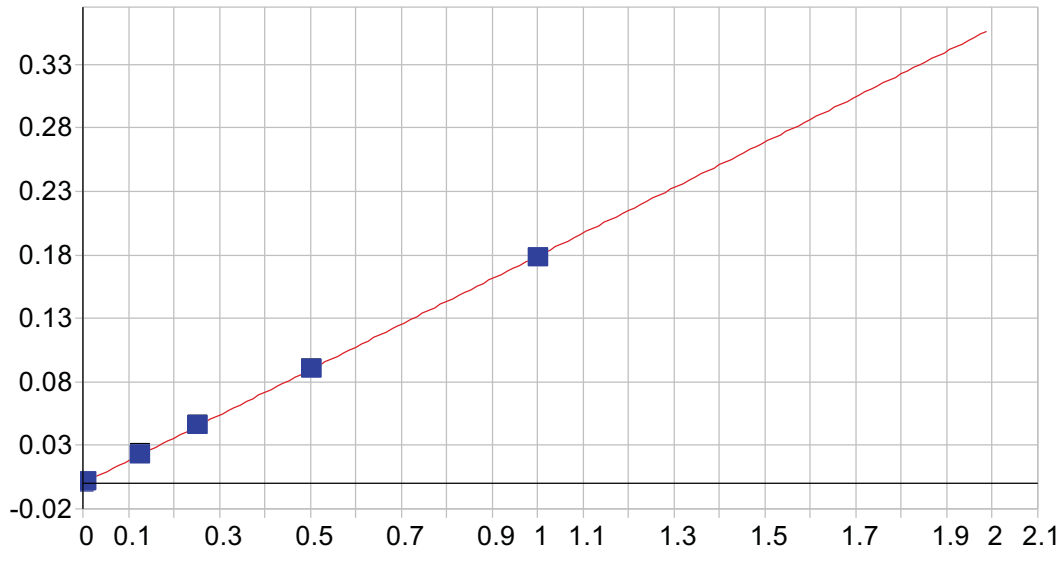
Ba 493.409 { 68}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000417	Re-Slope:	1.000000
A1 (Gain):	3.294693	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999992	Status:	OK.
Std Error of Est:	0.001427		
Predicted MDL:	0.000331		
Predicted MQL:	0.001105		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00042	.001	1
S1	.20000	.19776	-.002	-1.12	.65114	.001	1
S2	2.5000	2.5262	.026	1.05	8.3227	.037	1
S3	5.0000	5.0265	.027	.530	16.560	.022	1
S4	10.000	9.9573	-.043	-.427	32.806	.500	1
S5	20.000	19.992	-.008	-.039	65.868	.949	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



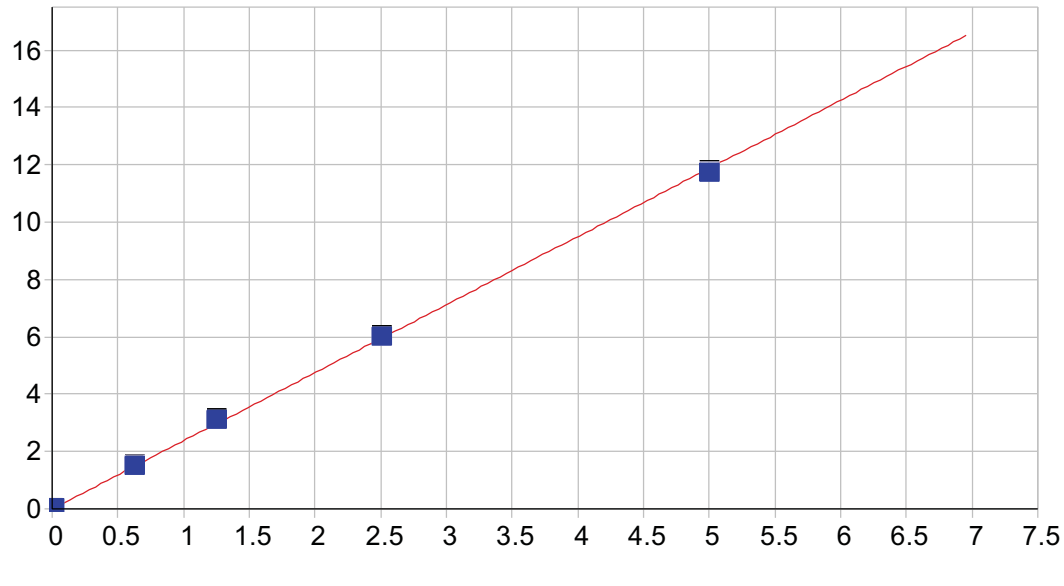
Be 234.861 {144}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000084	Re-Slope:	1.000000
A1 (Gain):	0.179140	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999950	Status:	OK.
Std Error of Est:	0.000007		
Predicted MDL:	0.000469		
Predicted MQL:	0.001562		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00008	.000	1
S1	.00500	.00515	.000	3.03	.00084	.000	1
S2	.12500	.12773	.003	2.18	.02276	.000	1
S3	.25000	.25291	.003	1.16	.04515	.000	1
S4	.50000	.50277	.003	.553	.08983	.000	1
S5	1.0000	.99144	-.009	-.856	.17722	.000	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



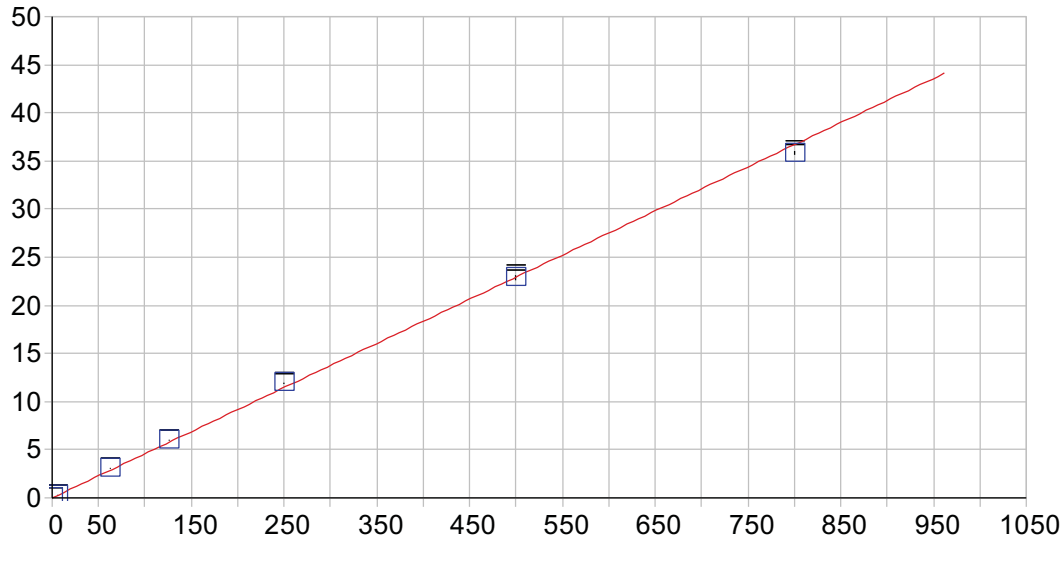
Cd 214.438 {457}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000140	Re-Slope:	1.000000
A1 (Gain):	2.374374	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999856	Status:	OK.
Std Error of Est:	0.000338		
Predicted MDL:	0.000058		
Predicted MQL:	0.000194		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00014	.000	1
S1	.00500	.00479	.000	-4.24	.01152	.000	1
S2	.62500	.62974	.005	.758	1.4982	.004	1
S3	1.2500	1.2927	.043	3.42	3.0752	.057	1
S4	2.5000	2.5232	.023	.927	6.0025	.015	1
S5	5.0000	4.9296	-.070	-1.41	11.728	.070	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



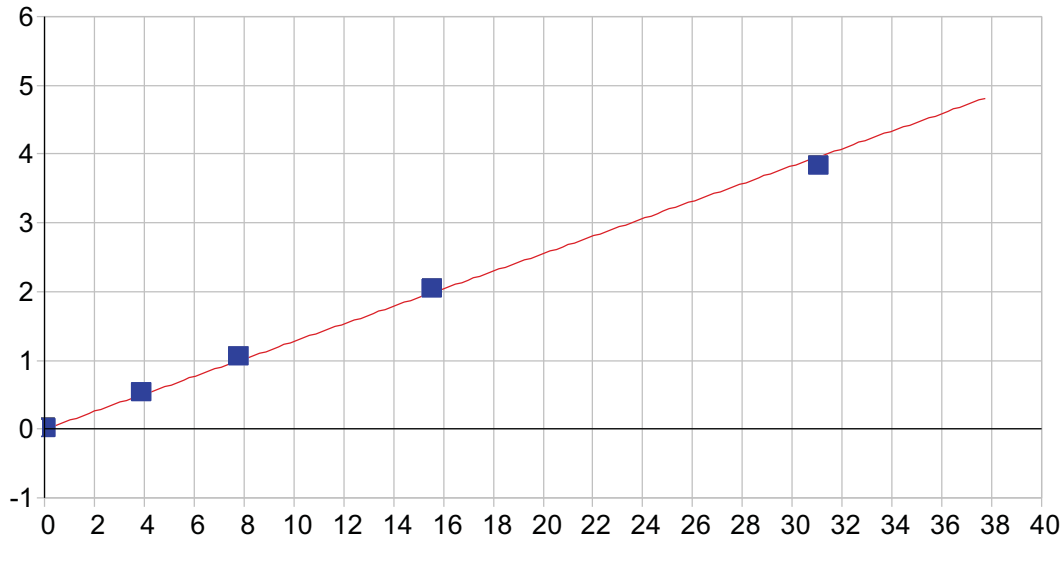
Ca 373.690 { 90}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001261	Re-Slope:	1.000000
A1 (Gain):	0.045864	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999584	Status:	OK.
Std Error of Est:	0.004621		
Predicted MDL:	0.008011		
Predicted MQL:	0.026703		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00071	-.001	.000	.00123	.000	1
S1	5.0000	5.0649	.065	1.30	.23356	.000	1
S2	62.500	66.625	4.12	6.60	3.0570	.012	1
S3	125.00	131.17	6.17	4.94	6.0174	.005	1
S4	250.00	260.10	10.1	4.04	11.931	.042	1
S5	500.00	498.77	-1.23	-.246	22.877	.274	1
S6	800.00	780.76	-19.2	-2.40	35.810	.217	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



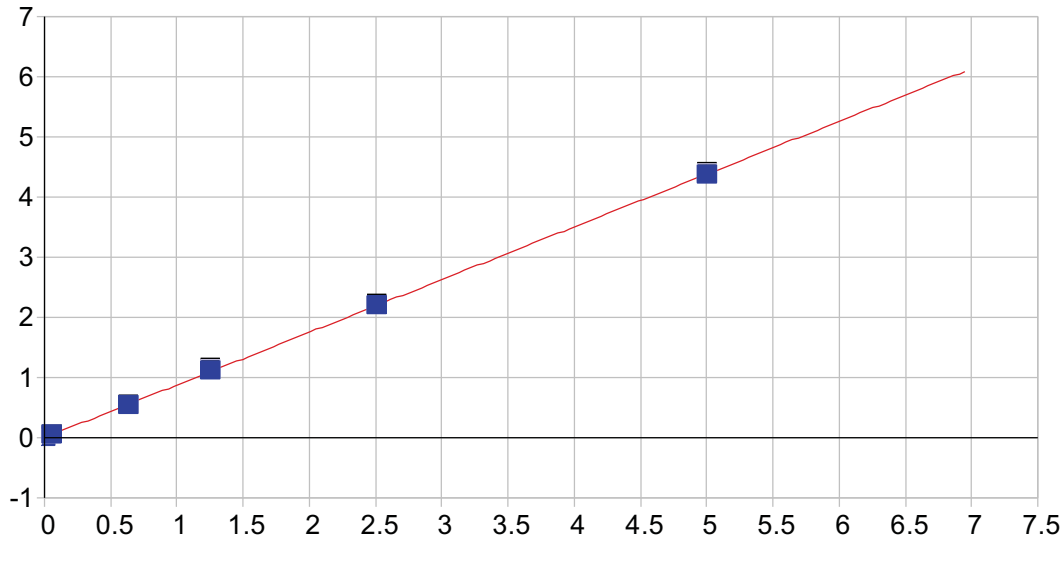
Cr 267.716 {126}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000031	Re-Slope:	1.000000
A1 (Gain):	0.127540	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999203	Status:	OK.
Std Error of Est:	0.000150		
Predicted MDL:	0.000342		
Predicted MQL:	0.001141		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00003	.000	1
S1	.01000	.01054	.001	5.44	.00131	.000	1
S2	3.8750	4.1438	.269	6.94	.52860	.001	1
S3	7.7500	8.1813	.431	5.57	1.0437	.002	1
S4	15.500	15.906	.406	2.62	2.0292	.008	1
S5	31.000	29.893	-1.11	-3.57	3.8136	.011	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



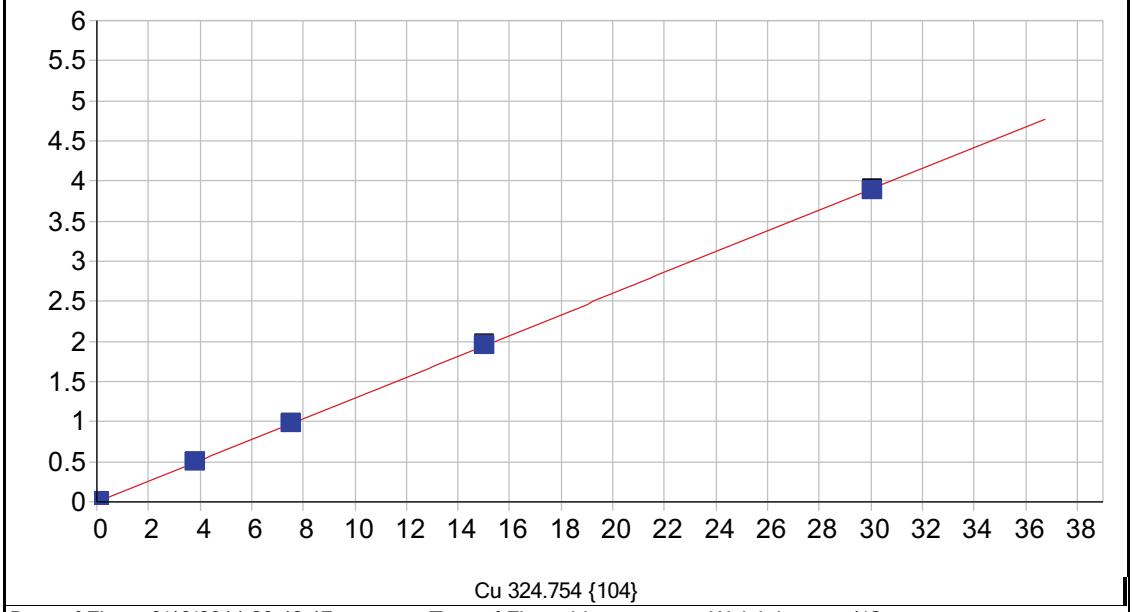
Co 228.616 {448}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000307	Re-Slope:	1.000000
A1 (Gain):	0.876309	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999954	Status:	OK.
Std Error of Est:	0.000225		
Predicted MDL:	0.000181		
Predicted MQL:	0.000604		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00030	.000	1
S1	.05000	.04649	-.004	-7.02	.04058	.000	1
S2	.62500	.61708	-.008	-1.27	.54133	.001	1
S3	1.2500	1.2740	.024	1.92	1.1179	.022	1
S4	2.5000	2.5048	.005	.191	2.1982	.007	1
S5	5.0000	4.9826	-.017	-.347	4.3732	.026	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



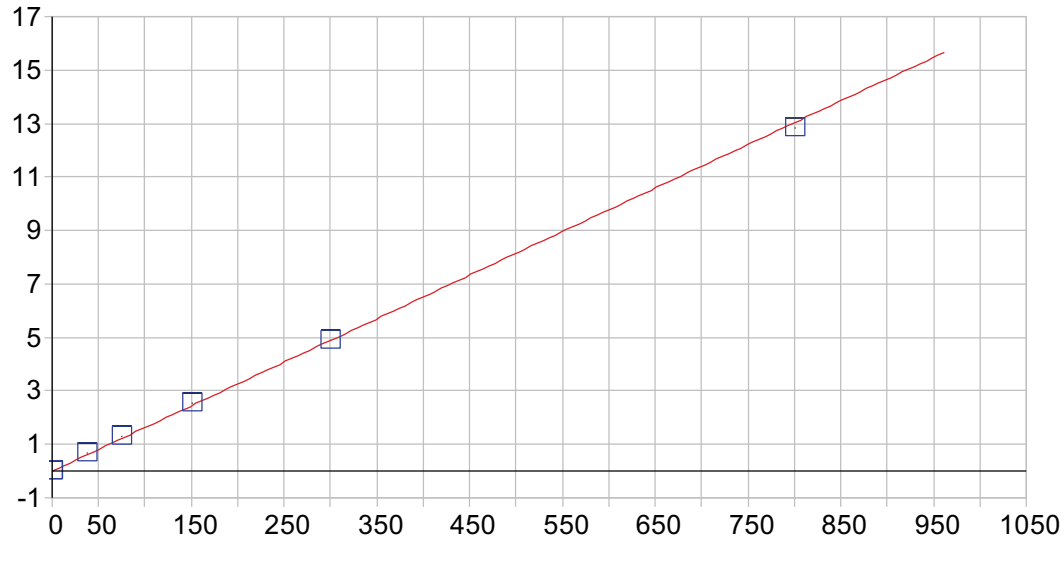
Cu 324.754 {104}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000790	Re-Slope:	1.000000
A1 (Gain):	0.129761	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999994	Status:	OK.
Std Error of Est:	0.000021		
Predicted MDL:	0.001947		
Predicted MQL:	0.006490		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00079	.000	1
S1	.02500	.02384	-.001	-4.66	.00387	.000	1
S2	3.7500	3.7904	.040	1.08	.49198	.004	1
S3	7.5000	7.5076	.008	.102	.97366	.001	1
S4	15.000	15.023	.023	.154	1.9476	.005	1
S5	30.000	29.930	-.070	-.233	3.8792	.012	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

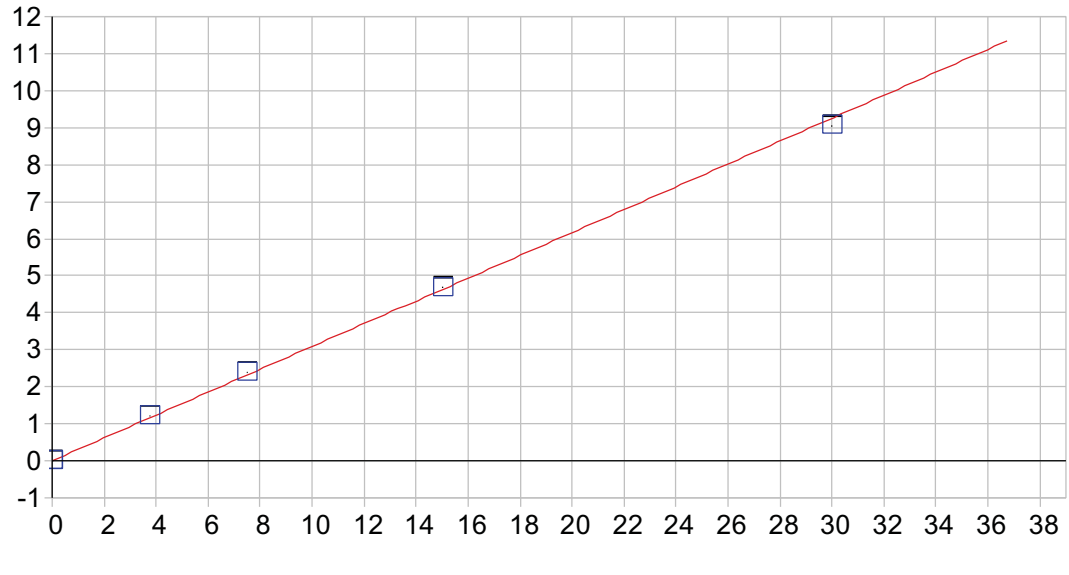


Fe 259.837 {130}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	-0.000004			Re-Slope:	1.000000	
A1 (Gain):	0.016289			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.999711		Status:	OK.		
Std Error of Est:	0.000171					
Predicted MDL:	0.007364					
Predicted MQL:	0.024547					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00002	.000	.000	.00000	.000	1
S1	.10000	.10322	.003	3.22	.00168	.000	1
S2	37.500	40.403	2.90	7.74	.65811	.002	1
S3	75.000	79.104	4.10	5.47	1.2885	.002	1
S4	150.00	155.09	5.09	3.39	2.5261	.007	1
S5	300.00	299.36	-.635	-.212	4.8762	.008	1
S6	800.00	788.54	-11.5	-1.43	12.844	.014	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



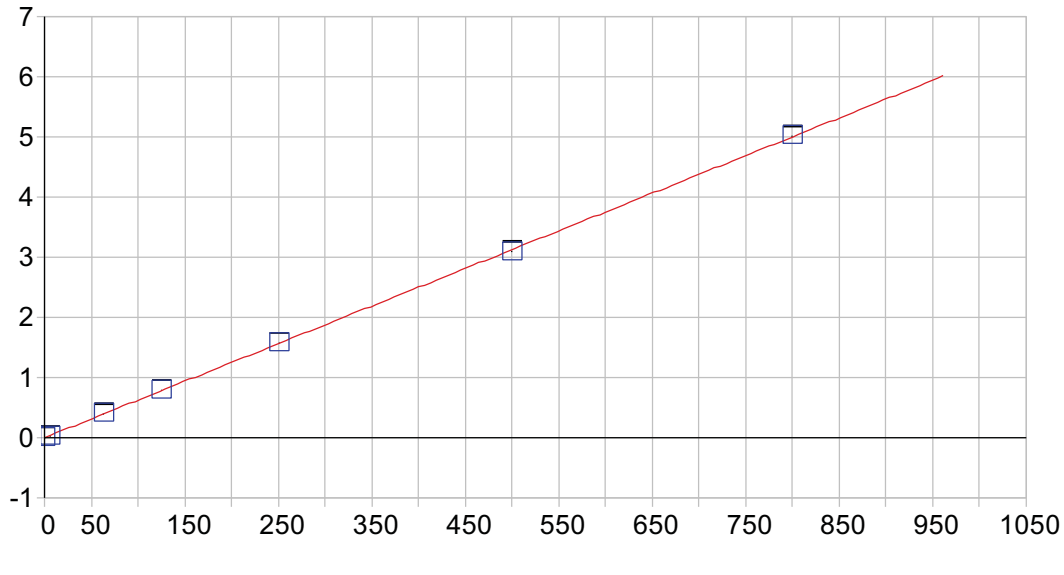
Mn 257.610 {131}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000042	Re-Slope:	1.000000
A1 (Gain):	0.308551	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999671	Status:	OK.
Std Error of Est:	0.000281		
Predicted MDL:	0.000392		
Predicted MQL:	0.001305		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00004	.000	1
S1	.01500	.01531	.000	2.09	.00468	.000	1
S2	3.7500	3.9571	.207	5.52	1.2209	.005	1
S3	7.5000	7.7570	.257	3.43	2.3934	.004	1
S4	15.000	15.191	.191	1.28	4.6873	.019	1
S5	30.000	29.344	-.656	-2.19	9.0542	.024	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



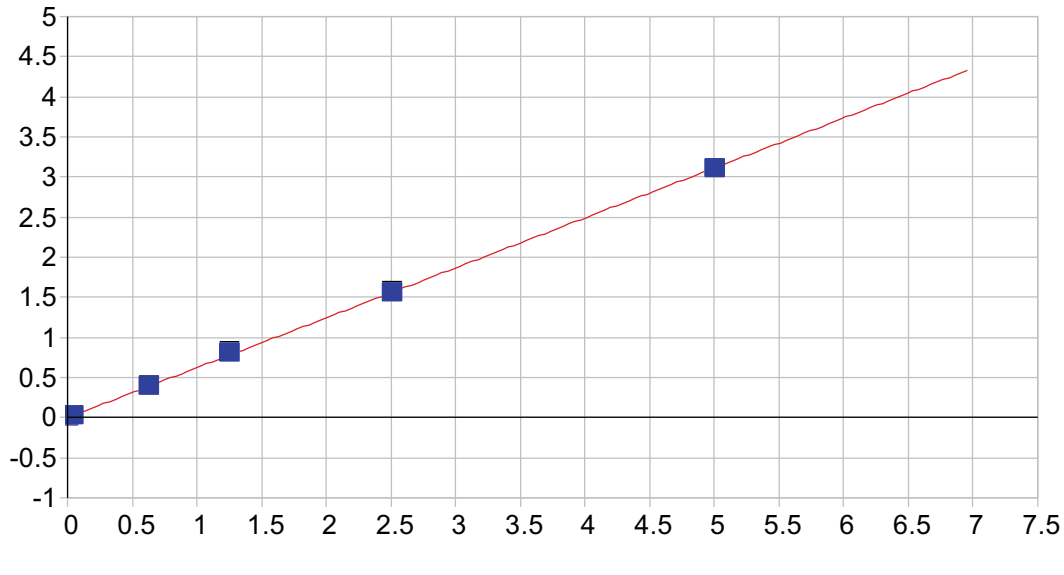
Mg 279.079 {121}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000068	Re-Slope:	1.000000
A1 (Gain):	0.006253	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999970	Status:	OK.
Std Error of Est:	0.000169		
Predicted MDL:	0.021754		
Predicted MQL:	0.072512		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	-.00007	.000	1
S1	5.0000	4.9105	-.089	-1.79	.03064	.000	1
S2	62.500	63.290	.790	1.26	.39568	.002	1
S3	125.00	126.21	1.21	.969	.78912	.003	1
S4	250.00	251.82	1.82	.727	1.5745	.007	1
S5	500.00	494.37	-5.63	-1.13	3.0912	.008	1
S6	800.00	801.90	1.90	.238	5.0142	.005	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



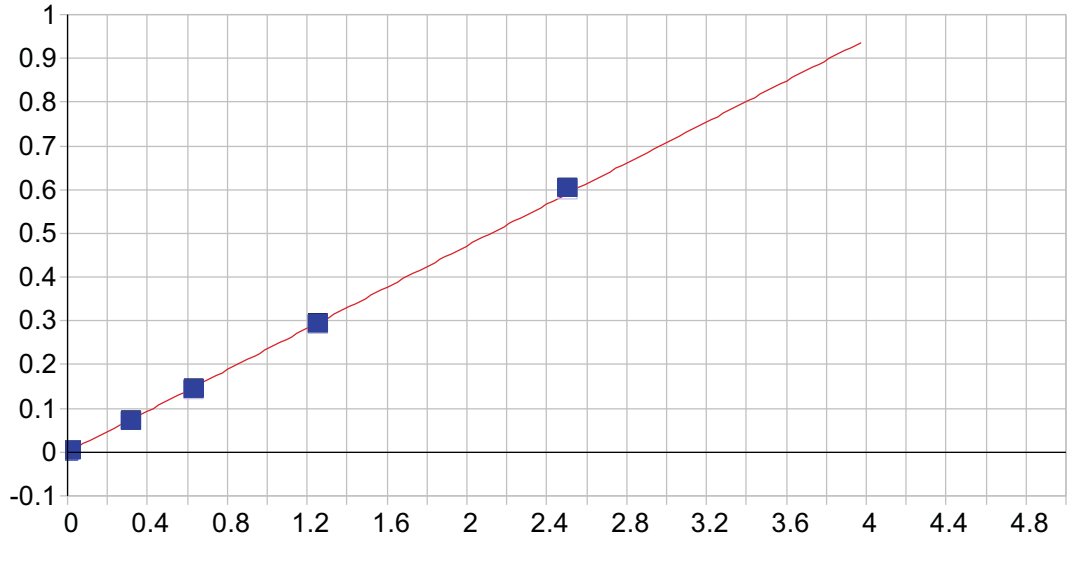
Ni 231.604 {446}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000378	Re-Slope:	1.000000
A1 (Gain):	0.622604	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999948	Status:	OK.
Std Error of Est:	0.000150		
Predicted MDL:	0.000288		
Predicted MQL:	0.000961		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00038	.000	1
S1	.04000	.03834	-.002	-4.15	.02348	.000	1
S2	.62500	.62131	-.004	-.590	.38634	.000	1
S3	1.2500	1.2794	.029	2.35	.79596	.016	1
S4	2.5000	2.5057	.006	.226	1.5592	.005	1
S5	5.0000	4.9703	-.030	-.594	3.0932	.015	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



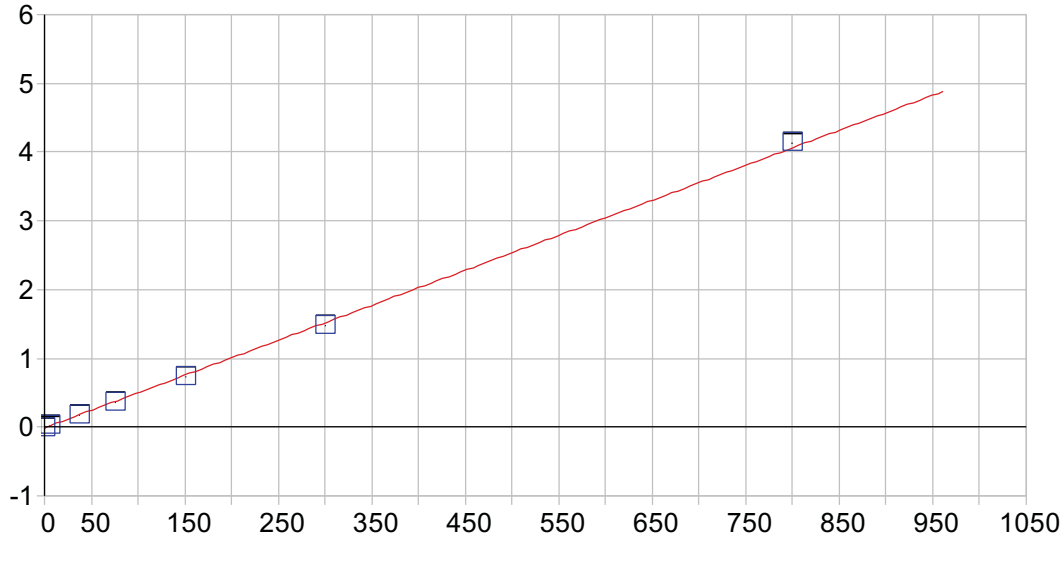
Ag 328.068 {103}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000345	Re-Slope:	1.000000
A1 (Gain):	0.235931	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999732	Status:	OK.
Std Error of Est:	0.000045		
Predicted MDL:	0.000309		
Predicted MQL:	0.001030		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00034	.000	1
S1	.01000	.00911	-.001	-8.94	.00179	.000	1
S2	.31250	.29814	-.014	-4.59	.06933	.000	1
S3	.62500	.60468	-.020	-3.25	.14099	.000	1
S4	1.2500	1.2372	-.013	-1.03	.28889	.001	1
S5	2.5000	2.5484	.048	1.94	.59560	.000	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



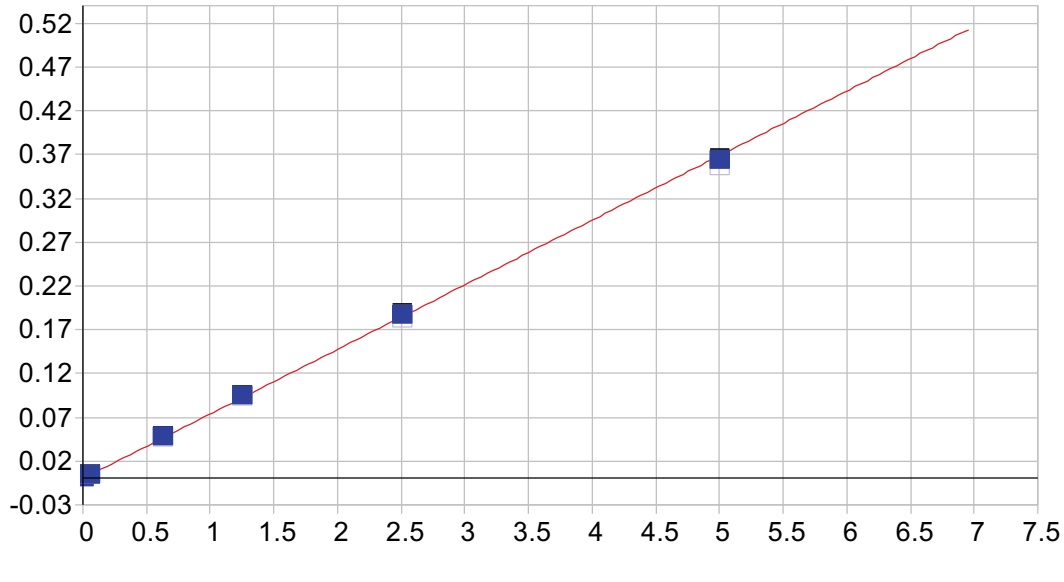
Na 818.326 { 41}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.009788	Re-Slope:	1.000000
A1 (Gain):	0.005090	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999790	Status:	OK.
Std Error of Est:	0.000323		
Predicted MDL:	0.165152		
Predicted MQL:	0.550506		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00056	.001	.000	-.00979	.000	1
S1	5.0000	4.8259	-.174	-3.48	.01478	.000	1
S2	37.500	36.647	-.853	-2.27	.17675	.001	1
S3	75.000	73.282	-1.72	-2.29	.36323	.002	1
S4	150.00	146.34	-3.66	-2.44	.73513	.001	1
S5	300.00	292.60	-7.40	-2.47	1.4796	.003	1
S6	800.00	813.80	13.8	1.72	4.1326	.008	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

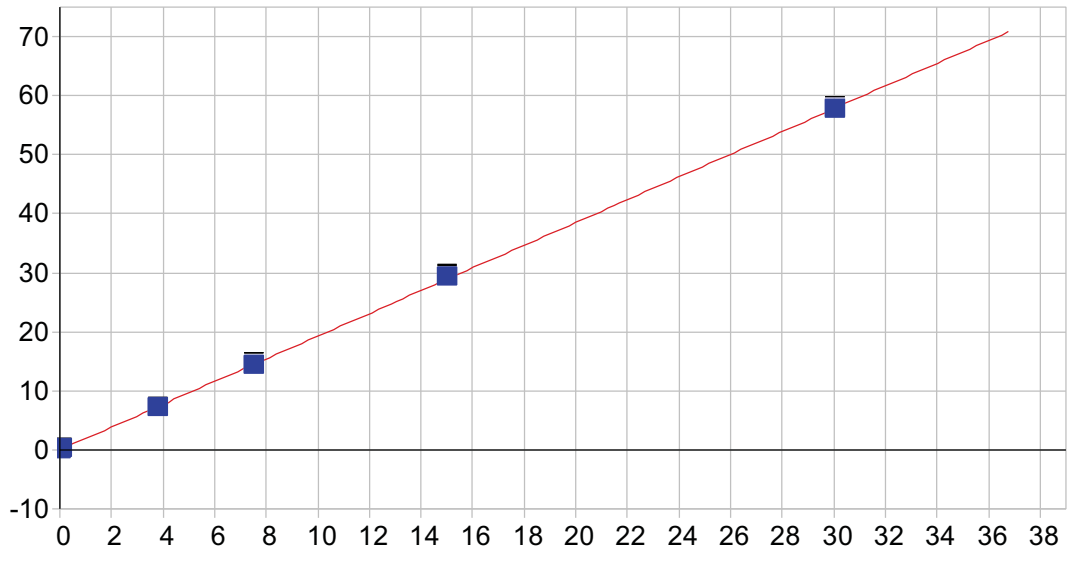


Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000009	Re-Slope:	1.000000
A1 (Gain):	0.073770	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999872	Status:	OK.
Std Error of Est:	0.000031		
Predicted MDL:	0.002337		
Predicted MQL:	0.007790		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00001	.000	1
S1	.05000	.05045	.000	.910	.00371	.000	1
S2	.62500	.64432	.019	3.09	.04660	.000	1
S3	1.2500	1.2751	.025	2.01	.09222	.001	1
S4	2.5000	2.5248	.025	.993	.18257	.001	1
S5	5.0000	4.9303	-.070	-1.39	.35635	.001	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



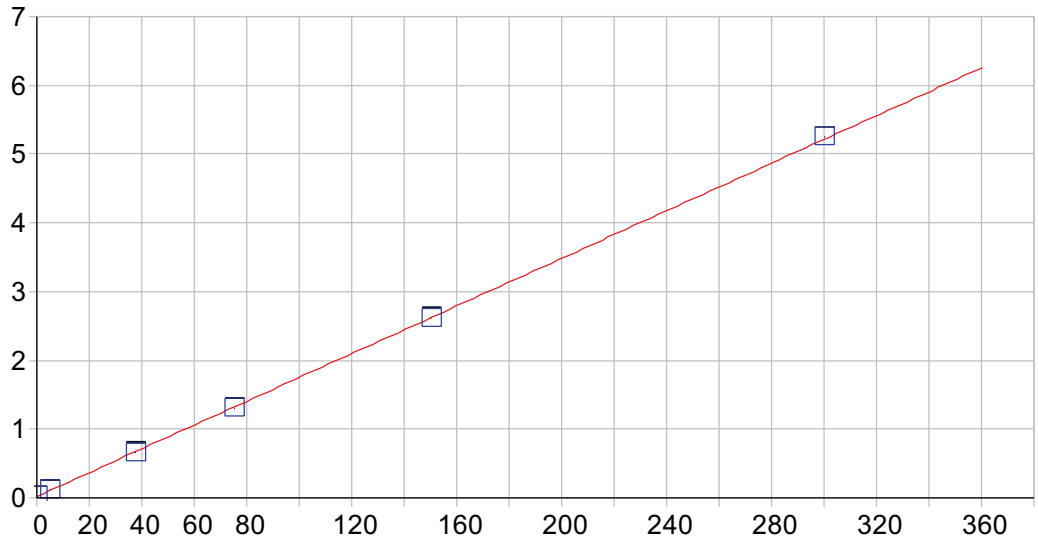
Zn 213.856 {158}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000342	Re-Slope:	1.000000
A1 (Gain):	1.925674	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999967	Status:	OK.
Std Error of Est:	0.001110		
Predicted MDL:	0.003167		
Predicted MQL:	0.010556		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00035	.006	1
S1	.06000	.05763	-.002	-3.95	.11169	.005	1
S2	3.7500	3.6770	-.073	-1.95	7.0929	.053	1
S3	7.5000	7.4376	-.062	-.833	14.346	.302	1
S4	15.000	15.157	.157	1.05	29.236	.338	1
S5	30.000	29.980	-.020	-.066	57.827	.296	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



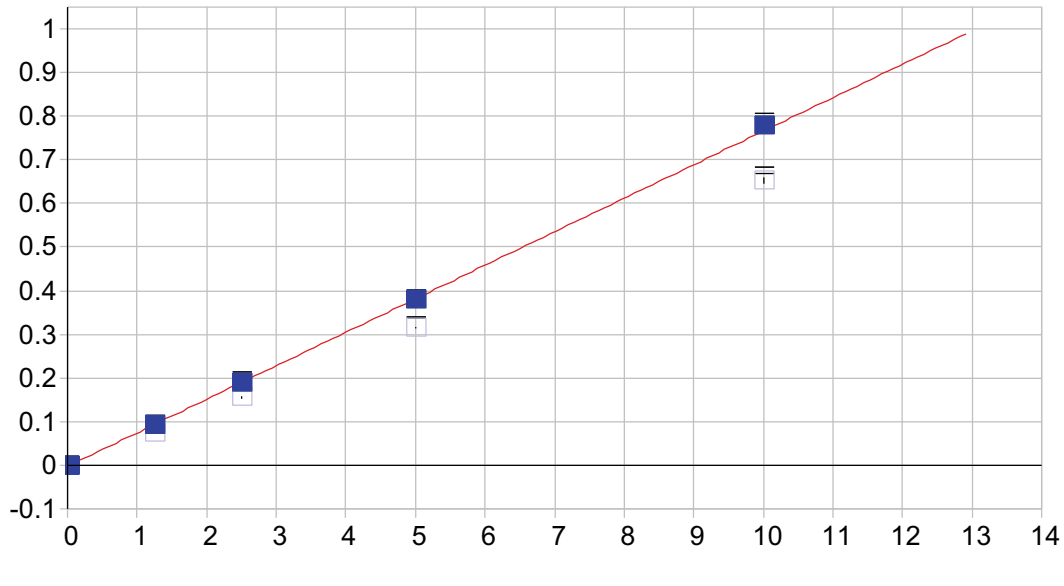
K 769.896 { 44}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.021092	Re-Slope:	1.000000
A1 (Gain):	0.017304	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999957	Status:	OK.
Std Error of Est:	0.000332		
Predicted MDL:	0.044605		
Predicted MQL:	0.148682		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00038	.000	.000	.02110	.001	1
S1	5.0000	4.7378	-.262	-5.24	.10307	.000	1
S2	37.500	36.929	-.571	-1.52	.66010	.003	1
S3	75.000	74.033	-.967	-1.29	1.3021	.002	1
S4	150.00	149.77	-.234	-.156	2.6126	.006	1
S5	300.00	302.03	2.03	.678	5.2474	.006	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



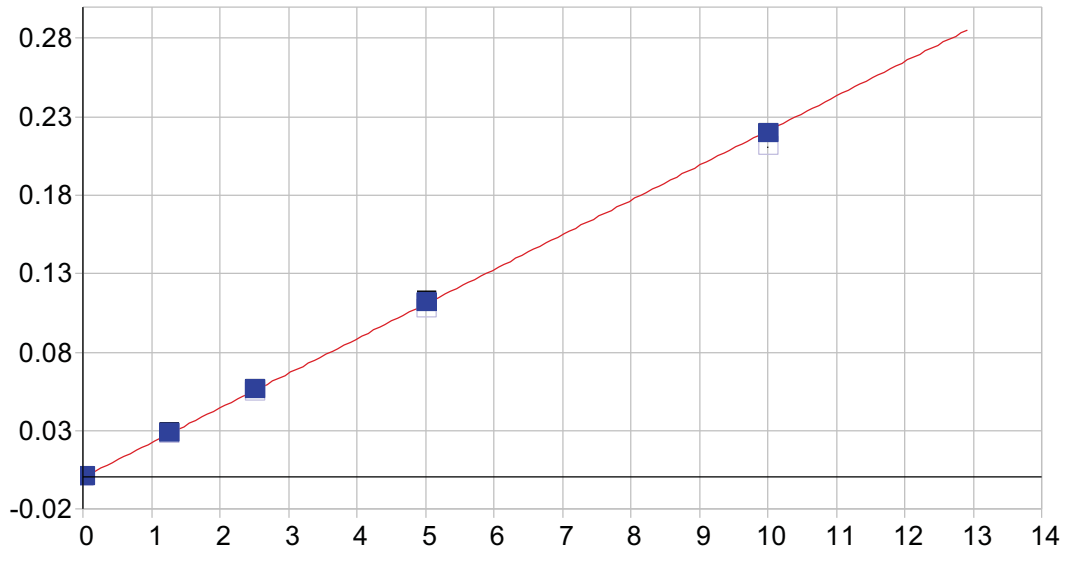
P 177.495 {490}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.002446	Re-Slope:	1.000000
A1 (Gain):	0.076799	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999324	Status:	OK.
Std Error of Est:	0.000049		
Predicted MDL:	0.001268		
Predicted MQL:	0.004227		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	-.00244	.000	1
S1	.01500	.00138	-.014	-90.8	-.00244	.000	1
S2	1.2500	1.2003	-.050	-3.98	.07412	.000	1
S3	2.5000	2.4653	-.035	-1.39	.15566	.003	1
S4	5.0000	4.9455	-.055	-1.09	.31491	.001	1
S5	10.000	10.154	.154	1.54	.65245	.006	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



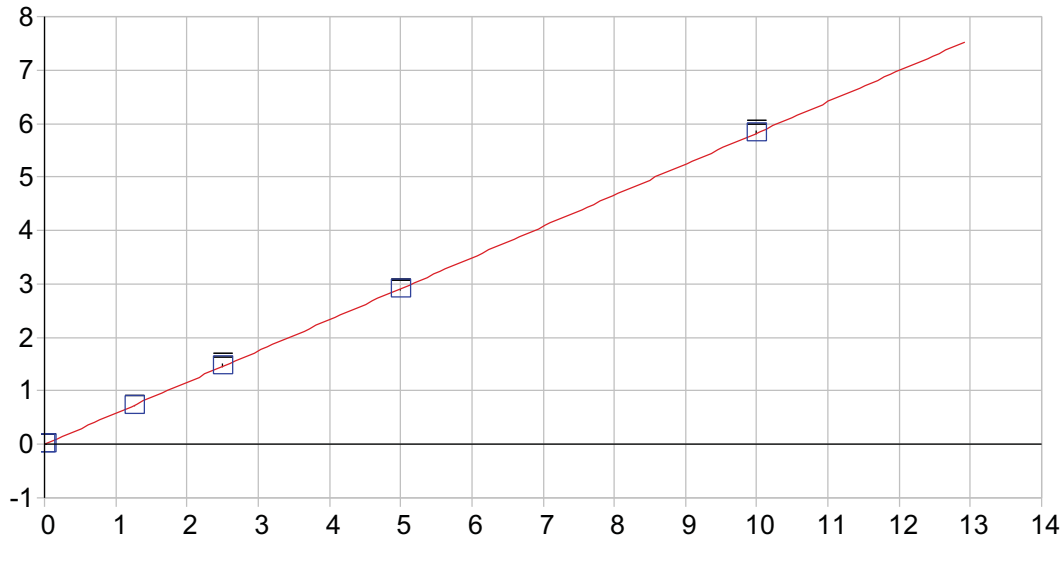
B 249.678 {135}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000065	Re-Slope:	1.000000
A1 (Gain):	0.022098	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999844	Status:	OK.
Std Error of Est:	0.000006		
Predicted MDL:	0.005175		
Predicted MQL:	0.017249		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	.00006	.000	1
S1	.01000	.01588	.006	58.8	.00041	.000	1
S2	1.2500	1.2747	.025	1.97	.02721	.000	1
S3	2.5000	2.5289	.029	1.15	.05390	.000	1
S4	5.0000	5.0353	.035	.706	.10725	.001	1
S5	10.000	9.9051	-.095	-.949	.21077	.001	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



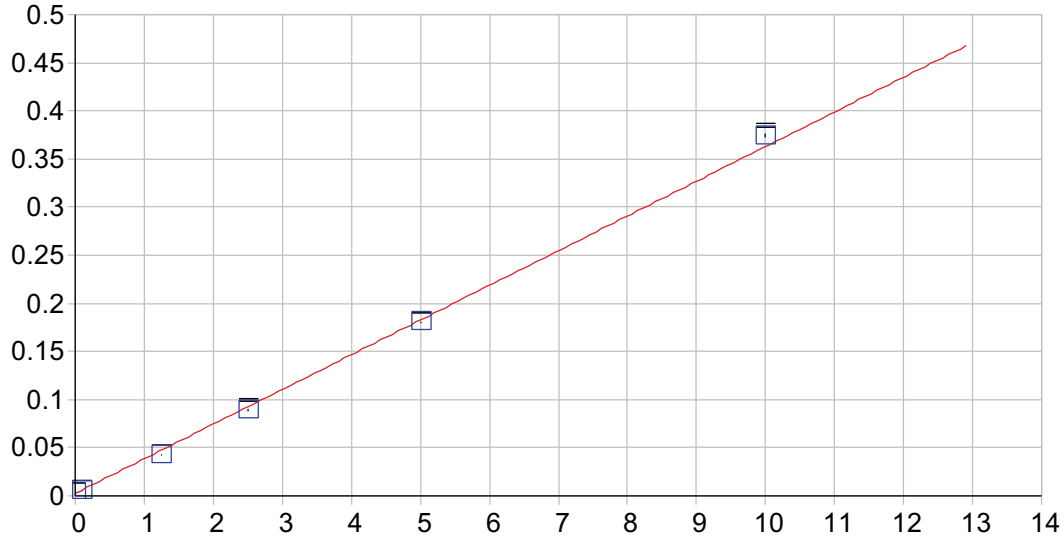
Mo 202.030 {467}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000014	Re-Slope:	1.000000
A1 (Gain):	0.582319	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999978	Status:	OK.
Std Error of Est:	0.000065		
Predicted MDL:	0.000231		
Predicted MQL:	0.000770		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00001	.000	1
S1	.01000	.00971	.000	-2.88	.00564	.000	1
S2	1.2500	1.2423	-.008	-.613	.72343	.001	1
S3	2.5000	2.5368	.037	1.47	1.4772	.031	1
S4	5.0000	4.9664	-.034	-.672	2.8920	.011	1
S5	10.000	10.005	.005	.048	5.8260	.036	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



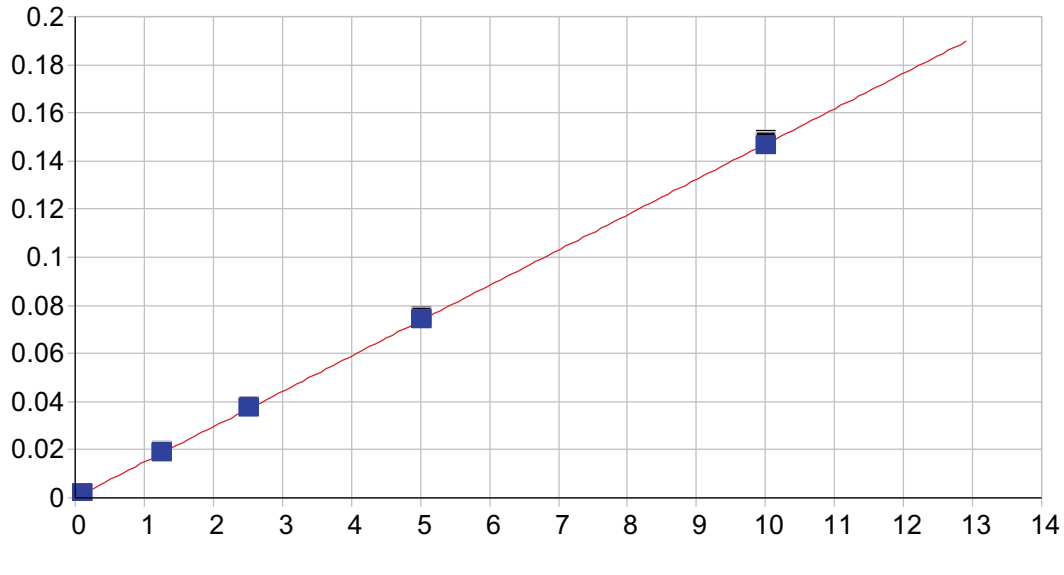
S 182.034 {485}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002472	Re-Slope:	1.000000
A1 (Gain):	0.036036	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999139	Status:	OK.
Std Error of Est:	0.000080		
Predicted MDL:	0.002400		
Predicted MQL:	0.008001		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00004	.000	.000	.00247	.000	1
S1	.10000	.07477	-.025	-25.2	.00517	.000	1
S2	1.2500	1.1268	-.123	-9.86	.04308	.000	1
S3	2.5000	2.4013	-.099	-3.95	.08900	.002	1
S4	5.0000	4.9409	-.059	-1.18	.18052	.001	1
S5	10.000	10.306	.306	3.06	.37386	.002	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



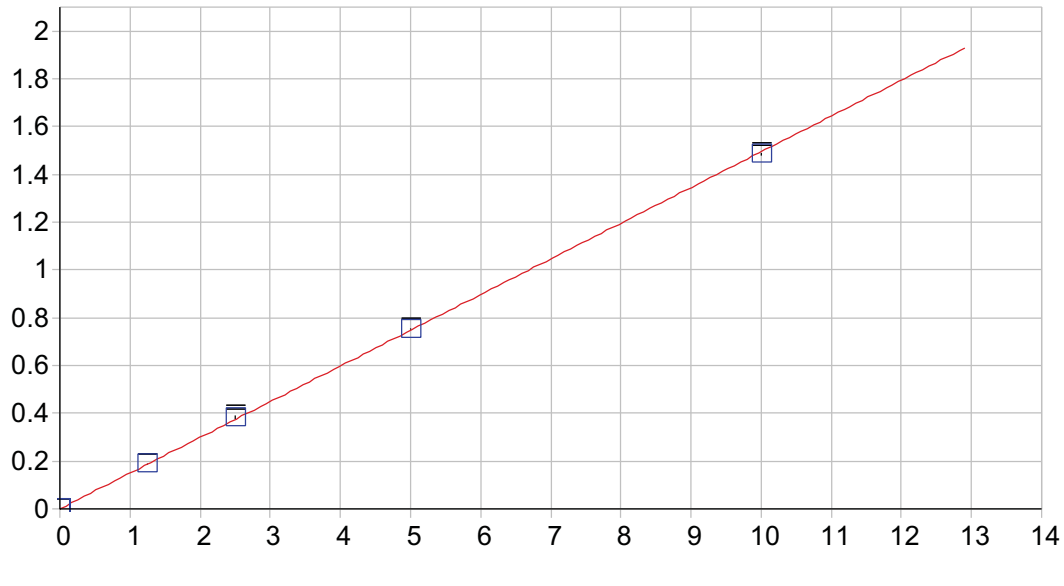
Si 251.611 {134}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000149	Re-Slope:	1.000000
A1 (Gain):	0.014687	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999946	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	0.007336		
Predicted MQL:	0.024454		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00015	.000	1
S1	.10000	.08924	-.011	-10.8	.00146	.000	1
S2	1.2500	1.2694	.019	1.55	.01898	.000	1
S3	2.5000	2.5180	.018	.720	.03751	.000	1
S4	5.0000	5.0301	.030	.602	.07478	.000	1
S5	10.000	9.9432	-.057	-.568	.14768	.000	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



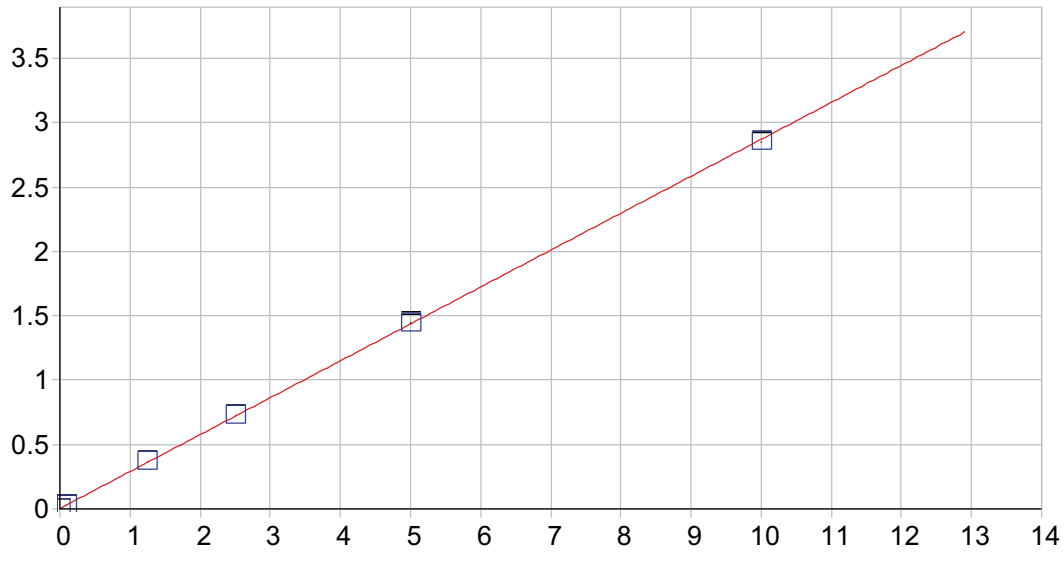
Sn 189.989 {478}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000041	Re-Slope:	1.000000
A1 (Gain):	0.149473	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999929	Status:	OK.
Std Error of Est:	0.000025		
Predicted MDL:	0.000596		
Predicted MQL:	0.001988		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00004	.000	1
S1	.00700	.00532	-.002	-24.0	.00084	.000	1
S2	1.2500	1.2403	-.010	-.776	.18543	.000	1
S3	2.5000	2.5610	.061	2.44	.38285	.008	1
S4	5.0000	5.0253	.025	.505	.75118	.003	1
S5	10.000	9.9251	-.075	-.749	1.4836	.007	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



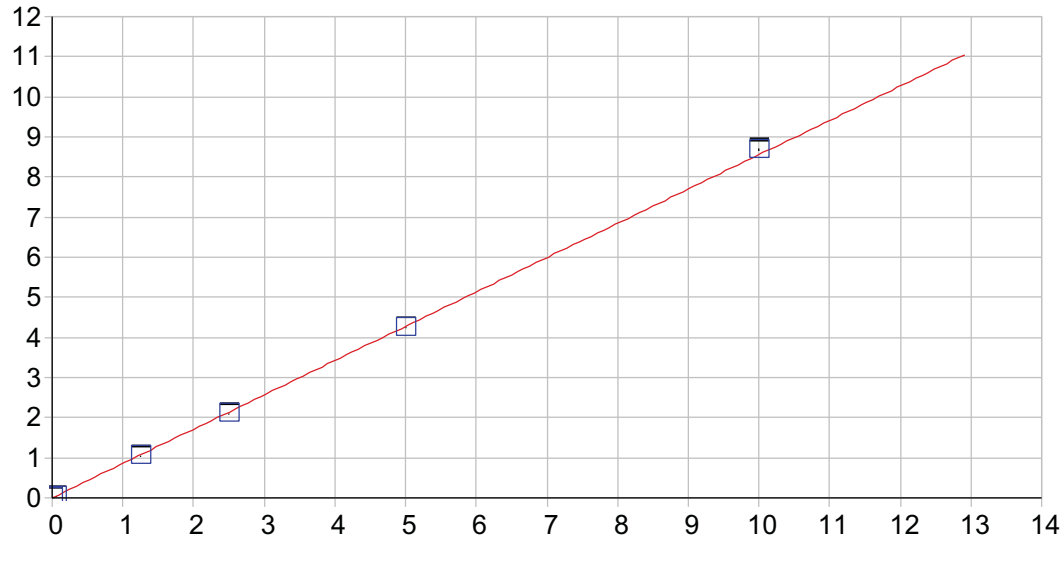
Ti 336.121 {100}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000398	Re-Slope:	1.000000
A1 (Gain):	0.287053	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999957	Status:	OK.
Std Error of Est:	0.000142		
Predicted MDL:	0.000934		
Predicted MQL:	0.003114		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00040	.000	1
S1	.10000	.09860	-.001	-1.40	.02870	.000	1
S2	1.2500	1.2825	.032	2.60	.36854	.002	1
S3	2.5000	2.5210	.021	.839	.72405	.001	1
S4	5.0000	5.0193	.019	.386	1.4412	.009	1
S5	10.000	9.9286	-.071	-.714	2.8504	.009	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



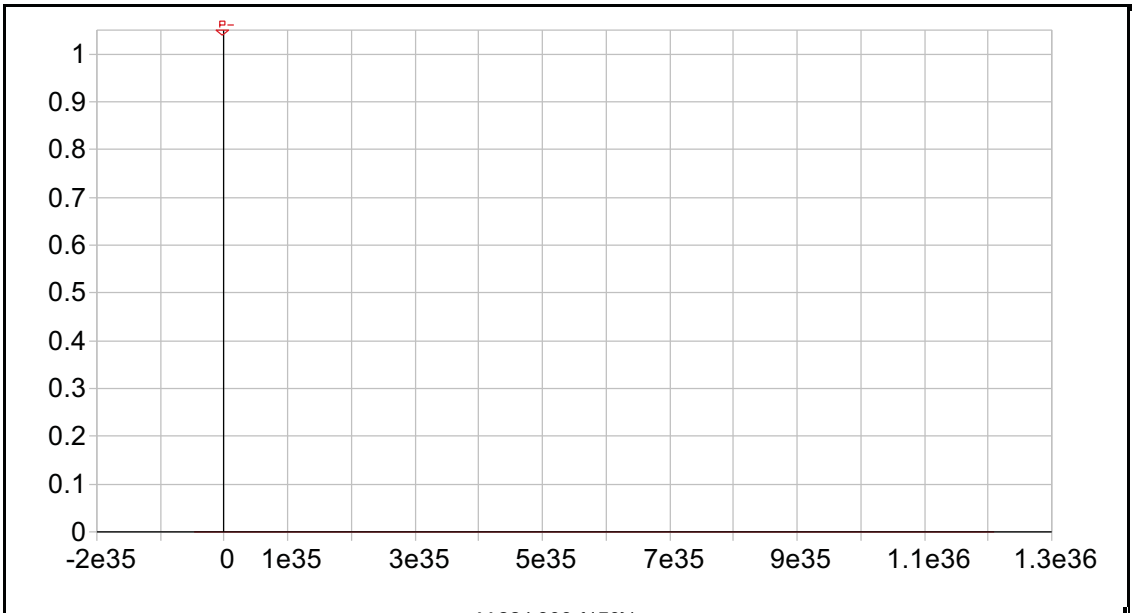
Li 670.784 { 50}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001652	Re-Slope:	1.000000
A1 (Gain):	0.855434	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999869	Status:	OK.
Std Error of Est:	0.000521		
Predicted MDL:	0.001063		
Predicted MQL:	0.003544		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00166	.001	1
S5	10.000	10.137	.137	1.37	8.6728	.027	1
S4	5.0000	4.9623	-.038	-.754	4.2466	.011	1
S3	2.5000	2.4424	-.058	-2.31	2.0909	.002	1
S2	1.2500	1.2131	-.037	-2.95	1.0394	.007	1
S1	.05000	.04566	-.004	-8.69	.04071	.000	1

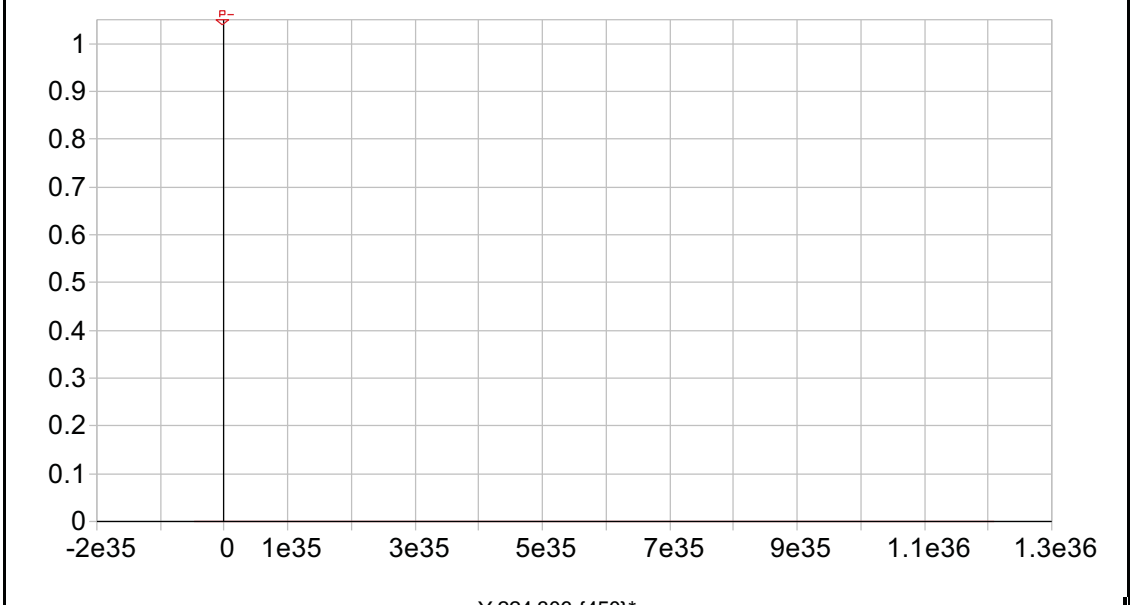
Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



Y 224.306 {150}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000			Status:	Warning	Zero Gain
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



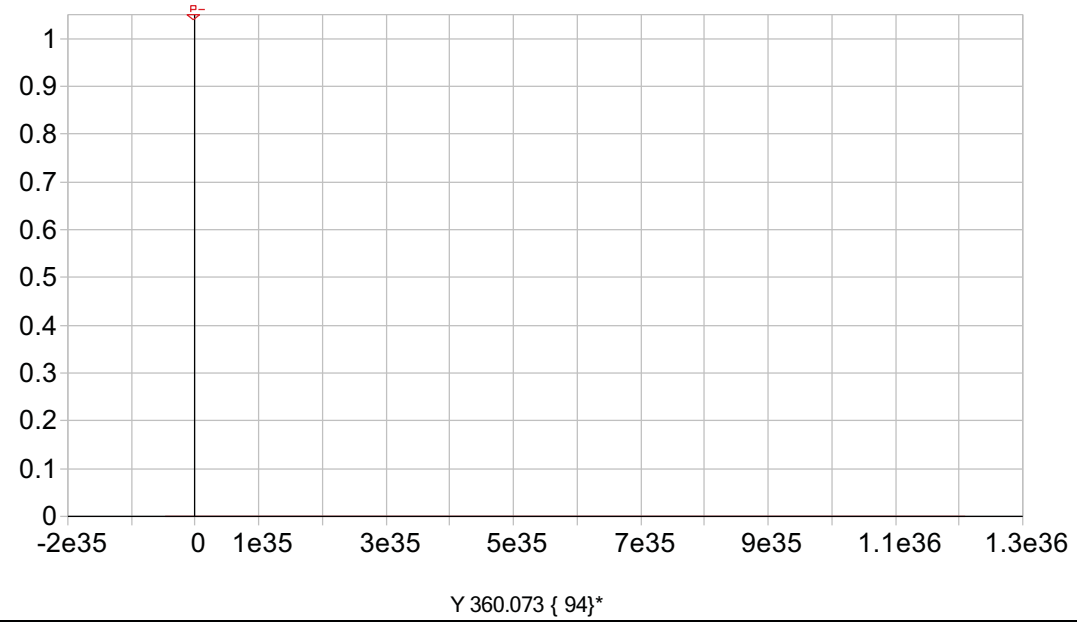
Y 224.306 {450}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



Y 360.073 { 94}*

Date of Fit:	<not fit>		Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):		0.000000		Re-Slope:	1.000000	
A1 (Gain):		0.000000		Y-int:	0.000000	
A2 (Curvature):		0.000000				
n (Exponent):		1.000000				
Correlation:		0.000000		Status:	Warning	Zero Gain
Std Error of Est:		0.000000				
Predicted MDL:		n/a				
Predicted MQL:		n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

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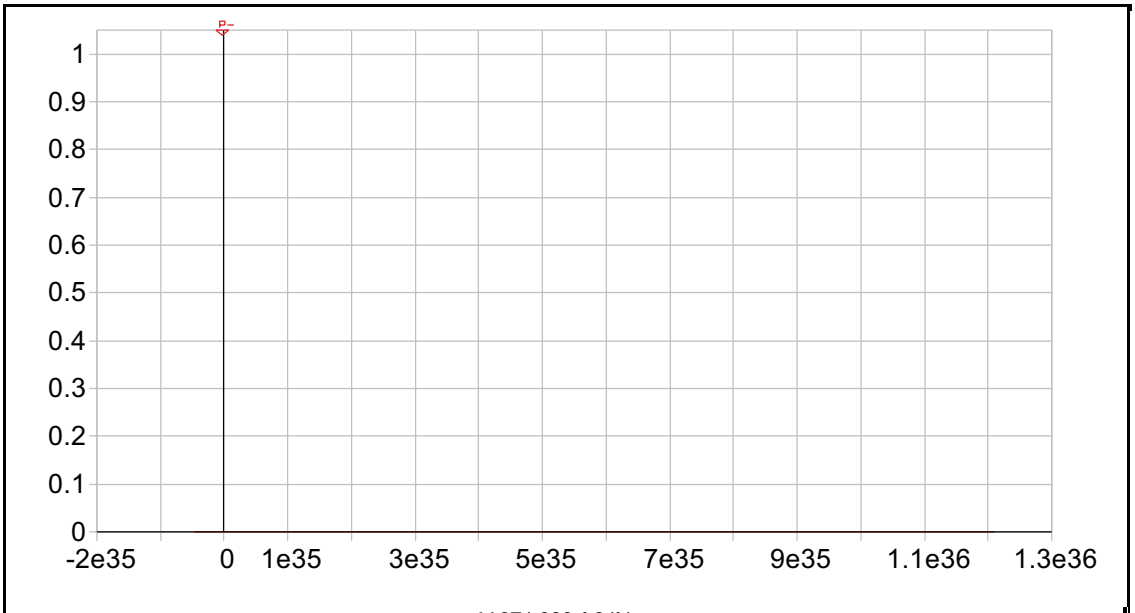
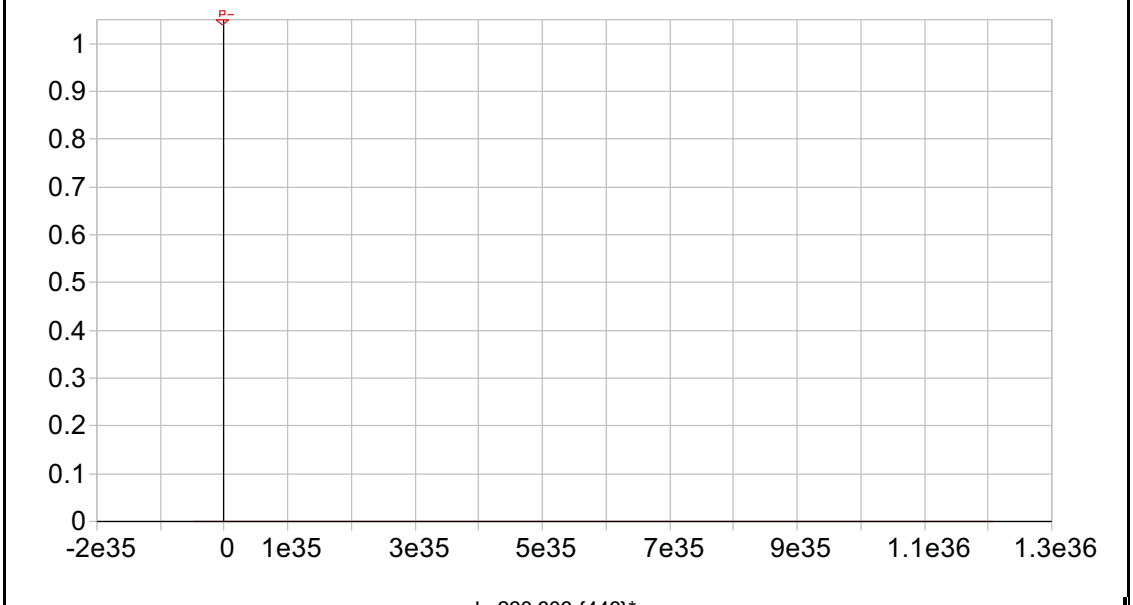


Y 371.030 { 91}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000			Status:	Warning	Zero Gain
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



ln 230.606 {446}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	

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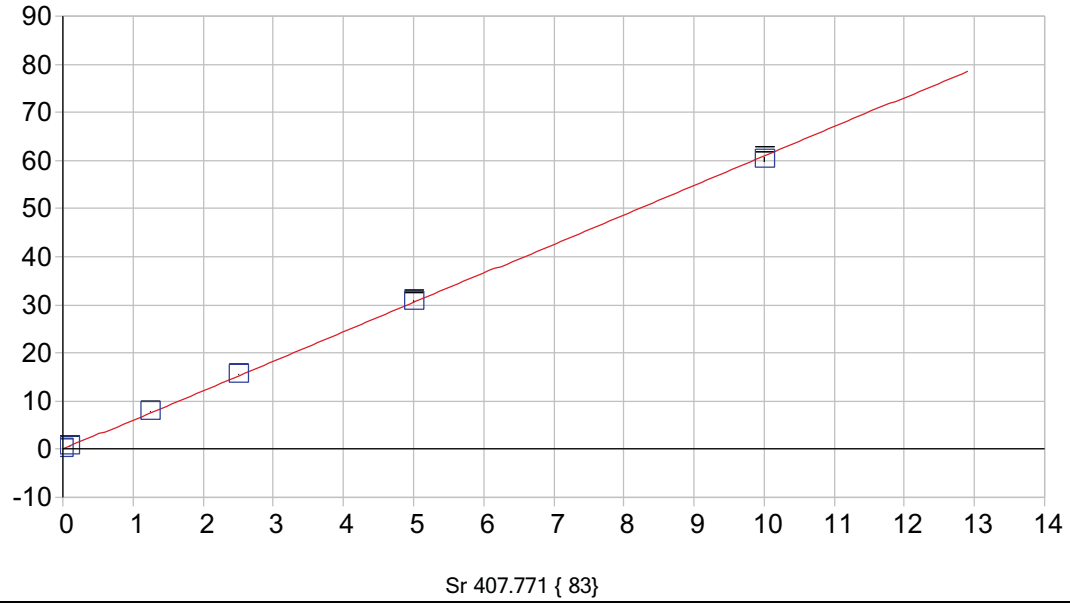
A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001649	Re-Slope:	1.000000
A1 (Gain):	6.090318	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999899	Status:	OK.
Std Error of Est:	0.004598		
Predicted MDL:	0.000064		
Predicted MQL:	0.000212		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	-.00169	.000	1
S1	.10000	.10258	.003	2.58	.62309	.001	1
S2	1.2500	1.2854	.035	2.83	7.8266	.043	1
S3	2.5000	2.5495	.050	1.98	15.526	.017	1
S4	5.0000	5.0352	.035	.705	30.665	.287	1
S5	10.000	9.8773	-.123	-1.23	60.154	.508	1

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Inst Id :P5

Sample Name: S0 Acquired: 9/19/2014 12:12:41 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00010	-.00012	-.00011	.00016	.00007	-.00012	-.00042	-.00008
Stddev	.00006	.00005	.00009	.00002	.00009	.00025	.00105	.00002
%RSD	55.389	38.910	79.943	14.952	142.58	216.05	250.74	24.585
#1	-.00004	-.00008	-.00022	.00019	.00017	.00015	.00058	-.00011
#2	-.00015	-.00010	-.00006	.00015	.00002	-.00035	-.00033	-.00007
#3	-.00011	-.00017	-.00006	.00015	.00000	-.00015	-.00150	-.00007

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00014	.00123	-.00003	-.00030	.00079	.00000	-.00004	-.00007
Stddev	.00008	.00013	.00002	.00007	.00013	.0000	.00009	.00001
%RSD	58.521	10.433	49.221	23.826	16.986	945.84	220.16	19.132
#1	.00005	.00137	-.00003	-.00027	.00093	.00002	.00006	-.00006
#2	.00015	.00111	-.00002	-.00025	.00067	.00002	-.00013	-.00006
#3	.00021	.00121	-.00005	-.00039	.00077	-.00005	-.00005	-.00008

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00038	-.00034	-.00979	-.00001	.00035	.02110	-.00244	.00006
Stddev	.00014	.00000	.00030	.00008	.00565	.00057	.00005	.00011
%RSD	35.913	1.2988	3.0695	879.70	1621.9	2.6948	2.0351	164.01
#1	-.00022	-.00035	-.01012	.00003	.00667	.02056	-.00248	.00018
#2	-.00046	-.00034	-.00971	.00004	-.00142	.02169	-.00239	-.00003
#3	-.00045	-.00035	-.00953	-.00010	-.00420	.02104	-.00247	.00005

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00001	.00247	.00015	.00004	.00040	.00166	-.00169
Stddev	.00003	.00005	.00006	.00003	.00023	.00121	.00043
%RSD	200.65	2.0919	43.686	61.414	59.067	73.086	25.599
#1	.00001	.00253	.00010	.00004	.00067	.00303	-.00124
#2	-.00001	.00244	.00022	.00007	.00024	.00118	-.00210
#3	-.00004	.00245	.00012	.00002	.00029	.00075	-.00174

Reviewed By:BIN
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Inst Id :P5

Sample Name: S0 Acquired: 9/19/2014 12:12:41 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	140.43	5895.8	110540.	14532.	6168.5
Stddev	2.02	7.8	183.	89.	11.2
%RSD	1.4384	.13195	.16576	.61316	.18092
#1	138.45	5901.0	110340.	14446.	6181.3
#2	140.37	5899.4	110700.	14527.	6160.9
#3	142.49	5886.8	110580.	14624.	6163.3

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S1 Acquired: 9/19/2014 12:16:50 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00031	.00219	.00169	.00209	.00652	.00933	.65114	.00084
Stddev	.00005	.00007	.00020	.00005	.00003	.00013	.00112	.00005
%RSD	16.421	3.0512	12.071	2.3519	.46105	1.3896	.17132	5.9680
#1	.00030	.00220	.00148	.00209	.00654	.00924	.64987	.00089
#2	.00026	.00226	.00189	.00204	.00649	.00927	.65198	.00079
#3	.00036	.00213	.00169	.00213	.00654	.00947	.65157	.00083

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01152	.23356	.00131	.04058	.00387	.00168	.00468	.03064
Stddev	.00003	.00042	.00002	.00014	.00017	.00019	.00019	.00019
%RSD	.30162	.18155	1.6260	.35444	4.4430	11.071	4.0128	.63194
#1	.01148	.23404	.00132	.04050	.00394	.00184	.00474	.03044
#2	.01152	.23339	.00134	.04050	.00400	.00172	.00483	.03083
#3	.01155	.23324	.00129	.04075	.00368	.00148	.00447	.03064

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02348	.00179	.01478	.00371	.11169	.10307	-.00244	.00041
Stddev	.00012	.00007	.00024	.00014	.00477	.00013	.00004	.00006
%RSD	.49273	3.8354	1.6235	3.8951	4.2681	.12304	1.6040	13.815
#1	.02337	.00185	.01450	.00358	.10624	.10294	-.00239	.00040
#2	.02360	.00180	.01490	.00369	.11509	.10319	-.00247	.00048
#3	.02348	.00171	.01493	.00386	.11374	.10309	-.00245	.00037

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00564	.00517	.00146	.00084	.02870	.04071	.62309
Stddev	.00010	.00010	.00005	.00008	.00025	.00040	.00053
%RSD	1.8495	1.8457	3.4285	9.1975	.88735	.97792	.08437
#1	.00553	.00526	.00147	.00084	.02896	.04057	.62304
#2	.00573	.00516	.00150	.00076	.02845	.04116	.62260
#3	.00567	.00507	.00141	.00091	.02869	.04040	.62364

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S1 Acquired: 9/19/2014 12:16:50 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	139.83	5885.0	110140.	14416.	6027.9
Stddev	.88	7.4	141.	53.	9.6
%RSD	.63063	.12597	.12817	.36855	.15968
#1	139.27	5893.5	110070.	14458.	6034.8
#2	139.37	5879.8	110060.	14433.	6032.1
#3	140.85	5881.8	110310.	14356.	6016.9

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S2 Acquired: 9/19/2014 12:20:56 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.05886	.11559	1.3184	.07213	.14321	1.8805	8.3227	.02276	1.4982
Stddev	.00008	.00024	.0034	.00023	.00047	.0141	.0369	.00011	.0040
%RSD	.12804	.20853	.25788	.31654	.32527	.74946	.44388	.48193	.26332
#1	.05891	.11565	1.3180	.07187	.14274	1.8765	8.2976	.02277	1.5005
#2	.05888	.11533	1.3152	.07225	.14321	1.8688	8.3053	.02264	1.4937
#3	.05877	.11580	1.3219	.07228	.14367	1.8961	8.3651	.02286	1.5005

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.0570	.52860	.54133	.49198	.65811	1.2209	.39568	.38634	.06933
Stddev	.0118	.00070	.00078	.00396	.00185	.0051	.00209	.00033	.00012
%RSD	.38674	.13232	.14476	.80498	.28175	.42042	.52800	.08496	.16596
#1	3.0510	.52839	.54124	.49047	.65730	1.2180	.39536	.38643	.06921
#2	3.0493	.52938	.54060	.48899	.65679	1.2179	.39376	.38598	.06935
#3	3.0706	.52803	.54216	.49647	.66023	1.2268	.39791	.38662	.06944

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.17675	.04660	7.0929	.66010	.07412	.02721	.72343	.04308	.01898
Stddev	.00056	.00033	.0527	.00300	.00026	.00006	.00100	.00005	.00028
%RSD	.31687	.69874	.74264	.45428	.34682	.20982	.13876	.12659	1.4886
#1	.17613	.04671	7.0742	.65808	.07423	.02717	.72260	.04314	.01871
#2	.17690	.04624	7.0522	.65868	.07430	.02719	.72313	.04304	.01895
#3	.17722	.04686	7.1524	.66354	.07383	.02728	.72454	.04305	.01927

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.18543	.36854	1.0394	7.8266
Stddev	.00034	.00229	.0073	.0434
%RSD	.18315	.62062	.70195	.55479
#1	.18566	.36771	1.0357	7.8114
#2	.18504	.36678	1.0347	7.7928
#3	.18559	.37113	1.0478	7.8756

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S2 Acquired: 9/19/2014 12:20:56 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	133.30	5635.8	105550.	14102.	5407.0
Stddev	.80	8.6	112.	41.	4.4
%RSD	.60241	.15237	.10587	.29374	.08153
#1	133.13	5645.8	105430.	14086.	5410.4
#2	134.17	5630.8	105640.	14149.	5408.6
#3	132.59	5630.9	105580.	14071.	5402.0

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S3 Acquired: 9/19/2014 12:24:48 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.12207	.23481	2.7104	.14910	.29875	3.7524	16.560	.04515	3.0752
Stddev	.00220	.00443	.0547	.00357	.00613	.0077	.022	.00024	.0573
%RSD	1.8050	1.8850	2.0177	2.3921	2.0525	.20577	.13124	.53366	1.8625
#1	.12462	.23984	2.7733	.15319	.30581	3.7444	16.559	.04487	3.1411
#2	.12074	.23152	2.6737	.14664	.29478	3.7531	16.539	.04533	3.0375
#3	.12086	.23306	2.6843	.14746	.29566	3.7598	16.583	.04524	3.0470

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6.0174	1.0437	1.1179	.97366	1.2885	2.3934	.78912	.79596	.14099
Stddev	.0052	.0017	.0218	.00109	.0019	.0039	.00260	.01600	.00023
%RSD	.08684	.16393	1.9479	.11234	.14661	.16332	.32978	2.0106	.16410
#1	6.0131	1.0447	1.1429	.97338	1.2904	2.3941	.78803	.81430	.14081
#2	6.0232	1.0446	1.1030	.97274	1.2884	2.3969	.79209	.78487	.14125
#3	6.0158	1.0417	1.1078	.97487	1.2867	2.3892	.78725	.78870	.14091

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.36323	.09222	14.346	1.3021	.15566	.05390	1.4772	.08900	.03751
Stddev	.00198	.00054	.302	.0018	.00318	.00036	.0311	.00161	.00007
%RSD	.54496	.58228	2.1033	.13612	2.0403	.66073	2.1052	1.8037	.19176
#1	.36417	.09182	14.671	1.3018	.15928	.05427	1.5127	.09086	.03750
#2	.36096	.09201	14.074	1.3005	.15337	.05389	1.4548	.08802	.03758
#3	.36458	.09283	14.294	1.3040	.15432	.05356	1.4641	.08813	.03744

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.38285	.72405	2.0909	15.526
Stddev	.00757	.00085	.0016	.017
%RSD	1.9778	.11786	.07707	.10813
#1	.39154	.72450	2.0905	15.517
#2	.37767	.72307	2.0896	15.515
#3	.37933	.72459	2.0927	15.545

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S3 Acquired: 9/19/2014 12:24:48 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	129.51	5368.8	103710.	14093.	5036.4
Stddev	2.49	93.2	301.	39.	87.7
%RSD	1.9190	1.7365	.28982	.27461	1.7407
#1	126.90	5261.8	103360.	14137.	4936.0
#2	131.85	5432.1	103900.	14063.	5097.6
#3	129.78	5412.6	103860.	14079.	5075.6

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S4 Acquired: 9/19/2014 12:28:37 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.24617	.45450	5.3454	.29871	.60232	7.6120	32.806	.08983	6.0025
Stddev	.00121	.00218	.0172	.00170	.00234	.0306	.500	.00030	.0153
%RSD	.48954	.47880	.32225	.56889	.38794	.40134	1.5232	.33093	.25422
#1	.24583	.45356	5.3393	.29746	.60176	7.5792	32.333	.08960	6.0036
#2	.24516	.45294	5.3321	.29802	.60031	7.6171	32.756	.08973	5.9867
#3	.24750	.45698	5.3649	.30064	.60488	7.6397	33.329	.09016	6.0171

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	11.931	2.0292	2.1982	1.9476	2.5261	4.6873	1.5745	1.5592	.28889
Stddev	.042	.0076	.0074	.0051	.0074	.0190	.0067	.0047	.00078
%RSD	.35274	.37613	.33644	.26343	.29457	.40462	.42874	.29864	.26899
#1	11.882	2.0371	2.1947	1.9433	2.5203	4.6672	1.5679	1.5571	.28971
#2	11.959	2.0286	2.1933	1.9461	2.5345	4.7049	1.5814	1.5560	.28817
#3	11.951	2.0219	2.2067	1.9532	2.5236	4.6898	1.5743	1.5645	.28878

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.73513	.18257	29.236	2.6126	.31491	.10725	2.8920	.18052	.07478
Stddev	.00063	.00095	.338	.0058	.00140	.00056	.0111	.00066	.00039
%RSD	.08503	.51945	1.1572	.22358	.44601	.52238	.38409	.36661	.51495
#1	.73452	.18149	28.930	2.6062	.31421	.10684	2.8875	.18001	.07442
#2	.73577	.18296	29.179	2.6139	.31399	.10789	2.8839	.18029	.07472
#3	.73512	.18326	29.599	2.6177	.31652	.10701	2.9047	.18127	.07519

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.75118	1.4412	4.2466	30.665
Stddev	.00284	.0088	.0111	.287
%RSD	.37783	.60966	.26129	.93697
#1	.75043	1.4335	4.2370	30.339
#2	.74880	1.4393	4.2439	30.772
#3	.75432	1.4508	4.2587	30.883

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S4 Acquired: 9/19/2014 12:28:37 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	123.89	5183.4	100840.	14125.	4787.1
Stddev	1.35	16.6	487.	78.	13.5
%RSD	1.0903	.31983	.48259	.55245	.28285
#1	125.40	5179.7	100300.	14209.	4787.4
#2	123.45	5201.5	100960.	14055.	4800.5
#3	122.80	5169.0	101250.	14111.	4773.5

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S5 Acquired: 9/19/2014 12:32:41 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.51506	.88760	10.583	.62132	1.2644	15.289	65.868	.17722	11.728
Stddev	.00460	.00599	.058	.00411	.0104	.041	.949	.00039	.070
%RSD	.89263	.67489	.54846	.66135	.82019	.27088	1.4405	.22231	.59338
#1	.51417	.88528	10.573	.61996	1.2597	15.289	65.384	.17759	11.729
#2	.51098	.88312	10.530	.61806	1.2573	15.331	66.961	.17681	11.657
#3	.52004	.89440	10.645	.62593	1.2763	15.248	65.258	.17726	11.797

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	22.877	3.8136	4.3732	3.8792	4.8762	9.0542	3.0912	3.0932	.59560
Stddev	.274	.0109	.0256	.0121	.0081	.0240	.0082	.0145	.00040
%RSD	1.1963	.28600	.58563	.31304	.16548	.26566	.26480	.46965	.06745
#1	22.839	3.8198	4.3670	3.8810	4.8720	9.0419	3.0837	3.0897	.59600
#2	23.168	3.8199	4.3512	3.8904	4.8856	9.0819	3.0999	3.0808	.59519
#3	22.624	3.8010	4.4013	3.8663	4.8712	9.0387	3.0900	3.1092	.59561

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.4796	.35635	57.827	5.2474	.65245	.21077	5.8260	.37386	.14768
Stddev	.0025	.00104	.296	.0062	.00623	.00063	.0359	.00194	.00048
%RSD	.17134	.29168	.51259	.11716	.95481	.29849	.61688	.51863	.32275
#1	1.4771	.35633	58.078	5.2473	.65071	.21009	5.8198	.37304	.14806
#2	1.4822	.35740	57.903	5.2536	.64727	.21132	5.7935	.37247	.14784
#3	1.4795	.35532	57.500	5.2413	.65936	.21092	5.8646	.37608	.14715

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.4836	2.8504	8.6728	60.154
Stddev	.0067	.0086	.0272	.508
%RSD	.44862	.30174	.31374	.84503
#1	1.4846	2.8555	8.6809	59.942
#2	1.4765	2.8553	8.6951	60.734
#3	1.4896	2.8405	8.6425	59.787

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S5 Acquired: 9/19/2014 12:32:41 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	118.00	4731.3	96979.	14070.	4360.8
Stddev	.41	31.0	223.	55.	17.3
%RSD	.34646	.65498	.23022	.39272	.39767
#1	117.70	4737.8	96795.	14131.	4364.7
#2	117.83	4758.5	96916.	14024.	4375.8
#3	118.46	4697.6	97227.	14056.	4341.8

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S6 Acquired: 9/19/2014 12:37:02 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	Al3961	Ca3736	Fe2598	Mg2790	Na8183
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	39.023	35.810	12.844	5.0142	4.1326
Stddev	.233	.217	.014	.0054	.0081
%RSD	.59638	.60600	.11233	.10777	.19623
#1	38.757	36.059	12.851	5.0202	4.1261
#2	39.189	35.656	12.854	5.0127	4.1417
#3	39.123	35.717	12.828	5.0097	4.1300

Int. Std.	Y_3710
Units	Cts/S
Avg	13650.
Stddev	5.
%RSD	.03426
#1	13650.
#2	13646.
#3	13655.

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICV54 Acquired: 9/19/2014 12:45:39 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICV54 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9147451	1.051659	.9679958	.9806221	.9050455	2.363567
Stddev	.0039277	.004332	.0031348	.0018114	.0017236	.009356
%RSD	.4293753	.4119255	.3238454	.1847158	.1904432	.3958300
#1	.9121962	1.047114	.9652605	.9789196	.9032390	2.372328
#2	.9127708	1.052123	.9673104	.9804212	.9052254	2.353712
#3	.9192682	1.055741	.9714167	.9825255	.9066721	2.364660

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5103523	.4845480	.4823740	10.28642	.5352262	.4812759
Stddev	.0009362	.0014834	.0026108	.01969	.0028313	.0023813
%RSD	.1834379	.3061394	.5412371	.1913726	.5289876	.4947928
#1	.5113176	.4831959	.4799194	10.27161	.5339255	.4795489
#2	.5094483	.4861347	.4820855	10.27888	.5384742	.4802865
#3	.5102909	.4843133	.4851170	10.30876	.5332791	.4839925

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4968695	5.332903	.5245023	5.843789	.4937248	.4799350
Stddev	.0019794	.022122	.0017629	.035340	.0022017	.0016290
%RSD	.3983800	.4148220	.3361174	.6047500	.4459427	.3394309
#1	.4987605	5.325254	.5241432	5.806831	.4915600	.4790588
#2	.4970360	5.315621	.5229466	5.847283	.4936527	.4818146
#3	.4948121	5.357835	.5264172	5.877252	.4959617	.4789316

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.855091	.5147837	.9677692	9.582701	F2.119867	F2.386733
Stddev	.039049	.0036764	.0097791	.011707	.000569	.003878
%RSD	.3962281	.7141743	1.010483	.1221686	.0268398	.1624841
#1	9.893995	.5148100	.9676191	9.596030	2.119224	2.384729
#2	9.855377	.5110942	.9580660	9.574086	2.120071	2.384267
#3	9.815899	.5184470	.9776225	9.577987	2.120306	2.391203

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICV54 Acquired: 9/19/2014 12:45:39 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICV54 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 2.431182	2.246943	2.543808	F 2.359175	2.456609	2.316550
Stddev	.004667	.016577	.003834	.013392	.005962	.005640
%RSD	.1919510	.7377571	.1507025	.5676708	.2427107	.2434851
#1	2.426841	2.228578	2.546965	2.345704	2.463201	2.323063
#2	2.430587	2.251450	2.544918	2.359335	2.451593	2.313250
#3	2.436117	2.260800	2.539543	2.372487	2.455033	2.313337

Elem	Sr4077
Units	ppm
Avg	.0124572
Stddev	.0000424
%RSD	.3400188
#1	.0124822
#2	.0124810
#3	.0124083

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	139.3363	5906.340	110772.3	14892.33	5901.971
Stddev	1.8139	1.502	603.9	84.25	12.742
%RSD	1.301819	.0254308	.5451464	.5657428	.2158857
#1	140.7311	5904.804	110778.0	14957.08	5915.719
#2	139.9920	5907.805	110165.6	14922.85	5899.634
#3	137.2857	5906.411	111373.3	14797.07	5890.560

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICB54 Acquired: 9/19/2014 12:49:39 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICB54 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001225	.0002537	-.000407	-.000432	.0006379	-.002746
Stddev	.001482	.0009304	.000408	.000542	.0012004	.000391
%RSD	120.9902	366.8027	100.2748	125.7035	188.1870	14.23085
#1	-.001587	.0004396	-.000437	-.001048	-.000320	-.003102
#2	.000405	.0010771	-.000800	-.000029	.000249	-.002328
#3	-.002493	-.000756	.000015	-.000218	.001985	-.002809

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000249	.0003555	-.000021	-.002350	.0000023	.0001476
Stddev	.000276	.0004998	.000050	.007439	.0000453	.0001444
%RSD	110.8142	140.5925	239.6318	316.5969	2011.007	97.87827
#1	-.000512	.0005802	-.000057	.005432	.0000260	.0000173
#2	.000038	.0007036	-.000042	-.003090	.0000308	.0001225
#3	-.000272	-.000217	.000036	-.009391	-.000050	.0003029

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001659	-.001355	.0001200	-.000649	.0000737	-.000044
Stddev	.000647	.004020	.0004717	.013519	.0002121	.000271
%RSD	39.03608	296.5669	393.0330	2083.629	287.7355	616.0453
#1	-.001488	.002237	-.000272	.014422	-.000169	-.000352
#2	-.002374	-.005697	-.000011	-.011705	.000222	.000154
#3	-.001113	-.000606	.000643	-.004664	.000168	.000066

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0451088	-.000052	.0022910	-.018058	-.000434	F .0102027
Stddev	.1430656	.000536	.0001199	.023802	.000724	.0036806
%RSD	317.1563	1025.037	5.232256	131.8120	166.9107	36.07462
#1	-.109773	.000566	.0021645	.008911	-.001211	.0141450
#2	.172313	-.000338	.0024029	-.036133	-.000314	.0068567
#3	.072787	-.000384	.0023056	-.026951	.000223	.0096064

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICB54 Acquired: 9/19/2014 12:49:39 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICB54 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002137	-.024554	-.000868	-.000413	.0005773	.0009891
Stddev	.0002628	.001251	.003592	.000683	.0010013	.0004294
%RSD	122.9724	5.096641	413.8730	165.5288	173.4444	43.40903
#1	.0002799	-.024973	-.002350	.000139	-.000379	.0008086
#2	.0004372	-.025542	.003228	-.000200	.001618	.0006794
#3	-.000076	-.023147	-.003482	-.001177	.000494	.0014792

Elem	Sr4077
Units	ppm
Avg	-.000020
Stddev	.000037
%RSD	183.7847
#1	.000007
#2	-.000005
#3	-.000062

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	140.2062	5964.710	112866.7	14703.74	6228.724
Stddev	1.3547	15.826	446.8	221.27	15.821
%RSD	.9662224	.2653275	.3958906	1.504844	.2540068
#1	138.6500	5978.182	112376.8	14453.40	6239.423
#2	140.8468	5968.668	112971.6	14784.67	6236.199
#3	141.1218	5947.281	113251.8	14873.15	6210.550

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICSA54 Acquired: 9/19/2014 12:58:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSA54 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0032669	-.000304	-.001719	.0113395	.0014258	245.4469
Stddev	.0015379	.000933	.000983	.0012977	.0009521	.5707
%RSD	47.07428	307.0838	57.16504	11.44441	66.77500	.2325212
#1	.0028894	-.000185	-.002406	.0122559	.0014384	245.6816
#2	.0049585	.000564	-.002158	.0098545	.0023716	245.8629
#3	.0019530	-.001291	-.000593	.0119081	.0004675	244.7963

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0071928	.0012962	-.000466	250.8988	.0607731	-.000027
Stddev	.0001700	.0003338	.000099	.6332	.0004645	.000125
%RSD	2.363315	25.75316	21.25009	.2523811	.7643806	458.9877
#1	.0070155	.0011580	-.000544	250.9361	.0609911	.000022
#2	.0073544	.0016769	-.000500	251.5125	.0602397	.000066
#3	.0072085	.0010537	-.000354	250.2477	.0610886	-.000169

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001423	103.2095	.0143842	260.3534	.0031790	-.000016
Stddev	.000927	.1545	.0001653	.8663	.0000559	.000318
%RSD	65.13627	.1496510	1.149385	.3327279	1.758728	1936.752
#1	-.001616	103.0537	.0145711	260.1377	.0031236	.000350
#2	-.000415	103.2122	.0142569	261.3071	.0031781	-.000220
#3	-.002237	103.3626	.0143248	259.6153	.0032354	-.000179

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2211347	.0012170	.0188663	-.109795	.0054222	F .0926685
Stddev	.1172725	.0007150	.0033413	.012119	.0011943	.0044164
%RSD	53.03216	58.75382	17.71063	11.03788	22.02633	4.765770
#1	.2141272	.0012260	.0227049	-.100800	.0066405	.0963819
#2	.3417538	.0019275	.0166102	-.105008	.0053726	.0938387
#3	.1075231	.0004975	.0172837	-.123576	.0042534	.0877849

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICSA54 Acquired: 9/19/2014 12:58:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSA54 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0147780	-.023157	.0089241	F .0249473	.0206542	.0040897
Stddev	.0001021	.004337	.0101856	.0004996	.0007659	.0006387
%RSD	.6910408	18.73006	114.1359	2.002467	3.708149	15.61851
#1	.0148731	-.028158	.0196507	.0253644	.0215353	.0039956
#2	.0146700	-.020900	.0077381	.0250839	.0201477	.0047703
#3	.0147909	-.020414	-.000617	.0243936	.0202796	.0035032

Elem	Sr4077
Units	ppm
Avg	.1050571
Stddev	.0000790
%RSD	.0752105
#1	.1050466
#2	.1051408
#3	.1049838

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	130.1186	5528.712	102268.3	14008.49	5078.696
Stddev	2.1917	6.847	407.7	87.24	7.857
%RSD	1.684363	.1238393	.3986665	.6228006	.1547080
#1	128.4472	5526.975	102295.0	13982.89	5074.719
#2	129.3086	5536.260	102662.1	13936.91	5087.747
#3	132.6000	5522.901	101847.9	14105.68	5073.623

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICSAB54 Acquired: 9/19/2014 13:02:23 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSAB54 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0970634	.1015966	.0492196	.0613989	.5737185	252.3811
Stddev	.0021757	.0011081	.0018856	.0020836	.0032301	.4842
%RSD	2.241532	1.090647	3.830976	3.393455	.5630110	.1918441
#1	.0950949	.1009685	.0479250	.0592488	.5700365	252.0508
#2	.0993995	.1028760	.0513830	.0634088	.5750440	252.9369
#3	.0966958	.1009452	.0483509	.0615391	.5760750	252.1556

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5335637	.5341846	1.036154	257.3777	.6179958	.5098781
Stddev	.0002796	.0019917	.001270	.5689	.0020527	.0006461
%RSD	.0524047	.3728538	.1226026	.2210352	.3321496	.1267163
#1	.5336867	.5336083	1.035660	257.7752	.6183941	.5093574
#2	.5337608	.5364010	1.035204	257.6319	.6198201	.5096757
#3	.5332437	.5325446	1.037597	256.7260	.6157731	.5106012

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5168622	105.7184	.5496696	266.9674	1.027364	.2052652
Stddev	.0032598	.2060	.0021300	.9406	.002233	.0004851
%RSD	.6306936	.1948642	.3875059	.3523271	.2173275	.2363168
#1	.5165164	105.8468	.5515437	267.5342	1.029243	.2050020
#2	.5202811	105.8275	.5501118	267.4863	1.024895	.2049685
#3	.5137890	105.4807	.5473532	265.8817	1.027953	.2058249

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0037030	.5249266	1.028858	-.267968	.0340007	F .0739343
Stddev	.0121666	.0024885	.006633	.023889	.0007994	.0045655
%RSD	328.5584	.4740665	.6446670	8.914962	2.351102	6.175126
#1	.0149619	.5259044	1.021512	-.290929	.0343204	.0778237
#2	-.009203	.5220977	1.034408	-.269728	.0330910	.0689076
#3	.005351	.5267776	1.030654	-.243248	.0345908	.0750715

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICSAB54 Acquired: 9/19/2014 13:02:23 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSAB54 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005764	-.017792	.0220311	-.000754	-.001420	.0026410
Stddev	.0000204	.002157	.0022418	.000231	.000815	.0009363
%RSD	3.545197	12.12151	10.17570	30.58267	57.44394	35.45424
#1	.0005911	-.019542	.0199933	-.000909	-.001840	.0021379
#2	.0005530	-.018451	.0244325	-.000489	-.000480	.0020637
#3	.0005849	-.015383	.0216677	-.000865	-.001938	.0037214

Elem	Sr4077
Units	ppm
Avg	.1078306
Stddev	.0002130
%RSD	.1975258
#1	.1075865
#2	.1079788
#3	.1079264

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	128.1444	5431.738	100783.0	13805.51	4994.530
Stddev	.9296	6.173	43.8	51.24	6.460
%RSD	.7254039	.1136539	.0434614	.3711296	.1293461
#1	127.1685	5427.697	100733.0	13748.23	4993.785
#2	128.2455	5438.844	100814.7	13821.35	5001.330
#3	129.0194	5428.673	100801.3	13846.96	4988.474

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV60 Acquired: 9/19/2014 13:06:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV60 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.016730	5.041374	25.35907	4.986625	4.982243	398.0638	10.05366
Stddev	.015547	.013132	.05955	.007851	.016368	6.3931	.12815
%RSD	.3099079	.2604784	.2348225	.1574323	.3285323	1.606041	1.274644
#1	5.004382	5.042593	25.39587	4.978400	4.963512	403.6845	10.20030
#2	5.011619	5.027675	25.29036	4.987437	4.993794	399.3979	9.99750
#3	5.034190	5.053854	25.39097	4.994039	4.989424	391.1089	9.96318

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5205451	2.578998	407.6731	16.06999	2.549169	15.33129	397.3591
Stddev	.0024950	.007536	1.3044	.00089	.003870	.08588	1.0113
%RSD	.4793098	.2922131	.3199709	.0055490	.1518202	.5601344	.2544978
#1	.5234074	2.583387	409.1792	16.07102	2.550744	15.43042	398.5152
#2	.5188302	2.570296	406.9310	16.06944	2.544760	15.28397	396.6390
#3	.5193976	2.583312	406.9089	16.06952	2.552003	15.27949	396.9231

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.08371	400.7726	2.548153	1.291773	385.5146	2.565062	15.38454
Stddev	.06321	2.2465	.004480	.001302	1.4822	.015508	.14262
%RSD	.4190877	.5605436	.1758138	.1007976	.3844821	.6045676	.9270600
#1	15.15223	403.2705	2.551529	1.290740	387.2235	2.582508	15.30154
#2	15.02766	398.9177	2.543070	1.293236	384.5774	2.552844	15.30285
#3	15.07124	400.1295	2.549859	1.291343	384.7429	2.559834	15.54923

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	156.4681	5.032602	5.199033	4.969922	5.154909	5.151883	5.114925
Stddev	.5763	.003892	.031060	.011255	.014230	.017205	.015299
%RSD	.3683113	.0773391	.5974092	.2264718	.2760475	.3339519	.2990953
#1	157.1273	5.033354	5.227600	4.965479	5.141740	5.170036	5.123865
#2	156.2175	5.028388	5.165971	4.961566	5.152983	5.149797	5.097260
#3	156.0596	5.036063	5.203529	4.982721	5.170004	5.135816	5.123650

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV60 Acquired: 9/19/2014 13:06:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV60 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.120651	5.134648	5.080735
Stddev	.015252	.016460	.087998
%RSD	.2978602	.3205629	1.732001
#1	5.138263	5.153575	5.158145
#2	5.111718	5.123690	4.985025
#3	5.111974	5.126678	5.099034

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	119.5739	4935.346	95921.55	13479.05	4437.184
Stddev	.9091	9.229	92.77	102.71	7.463
%RSD	.7602427	.1870035	.0967170	.7619737	.1681983
#1	119.7408	4941.635	95830.86	13360.74	4432.740
#2	120.3879	4939.651	96016.28	13531.06	4445.801
#3	118.5929	4924.750	95917.51	13545.35	4433.013

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB60 Acquired: 9/19/2014 13:10:30 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB60 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000395	.0016266	-.000085	-.000052	-.000154	.0073591	.0007780
Stddev	.000231	.0007353	.000482	.001759	.000339	.0043063	.0000986
%RSD	58.37043	45.20631	566.6385	3371.129	220.6737	58.51637	12.67736
#1	-.000648	.0008899	-.000505	.001914	-.000207	.0024184	.0008840
#2	-.000196	.0016292	-.000191	-.001475	-.000463	.0103157	.0006889
#3	-.000343	.0023605	.000441	-.000595	.000209	.0093431	.0007611

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001980	.0000328	.0132237	.0001659	.0001057	-.001195	.0173267
Stddev	.0003905	.0000129	.0047719	.0002850	.0001084	.000996	.0036112
%RSD	197.2357	39.16743	36.08586	171.7863	102.5682	83.36039	20.84157
#1	-.000085	.0000191	.0186655	-.000061	.0001426	-.000263	.0213892
#2	.000643	.0000349	.0097539	.000486	-.000016	-.001077	.0161092
#3	.000035	.0000446	.0112517	.000073	.000191	-.002244	.0144817

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004351	.0023311	.0001720	.0001507	.0845468	.0002034	.0029416
Stddev	.0002654	.0066638	.0001169	.0001595	.0541582	.0017462	.0046171
%RSD	60.99241	285.8654	67.96283	105.8300	64.05712	858.4284	156.9567
#1	.0006208	-.002856	.0002817	.0002834	.0924760	-.001636	.0070102
#2	.0005534	.009847	.0000491	.0001950	.0268610	.001838	-.002076
#3	.0001312	.000002	.0001853	-.000026	.1343032	.000409	.003891

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1018200	-.000856	.0073652	.0004545	-.023900	-.003096	.0000881
Stddev	.0383233	.000726	.0048277	.0001677	.000876	.006360	.0000200
%RSD	37.63830	84.86250	65.54803	36.89847	3.666961	205.4202	22.67735
#1	.1173040	-.000663	.0025433	.0006390	-.024198	.003428	.0000736
#2	.1299788	-.001660	.0073535	.0003112	-.024588	-.003438	.0000798
#3	.0581773	-.000246	.0121987	.0004133	-.022913	-.009279	.0001109

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB60 Acquired: 9/19/2014 13:10:30 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB60 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0013663	.0021014	.0000615
Stddev	.0005402	.0006765	.0000487
%RSD	39.53942	32.19352	79.07915
#1	.0012459	.0027460	.0001116
#2	.0008964	.0013970	.0000585
#3	.0019565	.0021610	.0000145

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	136.9571	5922.700	109454.0	14044.63	6191.837
Stddev	.1875	12.876	338.7	46.33	16.505
%RSD	.1369295	.2173946	.3094482	.3298766	.2665550
#1	136.9511	5917.834	109289.9	14036.78	6193.072
#2	136.7727	5937.299	109228.6	14002.72	6207.690
#3	137.1476	5912.966	109843.5	14094.38	6174.750

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV61 Acquired: 9/19/2014 14:32:48 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV61 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.042546	5.051921	25.38955	4.928520	4.989821	409.5764	10.21369
Stddev	.013912	.016406	.05566	.005180	.010330	1.6901	.03191
%RSD	.2758913	.3247427	.2192372	.1051098	.2070203	.4126449	.3124670
#1	5.037177	5.057814	25.40035	4.928945	4.983095	408.5554	10.21715
#2	5.032118	5.033383	25.32928	4.923141	4.984653	408.6466	10.18018
#3	5.058342	5.064566	25.43903	4.933475	5.001715	411.5273	10.24373

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5311004	2.593916	416.8405	16.59145	2.553858	15.65290	405.4514
Stddev	.0013358	.007460	.3743	.05608	.006703	.05651	.2088
%RSD	.2515203	.2875917	.0897888	.3379867	.2624472	.3610333	.0515072
#1	.5296375	2.596495	416.7108	16.65043	2.555292	15.59724	405.6921
#2	.5314086	2.585508	417.2624	16.58509	2.546554	15.65123	405.3440
#3	.5322552	2.599744	416.5484	16.53882	2.559726	15.71023	405.3182

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.55148	418.4899	2.520985	1.321890	399.4580	2.589957	15.46370
Stddev	.00279	.6810	.004680	.000890	1.0419	.004569	.16536
%RSD	.0179657	.1627301	.1856326	.0672944	.2608268	.1764285	1.069330
#1	15.55198	417.7389	2.524196	1.321720	398.4718	2.584894	15.27276
#2	15.55399	419.0673	2.515616	1.322853	399.3544	2.593774	15.55990
#3	15.54847	418.6636	2.523143	1.321098	400.5478	2.591203	15.55843

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	157.0971	5.050114	5.308732	4.941410	5.147384	5.234008	5.062802
Stddev	.2880	.015284	.009940	.009637	.010330	.007147	.017562
%RSD	.1833471	.3026448	.1872459	.1950252	.2006809	.1365418	.3468894
#1	156.9012	5.047663	5.299470	4.943729	5.156421	5.228520	5.065465
#2	157.4278	5.036204	5.307491	4.930825	5.136124	5.242089	5.044061
#3	156.9622	5.066476	5.319235	4.949675	5.149608	5.231415	5.078881

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV61 Acquired: 9/19/2014 14:32:48 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV61 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.106724	5.202621	5.223115
Stddev	.006337	.006034	.031449
%RSD	.1240895	.1159886	.6021049
#1	5.099999	5.195795	5.186832
#2	5.112585	5.204823	5.242547
#3	5.107587	5.207246	5.239965

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	118.2584	4990.798	95066.31	13069.22	4522.789
Stddev	1.8360	9.534	274.99	72.62	10.978
%RSD	1.552504	.1910352	.2892633	.5556311	.2427360
#1	120.3537	4994.578	94754.71	13146.78	4521.642
#2	117.4900	4997.864	95169.23	13058.03	4534.296
#3	116.9315	4979.954	95275.00	13002.85	4512.430

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB61 Acquired: 9/19/2014 14:36:57 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB61 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009872	.0015298	-.000682	-.000680	-.001089	.0102252	.0011801
Stddev	.0004062	.0015007	.001313	.000595	.001791	.0045604	.0001879
%RSD	41.15030	98.09237	192.3737	87.49191	164.4854	44.59912	15.91793
#1	.0006580	.0007781	.000368	-.001312	.000071	.0049783	.0013140
#2	.0014412	.0005537	-.000261	-.000594	-.000186	.0132351	.0012610
#3	.0008624	.0032578	-.002154	-.000133	-.003152	.0124623	.0009654

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004100	-.000002	.0098478	.0004647	.0002393	-.000937	.0153921
Stddev	.0002237	.000038	.0038457	.0001233	.0000833	.000600	.0043516
%RSD	54.55585	1665.314	39.05100	26.54265	34.79304	64.04084	28.27189
#1	.0001665	.000041	.0135945	.0004044	.0002992	-.001015	.0186267
#2	.0006064	-.000017	.0100385	.0003831	.0001442	-.001495	.0171049
#3	.0004571	-.000031	.0059103	.0006066	.0002744	-.000302	.0104447

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006255	.0120908	.0001667	.0000706	-.008597	-.000899	.0039652
Stddev	.0003466	.0118739	.0001588	.0000779	.151878	.001604	.0040048
%RSD	55.41989	98.20662	95.25447	110.2608	1766.633	178.4337	100.9975
#1	.0008377	.0221030	.0003078	.0000024	.069812	-.002611	.0011472
#2	.0002255	.0151968	.0001977	.0001555	-.183654	.000568	.0085495
#3	.0008132	-.001028	-.000005	.0000539	.088050	-.000653	.0021990

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0117148	.0002248	.0063063	.0004337	-.024233	.0045582	-.000194
Stddev	.0139617	.0004199	.0048374	.0003708	.001635	.0040947	.000462
%RSD	119.1806	186.7876	76.70727	85.50661	6.746109	89.83079	238.2172
#1	-.002825	-.000258	.0024653	.0006635	-.023466	.0090508	-.000127
#2	.025016	.000501	.0047146	.0006317	-.026111	.0010355	-.000686
#3	.012953	.000432	.0117390	.0000059	-.023123	.0035883	.000231

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB61 Acquired: 9/19/2014 14:36:57 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB61 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0013845	.0013207	.0001896
Stddev	.0011165	.0005819	.0000420
%RSD	80.64168	44.06074	22.12779
#1	.0016022	.0019646	.0001961
#2	.0001752	.0008326	.0002279
#3	.0023762	.0011648	.0001448

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	136.2735	5945.197	109770.5	13712.03	6277.480
Stddev	.8537	16.630	909.9	51.54	20.205
%RSD	.6264963	.2797147	.8289205	.3758412	.3218603
#1	136.9750	5950.406	109527.7	13757.67	6285.180
#2	135.3229	5958.598	110777.1	13722.28	6292.704
#3	136.5227	5926.586	109006.5	13656.14	6254.558

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV62 Acquired: 9/19/2014 16:01:16 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV62 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.125490	5.025788	25.14030	5.025310	5.090213	408.1065	10.38980
Stddev	.035939	.035581	.19414	.033409	.041795	4.0337	.06174
%RSD	.7011777	.7079647	.7722182	.6648182	.8210923	.9884036	.5942158
#1	5.087917	5.002604	25.04679	5.001947	5.055930	403.4960	10.31859
#2	5.129019	5.008006	25.01061	5.010405	5.077938	409.8386	10.42826
#3	5.159535	5.066755	25.36350	5.063577	5.136771	410.9849	10.42256

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5233230	2.547337	409.2530	16.37893	2.539194	15.71262	392.6487
Stddev	.0036375	.019731	2.7757	.06093	.018595	.09862	3.1327
%RSD	.6950674	.7745854	.6782308	.3719993	.7323015	.6276681	.7978398
#1	.5199274	2.537870	407.7770	16.43468	2.530466	15.64874	391.3110
#2	.5271617	2.534123	412.4548	16.38823	2.526569	15.82620	396.2282
#3	.5228799	2.570018	407.5272	16.31389	2.560547	15.66291	390.4070

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.14893	401.6802	2.496298	1.304848	398.7482	2.602013	15.05767
Stddev	.10983	2.2441	.018407	.000754	2.4956	.004679	.30440
%RSD	.7250200	.5586836	.7373821	.0578156	.6258660	.1798306	2.021583
#1	15.08430	400.0204	2.489858	1.304335	397.1076	2.605457	14.72236
#2	15.27575	404.2334	2.481976	1.304495	401.6202	2.596686	15.31664
#3	15.08676	400.7867	2.517060	1.305715	397.5168	2.603897	15.13399

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	159.2452	5.130244	5.159072	4.963239	5.177102	5.185810	4.998097
Stddev	.7508	.036221	.046699	.037587	.046336	.027167	.041962
%RSD	.4714530	.7060275	.9051895	.7573133	.8950260	.5238709	.8395613
#1	158.7906	5.100308	5.126443	4.940226	5.139990	5.173909	4.984286
#2	160.1118	5.119918	5.212566	4.942878	5.162281	5.166624	4.964781
#3	158.8332	5.170507	5.138207	5.006614	5.229036	5.216896	5.045224

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV62 Acquired: 9/19/2014 16:01:16 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV62 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.158408	5.298307	5.239096
Stddev	.030009	.039862	.048844
%RSD	.5817468	.7523559	.9322926
#1	5.144506	5.272041	5.182898
#2	5.192847	5.344175	5.263066
#3	5.137871	5.278704	5.271324

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	117.9182	4944.180	96662.43	13323.35	4527.772
Stddev	2.1312	38.304	154.99	34.38	33.668
%RSD	1.807316	.7747225	.1603398	.2580306	.7435800
#1	120.3500	4974.689	96484.19	13361.65	4543.232
#2	116.3759	4956.658	96765.49	13313.24	4550.932
#3	117.0287	4901.193	96737.61	13295.16	4489.151

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB62 Acquired: 9/19/2014 16:05:28 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB62 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006274	.0015550	-.000206	-.001574	-.000180	.0135894	.0010140
Stddev	.0009295	.0007650	.000248	.001360	.000968	.0037168	.0000452
%RSD	148.1366	49.19160	120.0975	86.45001	537.3853	27.35077	4.459718
#1	.0013806	.0006766	.000077	-.000800	.000886	.0139525	.0009625
#2	-.000411	.0020746	-.000380	-.000776	-.001004	.0171112	.0010325
#3	.000913	.0019138	-.000317	-.003144	-.000422	.0097043	.0010471

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000021	.0000526	.0152057	.0004337	.0002730	-.001612	.0235999
Stddev	.000331	.0000576	.0035802	.0002260	.0001637	.001718	.0040203
%RSD	1597.945	109.5302	23.54530	52.12192	59.95164	106.5453	17.03541
#1	.000333	.0001032	.0141004	.0003315	.0004544	.000004	.0206623
#2	-.000071	-.000010	.0192082	.0006928	.0001362	-.001424	.0219557
#3	-.000324	.000065	.0123084	.0002768	.0002285	-.003417	.0281817

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006697	.0169359	.0003758	-.000016	.0349501	.0003578	-.000538
Stddev	.0001981	.0123839	.0000961	.000127	.1331242	.0015526	.004952
%RSD	29.57832	73.12207	25.55692	808.3860	380.8982	433.9349	920.7921
#1	.0006535	.0050765	.0003390	.000047	.0432469	-.000953	.004925
#2	.0008754	.0297849	.0003037	.000068	.1637318	.002072	-.004731
#3	.0004802	.0159463	.0004849	-.000162	-.102129	-.000046	-.001808

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002051	.0006783	.0064740	.0007796	-.028316	.0020262	-.000414
Stddev	.016232	.0010922	.0036767	.0003880	.001528	.0046315	.000189
%RSD	791.2419	161.0233	56.79167	49.77161	5.396371	228.5765	45.67328
#1	.016687	-.000195	.0058673	.0012117	-.026779	-.003258	-.000613
#2	-.011792	.000326	.0104162	.0006664	-.028334	.003955	-.000392
#3	-.011049	.001903	.0031383	.0004608	-.029835	.005381	-.000236

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB62 Acquired: 9/19/2014 16:05:28 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB62 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0006367	.0020906	.0001515
Stddev	.0010748	.0004229	.0000194
%RSD	168.8001	20.22654	12.78619
#1	.0016069	.0016218	.0001544
#2	-.000519	.0024433	.0001308
#3	.000822	.0022065	.0001692

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	135.4665	5954.260	111786.6	14146.59	6351.955
Stddev	.9156	100.269	497.4	58.98	107.691
%RSD	.6758515	1.683979	.4449867	.4168953	1.695403
#1	134.6135	6069.296	111263.7	14097.63	6476.300
#2	136.4338	5908.094	112253.9	14212.06	6290.871
#3	135.3522	5885.391	111842.3	14130.06	6288.695

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV63 Acquired: 9/19/2014 17:56:43 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV63 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.046280	4.882540	24.23511	4.987435	5.063210	402.0260	10.17259
Stddev	.013072	.017098	.07804	.010004	.007151	2.6950	.15345
%RSD	.2590359	.3501893	.3220089	.2005898	.1412299	.6703521	1.508484
#1	5.031206	4.867770	24.21679	4.985276	5.055371	401.1928	10.13341
#2	5.053137	4.878579	24.16786	4.978687	5.064883	399.8461	10.04253
#3	5.054495	4.901271	24.32068	4.998343	5.069375	405.0392	10.34183

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4958622	2.438426	400.2182	15.73585	2.464542	15.27217	385.0874
Stddev	.0014354	.009087	.5028	.00345	.008528	.03202	.7473
%RSD	.2894696	.3726730	.1256191	.0219525	.3460453	.2096488	.1940585
#1	.4944334	2.434471	400.5741	15.73311	2.459327	15.23941	385.3355
#2	.4973041	2.431986	399.6431	15.73973	2.459915	15.27371	384.2476
#3	.4958490	2.448820	400.4375	15.73471	2.474384	15.30339	385.6792

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.66832	388.7190	2.423073	1.291731	397.5124	2.489112	14.70866
Stddev	.01925	.8302	.005323	.003459	.9974	.000705	.21118
%RSD	.1312344	.2135681	.2196628	.2677855	.2509145	.0283058	1.435742
#1	14.66861	388.4913	2.423497	1.288123	397.6489	2.488681	14.50452
#2	14.64893	388.0264	2.417552	1.295019	396.4537	2.488731	14.69522
#3	14.68743	389.6393	2.428172	1.292052	398.4344	2.489925	14.92624

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	154.3356	5.039917	5.022613	4.873169	5.059207	4.939363	4.831657
Stddev	.2618	.005255	.005199	.008330	.006838	.038192	.016611
%RSD	.1696291	.1042601	.1035199	.1709367	.1351607	.7732085	.3437920
#1	154.0845	5.035239	5.017588	4.869175	5.051312	4.903275	4.824642
#2	154.3154	5.038910	5.022279	4.867588	5.063269	4.979358	4.819704
#3	154.6069	5.045602	5.027971	4.882744	5.063040	4.935457	4.850624

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV63 Acquired: 9/19/2014 17:56:43 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV63 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.976005	5.203342	5.140951
Stddev	.003289	.006336	.054753
%RSD	.0660882	.1217586	1.065039
#1	4.974238	5.196026	5.201760
#2	4.973977	5.206975	5.095560
#3	4.979799	5.207024	5.125535

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	117.4591	4942.194	97725.17	13875.58	4546.473
Stddev	1.4933	6.614	160.54	45.38	12.213
%RSD	1.271327	.1338251	.1642732	.3270674	.2686328
#1	118.6677	4944.611	97910.36	13886.99	4548.364
#2	117.9198	4947.259	97639.73	13914.17	4557.631
#3	115.7897	4934.711	97625.43	13825.58	4533.425

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB63 Acquired: 9/19/2014 18:00:54 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB63 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000317	.0019497	-.000370	.0001733	-.000229	.0278734	.0009234
Stddev	.000348	.0010348	.000866	.0002073	.000697	.0075696	.0003170
%RSD	109.6096	53.07314	234.1337	119.6068	303.9683	27.15722	34.32641
#1	.000084	.0018533	-.001219	.0004084	.000325	.0348595	.0011457
#2	-.000510	.0009665	-.000403	.0000170	-.000002	.0289294	.0010641
#3	-.000527	.0030294	.000513	.0000944	-.001011	.0198312	.0005604

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000042	-.000003	.0256884	.0004232	.0001886	-.002428	.0278924
Stddev	.000190	.000030	.0105666	.0003303	.0001128	.002037	.0096740
%RSD	447.9729	1089.988	41.13383	78.04972	59.78351	83.86498	34.68337
#1	-.000106	-.000037	.0346668	.0007049	.0003184	-.001657	.0367122
#2	-.000192	.000012	.0283542	.0005050	.0001322	-.000890	.0294193
#3	.000171	.000016	.0140442	.0000597	.0001152	-.004738	.0175457

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0010616	.0097972	.0002787	-.000030	.2189746	-.000308	.0041268
Stddev	.0001458	.0051395	.0001415	.000149	.0755010	.001371	.0023578
%RSD	13.73307	52.45936	50.77065	493.9361	34.47932	445.6130	57.13296
#1	.0012120	.0053052	.0002383	.000098	.2563175	-.000556	.0064085
#2	.0010520	.0086845	.0001618	-.000193	.1320791	-.001537	.0016997
#3	.0009209	.0154020	.0004361	.000005	.2685272	.001171	.0042721

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0347494	.0005510	.0096526	.0009384	-.029208	.0068175	-.000332
Stddev	.0062444	.0004529	.0008266	.0003453	.001436	.0040820	.000448
%RSD	17.96975	82.18893	8.563103	36.79190	4.916129	59.87587	134.6029
#1	.0296445	.0006954	.0101576	.0013044	-.027831	.0109629	.000131
#2	.0417117	.0009142	.0101014	.0008921	-.029098	.0028019	-.000365
#3	.0328920	.0000436	.0086987	.0006186	-.030696	.0066877	-.000763

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB63 Acquired: 9/19/2014 18:00:54 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB63 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0006947	.0026254	.0002742
Stddev	.0012184	.0012374	.0000303
%RSD	175.3961	47.13114	11.05156
#1	.0020460	.0037321	.0002903
#2	-.000320	.0028548	.0002930
#3	.000358	.0012894	.0002393

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	137.5520	6051.588	113767.3	14849.87	6452.874
Stddev	.6712	37.124	176.1	20.33	41.085
%RSD	.4879911	.6134549	.1547647	.1369171	.6366950
#1	137.7597	6027.300	113853.6	14828.56	6420.312
#2	138.0948	6033.141	113564.8	14869.05	6439.277
#3	136.8014	6094.321	113883.6	14852.00	6499.035

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3941-07A Acquired: 9/19/2014 18:45:27 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF7A Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7871617	-.003327	.1414753	.0122755	.1105305	46.17173	.5725406
Stddev	.0018767	.000969	.0008717	.0011400	.0009249	.17195	.0016858
%RSD	.2384150	29.11520	.6161550	9.287140	.8368151	.3724229	.2944477
#1	.7893285	-.002610	.1412593	.0111051	.1104897	46.30201	.5743739
#2	.7860483	-.002942	.1424347	.0133826	.1114751	45.97683	.5710571
#3	.7861083	-.004429	.1407318	.0123388	.1096266	46.23636	.5721907

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0038587	.0008824	25.64345	1.011469	.0323106	.5828699	87.50509
Stddev	.0004138	.0000318	.07033	.002170	.0000209	.0031599	.18292
%RSD	10.72252	3.598752	.2742470	.2145754	.0646892	.5421341	.2090346
#1	.0038863	.0008805	25.68677	1.012754	.0323347	.5837024	87.58015
#2	.0034318	.0008517	25.56231	1.008963	.0322983	.5793770	87.29659
#3	.0042579	.0009151	25.68128	1.012690	.0322988	.5855302	87.63855

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.967477	5.213175	.0385994	-.000306	.8497394	.1170633	.6423131
Stddev	.007709	.018737	.0001574	.000116	.0353125	.0029637	.0102834
%RSD	.2597948	.3594254	.4078780	37.70821	4.155689	2.531731	1.600996
#1	2.968642	5.196647	.0386015	-.000237	.8126469	.1203338	.6538431
#2	2.959251	5.209348	.0384410	-.000243	.8536199	.1145554	.6390060
#3	2.974537	5.233531	.0387558	-.000440	.8829515	.1163008	.6340900

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.923689	2.623730	.0799205	.0064546	3.159161	4.290020	.0083818
Stddev	.021393	.009802	.0042966	.0001492	.005916	.052826	.0006150
%RSD	1.112062	.3735904	5.376080	2.311307	.1872622	1.231363	7.337877
#1	1.936346	2.617201	.0767209	.0062856	3.153784	4.333280	.0090426
#2	1.935731	2.618987	.0782366	.0065104	3.158201	4.305632	.0078261
#3	1.898989	2.635001	.0848040	.0065679	3.165499	4.231148	.0082767

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3941-07A Acquired: 9/19/2014 18:45:27 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AF7A Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.9106511	.0311490	.1574681
Stddev	.0027122	.0005045	.0004056
%RSD	.2978277	1.619701	.2575523
#1	.9118950	.0311011	.1577012
#2	.9075401	.0306702	.1577033
#3	.9125182	.0316758	.1569998

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	138.6759	5982.527	114860.4	15351.94	6009.984
Stddev	1.9769	8.489	240.3	89.53	13.362
%RSD	1.425589	.1419008	.2092009	.5831615	.2223296
#1	136.3999	5975.883	114765.4	15306.75	6003.067
#2	139.9660	5992.091	115133.7	15455.05	6025.387
#3	139.6619	5979.607	114682.2	15294.01	6001.500

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV64 Acquired: 9/19/2014 19:26:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV64 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.127926	4.981371	24.87792	5.072167	5.109185	404.3405	10.50208
Stddev	.023677	.044508	.37173	.056515	.034270	20.2928	.46209
%RSD	.4617314	.8934877	1.494230	1.114212	.6707509	5.018746	4.399989
#1	5.114285	4.956479	24.67946	5.048720	5.131521	427.7280	11.03502
#2	5.114228	4.954878	24.64754	5.031150	5.126307	393.8988	10.25815
#3	5.155266	5.032756	25.30677	5.136632	5.069729	391.3947	10.21307

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5158912	2.520909	413.9194	15.97223	2.520333	15.91561	393.5733
Stddev	.0280281	.064240	23.2064	.05960	.028461	.83064	22.3660
%RSD	5.432946	2.548276	5.606494	.3731760	1.129268	5.219038	5.682804
#1	.5482465	2.486704	440.6920	15.90555	2.505419	16.87286	419.3881
#2	.5003670	2.481008	401.5109	15.99080	2.502428	15.48911	381.3248
#3	.4990602	2.595013	399.5552	16.02033	2.553151	15.38486	380.0069

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.29835	401.1321	2.477361	1.314611	408.6184	2.600927	15.12874
Stddev	.84701	22.0006	.036376	.002314	22.4399	.134360	.87924
%RSD	5.536586	5.484624	1.468347	.1759934	5.491647	5.165854	5.811723
#1	16.27615	426.5031	2.455709	1.315476	434.5209	2.755953	16.12179
#2	14.82847	389.5696	2.457016	1.311989	396.2532	2.528691	14.81511
#3	14.79045	387.3237	2.519358	1.316367	395.0811	2.518137	14.44932

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	161.6092	5.137414	5.238347	4.945161	5.156703	5.156709	4.947311
Stddev	9.1184	.041814	.299473	.006565	.047404	.292781	.084316
%RSD	5.642225	.8139108	5.716940	.1327575	.9192725	5.677676	1.704279
#1	172.1376	5.182948	5.582264	4.942129	5.146994	5.492856	4.900527
#2	156.4465	5.100739	5.097611	4.940660	5.114906	5.019858	4.896761
#3	156.2436	5.128556	5.035165	4.952694	5.208211	4.957413	5.044647

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV64 Acquired: 9/19/2014 19:26:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV64 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.198654	5.433835	5.291237
Stddev	.297407	.288356	.275468
%RSD	5.720855	5.306683	5.206118
#1	5.541598	5.766688	5.609040
#2	5.042774	5.274899	5.143886
#3	5.011590	5.259918	5.120784

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	116.7775	5052.735	97925.33	13578.98	4628.136
Stddev	6.2945	151.210	153.52	662.18	102.096
%RSD	5.390134	2.992631	.1567681	4.876507	2.205976
#1	109.9000	4961.271	98078.86	12819.17	4569.030
#2	118.1805	4969.664	97925.30	13884.69	4569.353
#3	122.2522	5227.270	97771.83	14033.07	4746.026

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB64 Acquired: 9/19/2014 19:30:31 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB64 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001033	.0022664	.0008913	.0010970	.0002653	.0127147	.0008674
Stddev	.002041	.0006924	.0005158	.0010606	.0006214	.0093154	.0004334
%RSD	197.6572	30.55108	57.87356	96.68074	234.2723	73.26462	49.96856
#1	.001159	.0014690	.0011145	-.000124	-.000320	.0158252	.0011679
#2	-.001377	.0027156	.0012579	.001625	.000198	.0200769	.0003705
#3	-.002880	.0026146	.0003014	.001790	.000918	.0022421	.0010637

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001407	.0000134	.0097027	.0006251	.0002334	-.001543	.0216651
Stddev	.0006870	.0000086	.0021828	.0001220	.0000936	.001246	.0037021
%RSD	488.1442	64.08545	22.49679	19.52305	40.10841	80.79723	17.08765
#1	.0008406	.0000185	.0089803	.0005535	.0003207	-.000438	.0174578
#2	.0001144	.0000183	.0121550	.0007661	.0002450	-.002894	.0231133
#3	-.000533	.0000035	.0079726	.0005559	.0001345	-.001297	.0244241

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007357	.0254073	.0002497	-.000068	.2184297	-.000761	.0018106
Stddev	.0002542	.0087838	.0001963	.000181	.0643263	.001092	.0009974
%RSD	34.55225	34.57213	78.59226	266.2343	29.44943	143.5368	55.08822
#1	.0010026	.0331240	.0001800	-.000053	.1533581	.000224	.0022664
#2	.0007079	.0272494	.0004714	.000105	.2819838	-.000571	.0006667
#3	.0004965	.0158485	.0000979	-.000256	.2199471	-.001936	.0024988

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0123809	.0002171	.0058254	.0010198	-.031671	-.002560	.0000855
Stddev	.0391476	.0004102	.0035902	.0004125	.003217	.003614	.0003815
%RSD	316.1932	188.9222	61.62919	40.44531	10.15689	141.1528	446.2298
#1	.0321792	.0006884	.0059630	.0014788	-.034544	-.002557	-.000342
#2	.0376749	-.000059	.0093448	.0009003	-.032274	.001052	.000392
#3	-.032711	.000022	.0021684	.0006803	-.028196	-.006176	.000206

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB64 Acquired: 9/19/2014 19:30:31 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB64 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0008163	.0015595	.0001747
Stddev	.0005056	.0004870	.0000651
%RSD	61.94798	31.22897	37.26508
#1	.0004752	.0010130	.0002454
#2	.0013972	.0017182	.0001617
#3	.0005764	.0019474	.0001171

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	136.9495	5951.392	112832.8	14590.09	6394.155
Stddev	1.2790	9.897	491.0	24.51	12.021
%RSD	.9339538	.1662976	.4351935	.1680042	.1880053
#1	137.8045	5953.910	113012.4	14578.15	6387.390
#2	137.5648	5959.787	113208.8	14573.84	6408.034
#3	135.4790	5940.479	112277.3	14618.29	6387.040

284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Daily Analysis Runlog For Sequence/QCBatch ID # LB72830

Review By BIN Review On 9/22/2014 3:25:44 PM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

Sr#	SampleId	ClientID	QcType	Date	Comment	Status
1	S0	S0	CAL1	09/19/14 12:12		OK
2	S1	S1	CAL2	09/19/14 12:16		OK
3	S2	S2	CAL3	09/19/14 12:20		OK
4	S3	S3	CAL4	09/19/14 12:24		OK
5	S4	S4	CAL5	09/19/14 12:28		OK
6	S5	S5	CAL6	09/19/14 12:32		OK
7	S6	S6	CAL7	09/19/14 12:37		OK
8	ICV54	ICV54	ICV	09/19/14 12:45		OK
9	ICB54	ICB54	ICB	09/19/14 12:49		OK
10	ICSA54	ICSA54	ICSA	09/19/14 12:58		OK
11	ICSAB54	ICSAB54	ICSAB	09/19/14 13:02		OK
12	CCV60	CCV60	CCV	09/19/14 13:06		OK
13	CCB60	CCB60	CCB	09/19/14 13:10		OK
14	DIG BLK1	DIG BLK1	SAM	09/19/14 13:14		OK
15	DIG BLK2	DIG BLK2	SAM	09/19/14 13:18		OK
16	DIG BLK3	DIG BLK3	SAM	09/19/14 13:22		OK
17	DIG BLK4	DIG BLK4	SAM	09/19/14 13:27		OK
18	DIG BLK5	DIG BLK5	SAM	09/19/14 13:31		OK
19	DIG BLK6	DIG BLK6	SAM	09/19/14 13:35		OK
20	DIG BLK7	DIG BLK7	SAM	09/19/14 13:39		OK
21	DIG BLK8	DIG BLK8	SAM	09/19/14 13:43		OK

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Daily Analysis Runlog For Sequence/QCBatch ID # LB72830

Review By	BIN	Review On	9/22/2014 3:25:44 PM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

22	DIG BLK9	DIG BLK9	SAM	09/19/14 13:47		OK
23	DIG BLK10	DIG BLK10	SAM	09/19/14 13:51		OK
24	DIG BLK11	DIG BLK11	SAM	09/19/14 13:55		OK
25	FUNNEL1	FUNNEL1	SAM	09/19/14 13:59		OK
26	FUNNEL2	FUNNEL2	SAM	09/19/14 14:03		OK
27	FUNNEL3	FUNNEL3	SAM	09/19/14 14:08		OK
28	FUNNEL4	FUNNEL4	SAM	09/19/14 14:12		OK
29	FUNNEL5	FUNNEL5	SAM	09/19/14 14:16		OK
30	FILTER DIG1	FILTER DIG1	SAM	09/19/14 14:20		OK
31	FILTER DIG2	FILTER DIG2	SAM	09/19/14 14:24		OK
32	FILTER DIG3	FILTER DIG3	SAM	09/19/14 14:28		OK
33	CCV61	CCV61	CCV	09/19/14 14:32		OK
34	CCB61	CCB61	CCB	09/19/14 14:36		OK
35	PB79028BL	PBS01	MB	09/19/14 14:56		OK
36	PB79028BS	LCS01	LCS	09/19/14 15:00		OK
37	F3847-01	ME42Z2	SAM	09/19/14 15:05	NOT Use	Not Ok
38	F3847-02	ME42Z3	SAM	09/19/14 15:09	NOT Use	Not Ok
39	F3847-03	ME42Z5	SAM	09/19/14 15:13	Fe high	Dilution
40	F3847-04	ME42Z6	SAM	09/19/14 15:17		OK
41	F3847-05	ME42Z7	SAM	09/19/14 15:21	Fe,Ni high	Dilution
42	F3847-06	ME42Z8	SAM	09/19/14 15:25	Ni high	Dilution
43	F3847-07	ME42Z9	SAM	09/19/14 15:29	Fe,Ni high	Dilution
44	F3847-08	ME4300	SAM	09/19/14 15:33		OK

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Daily Analysis Runlog For Sequence/QCBatch ID # LB72830

Review By BIN Review On 9/22/2014 3:25:44 PM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

45	F3847-09	ME4300D	DUP	09/19/14 15:37		OK
46	F3847-10	ME4300S	MS	09/19/14 15:41	MS fail for Sb(Below RL),Mn(4975.83ppb),Ni(2	OK
47	F3847-08L	ME4300L	SD	09/19/14 15:45	SD fail for Cd	OK
48	F3847-11	ME4301	SAM	09/19/14 15:49	NOT Use	Not Ok
49	F3847-12	ME4302	SAM	09/19/14 15:53	NOT Use	Not Ok
50	F3847-13	ME4303	SAM	09/19/14 15:57	Fe,Ni high	Dilution
51	CCV62	CCV62	CCV	09/19/14 16:01		OK
52	CCB62	CCB62	CCB	09/19/14 16:05		OK
53	F3847-14	ME4304	SAM	09/19/14 16:09		OK
54	F3847-15	ME4305	SAM	09/19/14 16:13		OK
55	F3914-01A	MB0AA4A	PS	09/19/14 16:17	PS for Sb,Ba,Cd,Mn,Tl,Ba high	Dilution
56	F3914-01A	MB0AA4A	PS	09/19/14 16:35	Report 10X for Ba	Confirms
57	PB79056BL	PBS01	MB	09/19/14 16:38		OK
58	PB79056BS	LCS01	LCS	09/19/14 16:43		OK
59	F3976-01	MB0AB8	SAM	09/19/14 16:47		OK
60	F3976-02	MB0AB9	SAM	09/19/14 16:51		OK
61	F3976-03	MB0AD6	SAM	09/19/14 16:55		OK
62	F3976-04	MB0AD7	SAM	09/19/14 16:59		OK
63	F3976-05	MB0AD7D	DUP	09/19/14 17:03		OK
64	F3976-06	MB0AD7S	MS	09/19/14 17:07	MS fail for Sb(Below Rl),Mn(743.25ppb)	OK
65	F3976-04L	MB0AD7L	SD	09/19/14 17:11		OK
66	F3976-07	MB0AD8	SAM	09/19/14 17:15		OK
67	F3976-08	MB0AD9	SAM	09/19/14 17:19		OK

284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Daily Analysis Runlog For Sequence/QCBatch ID # LB72830

Review By	BIN	Review On	9/22/2014 3:25:44 PM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

68	F3976-09	MB0AE0	SAM	09/19/14 17:23		OK
69	F3976-10	MB0AE1	SAM	09/19/14 17:27		OK
70	F3976-11	MB0AE2	SAM	09/19/14 17:31		OK
71	F3976-12	MB0AE3	SAM	09/19/14 17:35		OK
72	F3976-13	MB0AE4	SAM	09/19/14 17:39		OK
73	F3961-14A	MB0AF9A	PS	09/19/14 17:43	PS for Sb	OK
74	F3942-12	MC0AH0	SAM	09/19/14 17:47		OK
75	CCV63	CCV63	CCV	09/19/14 17:56		OK
76	CCB63	CCB63	CCB	09/19/14 18:00		OK
77	F3976-14	MB0AE5	SAM	09/19/14 18:05		OK
78	F3976-15	MB0AE6	SAM	09/19/14 18:09		OK
79	F3976-16	MB0AE7	SAM	09/19/14 18:13		OK
80	F3976-17	MB0AE8	SAM	09/19/14 18:17		OK
81	F3976-18	MB0AE9	SAM	09/19/14 18:21		OK
82	F3976-19	MB0AG4	SAM	09/19/14 18:25		OK
83	F3976-20	MB0AG5	SAM	09/19/14 18:29		OK
84	F3976-21	MB0AR0	SAM	09/19/14 18:33		OK
85	F3976-22	MB0AR1	SAM	09/19/14 18:37		OK
86	F3935-01A	MH0608A	PS	09/19/14 18:41	PS for Cr	OK
87	F3941-07A	MC0AF7A	PS	09/19/14 18:45	PS for Sb	OK
88	F3935-05	MH0616	SAM	09/19/14 18:49	Report 10X for Cu	OK
89	F3935-06	MH0596	SAM	09/19/14 18:53	Report 10X for Cu	OK
90	F3935-08	MH0604	SAM	09/19/14 18:57	Report 10X for Cu	OK

284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Daily Analysis Runlog For Sequence/QCBatch ID # LB72830

Review By	BIN	Review On	9/22/2014 3:25:44 PM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

91	F3939-06	MC0AJ9	SAM	09/19/14 19:01		OK
92	F3939-07	MC0AK0	SAM	09/19/14 19:05		OK
93	F3939-08	MC0AK1	SAM	09/19/14 19:10		OK
94	F3939-09	MC0AK1D	DUP	09/19/14 19:14		OK
95	F3939-10	MC0AK1S	MS	09/19/14 19:18	MS fail for Cr(19.88ppb)	OK
96	F3939-08L	MC0AK1L	SD	09/19/14 19:22		OK
97	CCV64	CCV64	CCV	09/19/14 19:26		OK
98	CCB64	CCB64	CCB	09/19/14 19:30		OK
99	F3939-11	MC0AK2	SAM	09/19/14 19:34		OK
100	F3939-12	MC0AK3	SAM	09/19/14 19:38		OK
101	F3939-13	MC0AK4	SAM	09/19/14 19:42		OK
102	F3939-14	MC0AK5	SAM	09/19/14 19:46		OK
103	F3939-15	MC0AK6	SAM	09/19/14 19:50		OK
104	F3939-16	MC0AK7	SAM	09/19/14 19:54		OK
105	F3939-17	MC0AK8	SAM	09/19/14 19:58		OK
106	F3939-18	MC0AK9	SAM	09/19/14 20:02		OK
107	F3939-19	MC0AL0	SAM	09/19/14 20:06		OK
108	F3939-20	MC0AL1	SAM	09/19/14 20:10		OK
109	F3939-21	MC0AL2	SAM	09/19/14 20:15		OK
110	PB79085BL	PBS01	MB	09/19/14 20:19		OK
111	PB79085BS	LCS01	LCS	09/19/14 20:23		OK
112	F3999-01	MHVF46	SAM	09/19/14 20:27		OK
113	F3999-02	MHVF47	SAM	09/19/14 20:31		OK

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Daily Analysis Runlog For Sequence/QCBatch ID # LB72830

Review By	BIN	Review On	9/22/2014 3:25:44 PM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

114	F3999-03	MHVF48	SAM	09/19/14 20:35		OK
115	F3999-04	MHVF49	SAM	09/19/14 20:39		OK
116	F3999-05	MHVF50	SAM	09/19/14 20:43		OK
117	F3999-06	MHVF51	SAM	09/19/14 20:47		OK
118	F3999-07	MHVF51D	DUP	09/19/14 20:51		OK
119	CCV65	CCV65	CCV	09/19/14 20:55		OK
120	CCB65	CCB65	CCB	09/19/14 20:59		OK
121	F3999-08	MHVF51S	MS	09/19/14 21:03		OK
122	F3999-06L	MHVF51L	SD	09/19/14 21:07		OK
123	F3999-09	MHVF52	SAM	09/19/14 21:11		OK
124	F3999-10	MHVF53	SAM	09/19/14 21:15		OK
125	F3999-11	MHVF54	SAM	09/19/14 21:19		OK
126	F3999-12	MHVF55	SAM	09/19/14 21:23		OK
127	F3999-13	MHVF56	SAM	09/19/14 21:27		OK
128	F3999-14	MHVF57	SAM	09/19/14 21:31		OK
129	F3999-15	MHVF58	SAM	09/19/14 21:35		OK
130	F3999-16	MHVF59	SAM	09/19/14 21:39		OK
131	F3999-17	MHVF60	SAM	09/19/14 21:42		OK
132	F3999-18	MHVF61	SAM	09/19/14 21:46		OK
133	F3999-19	MHVF62	SAM	09/19/14 21:50		OK
134	F3999-20	MHVF63	SAM	09/19/14 21:54		OK
135	CCV66	CCV66	CCV	09/19/14 21:58		OK
136	CCB66	CCB66	CCB	09/19/14 22:03		OK

Prep Standard - Chemical Standard Summary

Order ID : F3941

Test : Metals CLP Full

Prepbatch ID : PB78992

Sequence ID/Qc Batch ID: LB72830

Standard ID :
MP23410,MP23642,MP23639,MP23643,MP23655,MP23656,MP23658,MP23654,MP23659,MP23660,MP23661,MP23662,MP23663,MP23664,MP23665,MP23666,MP23667,MP23668,MP23410,MP23639,MP23642,MP23643,MP23654,MP23655,MP23656,MP23658,MP23659,MP23660,MP23661,MP23662,MP23663,MP23664,MP23665,MP23666,MP23667,MP23668,

Chemical ID :
M3245,M3207,M3218,M2942,V1456,M3215,M3047,W1152,M3218,M3227,M3057,M3156,M2988,M2961,M3081,M3187,M3242,M3240,M2782,M3151,M3096,M3099,M3100,M3102,M3115,M3224,M2979,M3112,M3124,M3122,M3110,M3185,M3225,M2975,M2991,M3113,M3118,M3098,M3117,M3106,M3121,M3101,M3097,M3108,M2987,M3111,M3104,M3123,M2962,M3145,M3148,M2782,M2942,M2961,M2962,M2975,M2979,M2987,M2988,M2991,M3047,M3057,M3081,M3096,M3097,M3098,M3099,M3100,M3101,M3102,M3104,M3106,M3108,M3110,M3111,M3112,M3113,M3115,M3117,M3118,M3121,M3122,M3123,M3124,M3145,M3148,M3151,M3156,M3185,M3187,M3207,M3215,M3218,M3224,M3225,M3227,M3240,M3242,M3245,V1456,W1152,

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
169	1:1HNO3	MP23410	09/02/2014	03/02/2015	BHUPENDRA

FROM 1250.000ml of M3215 + 1250.000ml of V1456 = Final Quantity: 2500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23639	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
904	ICP AES ICSA SOLN	MP23642	09/17/2014	09/30/2014	BIN

FROM 25.000ml of M3047 + 225.000ml of MP23639 = Final Quantity: 250.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
905	ICP AES ICSAB SOLN	MP23643	09/17/2014	09/30/2014	BIN

FROM 25.000ml of M3047 + 25.000ml of M3057 + 200.000ml of MP23639 = Final Quantity: 250.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23654	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
903	ICP AES RINSE SOLN	MP23655	09/17/2014	09/30/2014	BIN

FROM 200.000ml of M3227 + 9800.000ml of W1152 = Final Quantity: 10000.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
919	ICP AES INTERNAL STD	MP23656	09/17/2014	09/30/2014	BIN

FROM 1.000ml of M2988 + 10.000ml of M3156 + 1969.000ml of W1152 + 20.000ml of M3227 = Final Quantity: 2000.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
2054	ICV-ICPAES	MP23658	09/17/2014	09/30/2014	BIN

FROM 0.500ml of M2961 + 0.500ml of M3187 + 10.000ml of M3081 + 89.000ml of MP23654 = Final Quantity: 100.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
921	ICPAES SPIKE SOL#6	MP23659	09/17/2014	09/30/2014	BIN

FROM 10.000ml of M3240 + 10.000ml of M3242 + 80.000ml of MP23654 = Final Quantity: 100.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
994	ICPAES ISM01.2 S1 (CONC.)	MP23660	09/17/2014	09/30/2014	BIN

FROM 0.100ml of M3100 + 0.100ml of M3112 + 0.100ml of M3115 + 0.140ml of M2987 + 0.200ml of M2979 + 0.200ml of M2991 + 0.200ml of M3096 + 0.200ml of M3102 + 0.200ml of M3106 + 0.200ml of M3110 + 0.200ml of M3122 + 0.300ml of M2975 + 0.300ml of M3187 + 0.400ml of M2782 + 0.500ml of M3108 + 0.500ml of M3124 + 0.700ml of M3098 + 0.800ml of M3113 + 1.000ml of M3104 + 1.000ml of M3185 + 1.200ml of M3123 + 1.200ml of M3151 + 10.000ml of M3118 + 10.000ml of M3121 + 10.000ml of M3224 + 10.000ml of M3225 + 2.000ml of M3097 + 2.000ml of M3101 + 2.000ml of M3111 + 2.000ml of M3117 + 4.000ml of M3099 + 37.360ml of MP23654 = Final Quantity: 100.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1003	ICPAES ISM01.2 S1	MP23661	09/17/2014	09/18/2014	BIN

FROM 1.000ml of MP23660 + 199.000ml of MP23654 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1004	ICPAES ISM01.2 (S5)	MP23662	09/17/2014	09/30/2014	BIN

FROM 0.375ml of M3100 + 18.750ml of M2975 + 18.750ml of M3118 + 18.750ml of M3121 + 18.750ml of M3123 + 20.625ml of M3124 + 21.750ml of M2782 + 21.750ml of M2979 + 21.750ml of M3122 + 30.000ml of M3110 + 33.750ml of M3224 + 33.750ml of M3225 + 7.500ml of M2962 + 7.500ml of M3097 + 7.500ml of M3101 + 7.500ml of M3145 + 7.500ml of M3148 + 7.500ml of M3151 + 7.500ml of M3185 + 7.500ml of M3187 + 431.250ml of MP23654 = Final Quantity: 750.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1119	ICPAES ISM01.2(CCV)	MP23663	09/17/2014	09/30/2014	BIN

FROM 12.250ml of M2782 + 12.500ml of M3121 + 12.500ml of M3122 + 7.500ml of M3224 + 7.500ml of M3225 + 197.750ml of MP23654 + 250.000ml of MP23662 = Final Quantity: 500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1005	ICPAES ISM01.2(S4)	MP23664	09/17/2014	09/30/2014	BIN

FROM 100.000ml of MP23654 + 100.000ml of MP23662 = Final Quantity: 200.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1007	ICPAES ISM01.2(S3)	MP23665	09/17/2014	09/30/2014	BIN

FROM 150.000ml of MP23654 + 50.000ml of MP23662 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1008	ICPAES ISM01.2(S2)	MP23666	09/17/2014	09/30/2014	BIN

FROM 175.000ml of MP23654 + 25.000ml of MP23662 = Final Quantity: 200.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
2480	ICP AES STD 6 ISM01.3	MP23667	09/17/2014	09/30/2014	BIN

FROM 16.000ml of M2782 + 16.000ml of M3121 + 16.000ml of M3122 + 16.000ml of M3224 + 16.000ml of M3225 + 120.000ml of MP23654 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23668	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Aluminum (Al) 10,000PPM	082812	08/28/2015	12/28/2012 / Janet	12/28/2012 / Janet	M2782

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Labpure	0919120 / Boiling Stones	4368-7F031	08/22/2018	08/22/2013 / bhupendra	08/22/2013 / bhupendra	M2942

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CHEM-QC-4 / CHEM-QC-4, Second Source, 1000 ug/ml, B, Mo, Si, Sn, Ti	F2-MEB452072	10/01/2014	09/03/2013 / aesha	08/26/2013 / aesha	M2961

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	G2-MEB491013	10/01/2014	09/03/2013 / aesha	08/26/2013 / aesha	M2962

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58025 / Manganese, Mn, 500 ml, 1000 PPM	070313	07/03/2016	09/25/2013 / jaswal	09/25/2013 / jaswal	M2975

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58024 / Chromium, Cr, 500 ml, 1000 PPM	072913	07/29/2016	09/25/2013 / jaswal	09/25/2013 / jaswal	M2979

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSNCL1-1 / TIN/HCL 125mL 1000ug/mL	G2-SN02062	11/01/2014	10/21/2013 / BIN	10/18/2013 / BIN	M2987

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	F2-Y02004	11/01/2014	10/21/2013 / BIN	10/18/2013 / BIN	M2988

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57042 / Molybdeum, Mo, 100 ml, 1000 PPM	080913	08/09/2016	10/30/2013 / BIN	09/25/2013 / BIN	M2991

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3047

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3057

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV1-0307	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3081

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGAS1-1 / ARSENIC 125mL 1000ug/mL	G2-AS02102	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3096

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGS1-1 / SULFUR 125mL 1000ug/mL	G2-S02007	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3097

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSE(4)1-1 / SELENIUM 125mL 1000ug/mL	E2-SE02033	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3098

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGBA1-1 / BARIUM 125mL 1000ug/mL	F2-BA02076	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3099

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGBE1-1 / BERYLLIUM 125mL 1000ug/mL	F2-BE02021	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3100

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSR1-1 / Strontium, 125 ml, 1000 PPM	F2-SR02036	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3101

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGB1-1 / BORON 125mL 1000ug/mL	F2-B02109	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3102

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGV1-1 / VANADIUM 125mL 1000ug/mL	G2-V02081	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3104

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGAG1-1 / SILVER 125mL 1000ug/mL	G2-AG03035	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3106

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTL1-1 / THALLIUM 125mL 1000ug/mL	F2-TL02003	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3108

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGPB1-1 / LEAD 125mL 1000ug/mL	G2-PB03044	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3110

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	F2-TI02094	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3111

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCO1-1 / COBALT 125mL 1000ug/mL	F2-CO02052	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3112

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGNI1-1 / NICKEL 125mL 1000ug/mL	G2-NI02086	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3113

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCD1-1 / CADMIUM, 125mL 1000ug/mL	G2-CD02043	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3115

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSI1-1 / SILICON 125mL 1000ug/mL	G2-SI03023	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3117

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGK10-5 / Potassium, 500 ml, 10000 PPM	F2-K03033	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3118

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGNA10-5 / Sodium, 500 ml, 10000 PPM	G2-NA03110	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3121

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGFE10-5 / Iron, 500 ml, 10000 PPM	G2-FE04029	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3122

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGZN1-5 / Zinc, 500 ml, 1000 PPM	F2-ZN02088	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3123

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCU1-5 / Copper, 500 ml, 1000 PPM	F2-CU02147	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3124

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	G2-MEB479124	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3145

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	G2-MEB467069	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3148

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSBF1-1 / Antimony, Sb, 125 ml	G2-SB03021	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3151

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGIN10-1 / INDIUM 125mL 10,000ug/mL	F2-IN01095	04/01/2015	03/07/2014 / jaswal	03/07/2014 / jaswal	M3156

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57003 / Lithium, Li, 100 ml, 1000 PPM	122713	12/27/2016	05/19/2014 / BIN	05/09/2014 / jaswal	M3185

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGP1-1 / Phosphorus, 125 ml	G2-P02048	06/01/2015	09/02/2014 / BIN	05/09/2014 / jaswal	M3187

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-2186-03 / Hydrogen Peroxide (cs/4x4L)	0000064775	05/27/2015	07/15/2014 / bhupendra	07/03/2014 / bhupendra	M3207

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000077192	04/15/2019	08/22/2014 / bhupendra	08/12/2014 / bhupendra	M3215

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	0000075649	03/25/2019	09/02/2014 / BHUPENDRA	08/20/2014 / bhupendra	M3218

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCA10-5 / Calcium, 500 ml, 10000 PPM	G2-CA04095	09/01/2015	09/02/2014 / BIN	08/12/2014 / jaswal	M3224

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGMG10-5 / Magnesium, 500 ml, 10000 PPM	G2-MG03120	09/01/2015	09/02/2014 / BIN	08/12/2014 / jaswal	M3225

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000077192	04/15/2019	09/05/2014 / bhupendra	09/03/2014 / bhupendra	M3227

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-1 / SOIL/WATER SPIKE SOLN 1, 125mL	F2-MEB427123	10/01/2015	09/05/2014 / BIN	09/05/2014 / BIN	M3240

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-5 / CLP Spike Standard 5	G2-MEB474100	10/01/2015	09/05/2014 / BIN	09/05/2014 / BIN	M3242

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000084115	07/01/2019	09/23/2014 / bhupendra	09/12/2014 / BHUPENDRA	M3245

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Res-Kem General water	DIW / DI Water	DAILY	12/31/2019	03/01/2010 / apatel	03/02/2010 / apatel	V1456

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Res-Kem General water	DIW / DI Water	Lab certified	02/23/2015	02/23/2010 /	02/23/2010 / divya	W1152

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Certified Reference Material CRM

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Scopes: http://Absolute[illegible]andards.com

Standard ID : M2782

CERTIFIED WEIGHT REPORT:

D: 12/28/12
R: 12/28/12

Part Number:	**58113**	**Solvent:**	**Lot #** C142199	Nitric Acid
Lot Number:	**082812**			
Description:	**Aluminum (Al)**	2%	40.0 (mL)	Nitric Acid
Expiration Date:	082815			

Storage: 20 °C

Nominal Concentration (µg/mL): **10000**

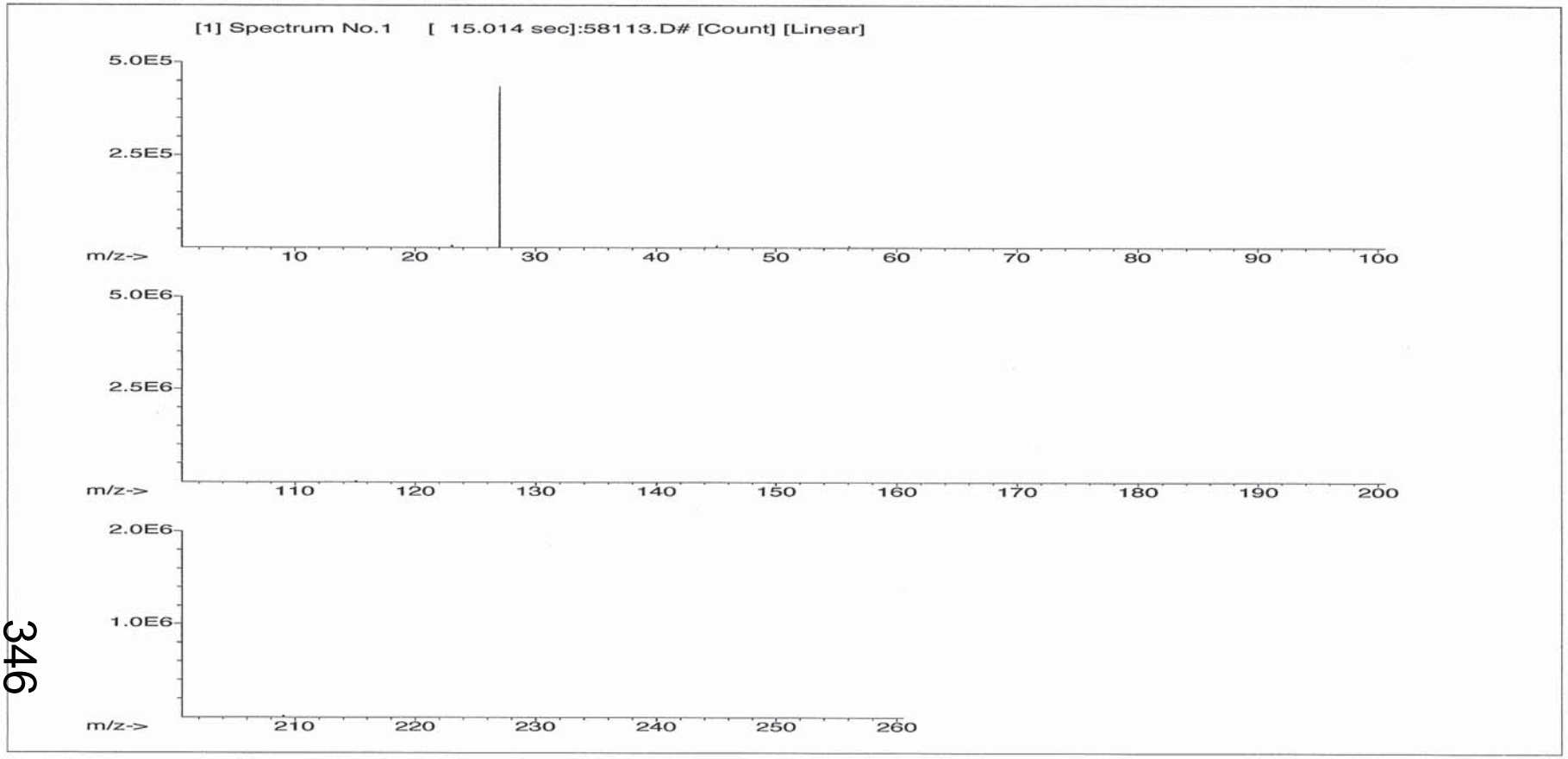
5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): 1999.68 0.100 Flask Uncertainty

M2782

Formulated By:	Lawrence Barry	082812
Reviewed By:	Pedro L. Rentas	082812

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity	Uncertainty Purity	Assay (%)	Target Weight (g)	Actual Weight (g)	**Actual Conc. (µg/mL)**	Expanded Uncertainty (+/-)	CAS#	MSDS Information (Solvent Safety Info. On Attached pg.) OSHA PEL (TWA)	LD50	NIST SRM
1. Aluminum Nitrate Nonahydrate (Al)	IN022	D312ALA1	10000.0	99.999	0.10	7.10	281.6484	281.6803	**10001.1**	0.00200	07784-27-2	5 mg/m3	orl-rat 264 mg/kg	3101a



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INORGANIC VENTURES™
Standard ID : M2961
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CERTIFICATE OF ANALYSIS

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M2961

R: 08/26/13

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Custom Second Source Solution**

Catalog No.: CHEM-QC-4

Lot Number: **F2-MEB452072**

Matrix: 3% HNO3(v/v), 2.7% HF(v/v)

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

1,000 µg/mL ea:
B, Mo, Si, Sn, Ti

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Boron, B	1,000 ± 7 µg/mL	Molybdenum, Mo	1,000 ± 6 µg/mL	Silicon, Si	1,000 ± 5 µg/mL
Tin, Sn	1,000 ± 5 µg/mL	Titanium, Ti	1,000 ± 7 µg/mL		

Certified Density: 1.033 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2\ [\ \Sigma(s_i)^2\ ]^{½}$ 2 = the coverage factor.

$[\ \Sigma(s_i)^2\ ]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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Standard ID : M2962

CERTIFICATE OF ANALYSIS

M2962

R: 08/26/13

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Custom Solution**

Catalog No.: CHEM-CLP-4

Lot Number: **G2-MEB491013**

Matrix: 3% HNO3(v/v), 2.7% HF(v/v)

1,000 µg/mL ea:
B, Mo, Si, Sn, Ti

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Boron, B	1,000 ± 7 µg/mL	Molybdenum, Mo	1,000 ± 5 µg/mL	Silicon, Si	1,000 ± 7 µg/mL
Tin, Sn	1,001 ± 7 µg/mL	Titanium, Ti	1,000 ± 7 µg/mL		

Certified Density: 1.035 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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Certified Reference Material CRM

RD: 09/25/13
M2975

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Scopes: http://Absolute ndards.com

Standard ID : M2975

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58025**	C257285	Nitric Acid	
Lot Number:	**070313**			
Description:	**Manganese (Mn)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	070316			
	Storage: 20 °C			
Nominal Concentration (µg/mL):	**1000**			
		5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty	

Gabriel Helland

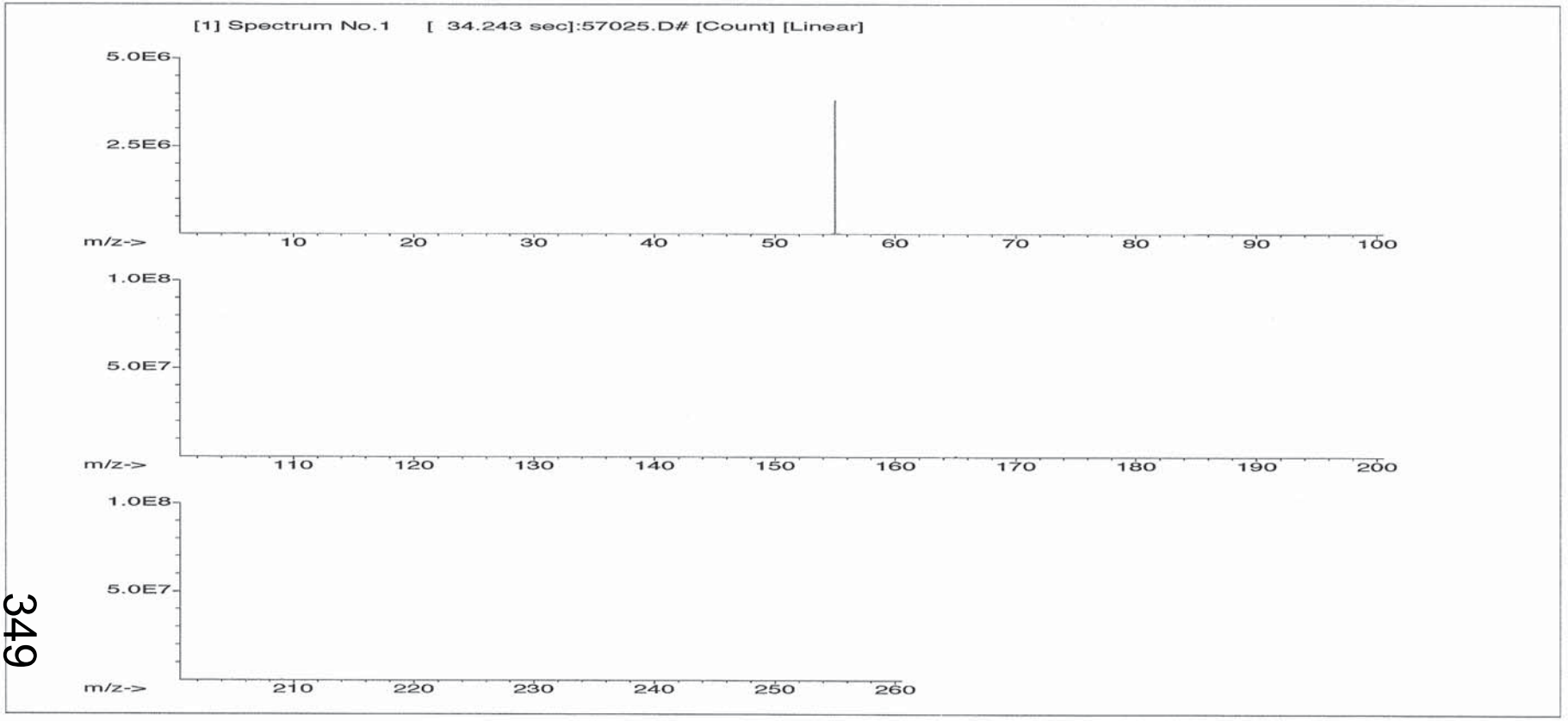
Formulated By:	Gabriel Helland	070313

Pedro Rentas

Reviewed By:	Pedro L. Rentas	070313

MSDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	ty Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Manganese (II) nitrate Hydrate (Mn)	58125	122712	0.1000	200.0	0.013	10000.9	**1000.2**	0.00201	15710-66-4	5 mg/m3	N/A	3132



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Certified Reference Material CRM

RD: 09/25/13
M2979

ISO 9001 QS Registered
ISO 17025-34-35[illegible] Accredited
Scopes: http://Absolute[illegible]andards.com

Standard ID : M2979

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**58024**		C257285	Nitric Acid	
Lot Number:	**072913**				
Description:	**Chromium (Cr)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	072916				
	Storage:	20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty		

Gabriel Helland

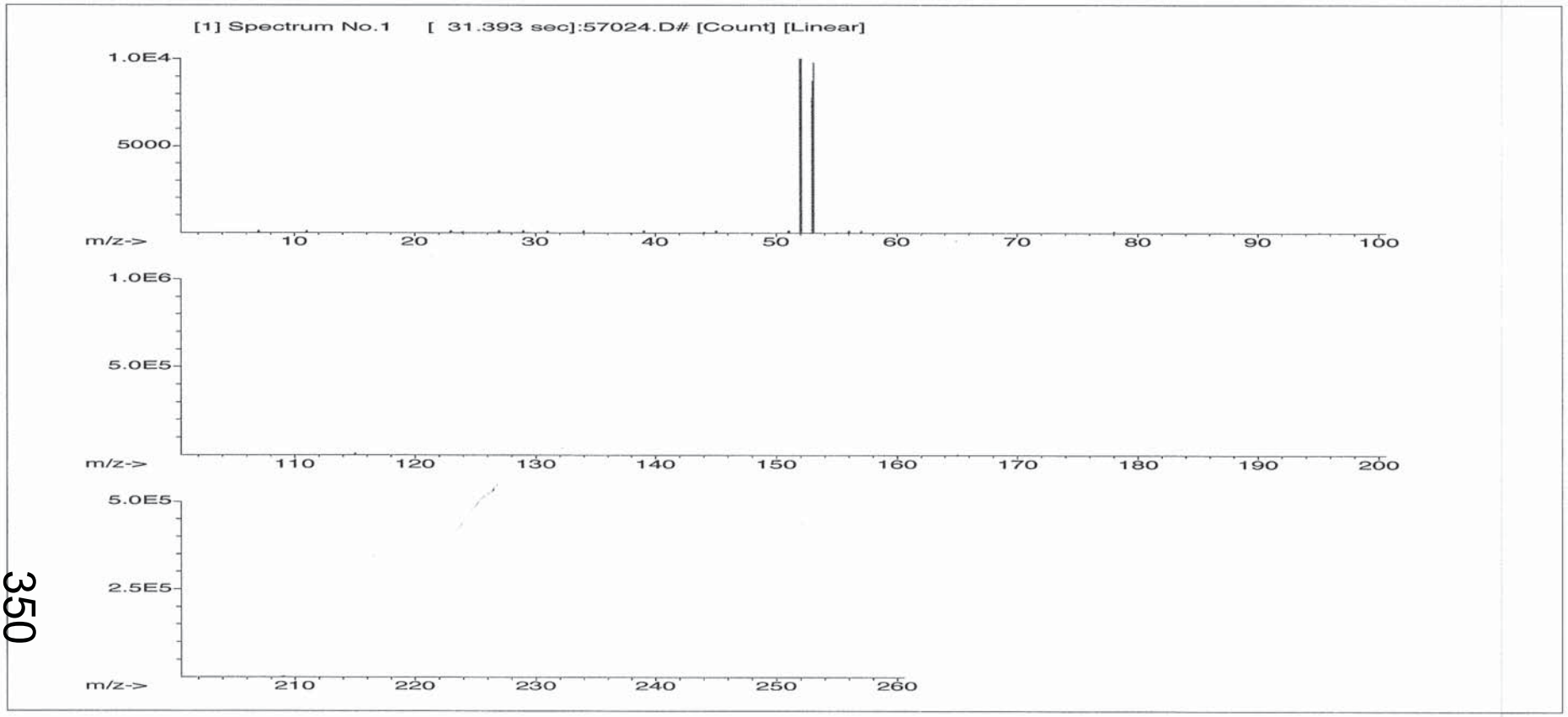
Formulated By:	Gabriel Helland	072913

Pedro Rentas

Reviewed By:	Pedro L. Rentas	072913

MSDS Information
(Solvent Safety Info. On Attached pg.)

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	**Final Conc. (µg/mL)**	Expanded Uncertainty (+/-)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Chromium (III) nitrate nonahydrate (Cr)	58124	022213	0.100	200.0	0.013	10000.9	**1000.2**	0.00201	07789-02-8	0.5 mg(Cr)/m3	orl-rat 3250 mg/kg	3112a



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M2987

Standard ID : M2987

RV: 10/18/2013

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CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Tin HCl in 20% (v/v) HCl**

Catalog Number:	CGSNCL1-1, CGSNCL1-2, and CGSNCL1-5
Lot Number:	**G2-SN02062**
Starting Material:	Sn shot
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1744
Matrix:	20% (v/v) HCl

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration:	999 ± 3 µg/mL -weighted mean-
Certified Density:	1.042 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

RD : 10/18/2013

Standard ID : M2988

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1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Yttrium in 2% (v/v) HNO3**

Catalog Number:	CGY10-1, CGY10-2, and CGY10-5
Lot Number:	**F2-Y02004**
Starting Material:	Y2O3
Starting Material Purity (%):	99.9999
Starting Material Lot No:	0623052
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,006 ± 53 µg/mL - weighted mean
Certified Density:	1.034 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M2991

RD : 09/25/13

Certified Reference Material CRM

ISO 9001 QS R
ISO 17025 24-35-43 A
Scopes: http:/ soluteStan

Standard ID : M2991

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:
Part Number:	**57042**	Y47057	Ammonium hydroxide
Lot Number:	**080913**		
Description:	**Molybdenum (Mo)**		
		0.5%	10.0 (mL) Ammonium hydroxide
Expiration Date:	080916		
	Storage: 20 °C		
Nominal Concentration (µg/mL):	**1000**		
		5E-05	Balance Uncertainty
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty

Gabriel Helland

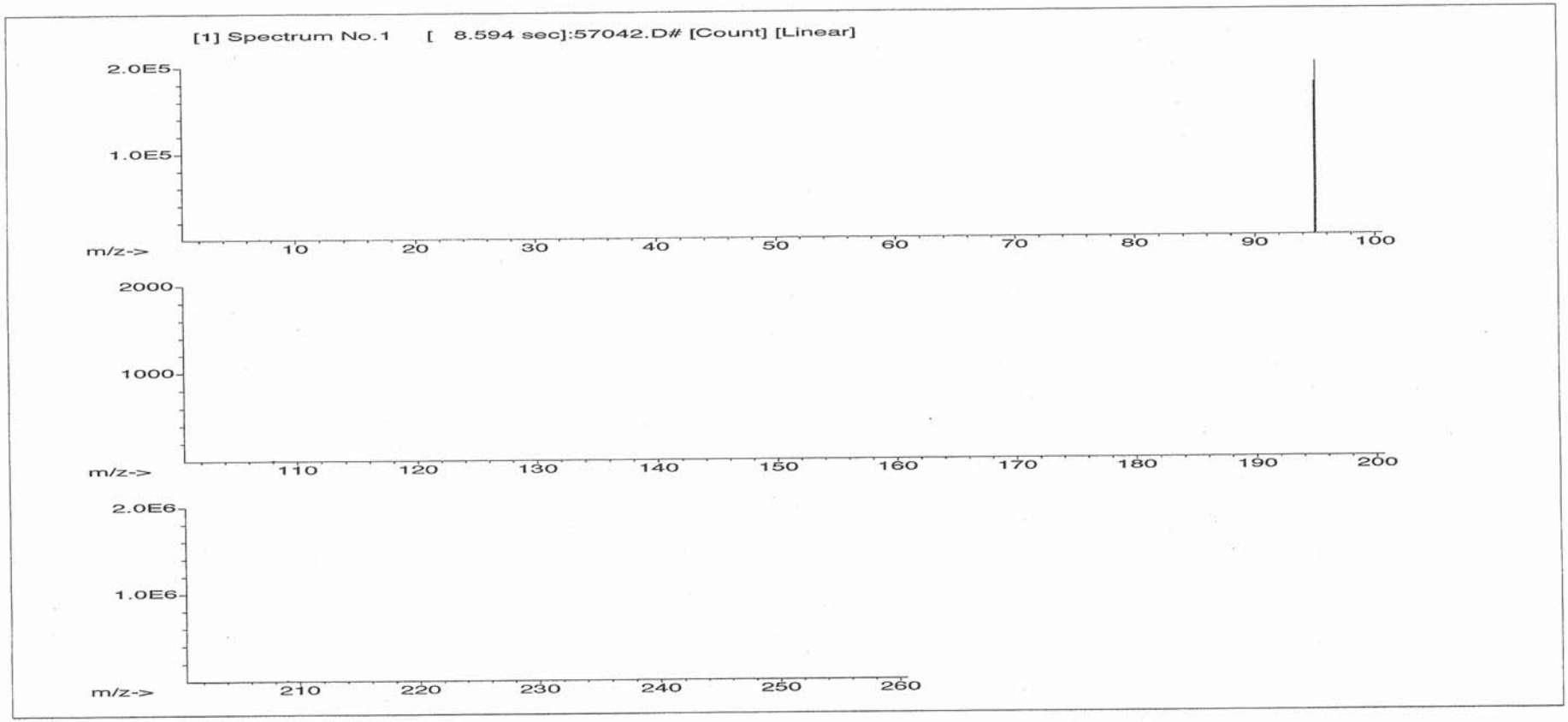
Formulated By:	Gabriel Helland	080913

Pedro Rentas

Reviewed By:	Pedro L. Rentas	080913

MSDS Information
(Solvent Safety Info. On Attached pg.)

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium molybdate (Mo)	58142	072613	0.1000	200.0	0.013	10001.3	**1000.3**	0.00201	12054-85-2	5 mg(Mo)/m3	orl-rat 333 mg/kg	3134



interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:
ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSA solution by ICP-AES.
ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSAB solution by ICP-AES.

(D) *"CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)*

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB) events, CLP pre-award events, and external referee laboratories.

ICSA M3046 ↓ to M3055

ICSB M3056 ↓ to M3065

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	254900	203920	305880	246800	197440	296160
Sb	60	(0)*	-60	60	618	494	742
As	10	(0)	-10	10	104	83	125
Ba	200	(6)	-194	206	(537)	337	737
Be	5	(0)	-5	5	495	396	594
Cd	5	(1)	-4	6	972	778	1166
Ca	5000	244500	195600	293400	234900	187920	281880
Cr	10	52	42	62	542	434	650
Co	50	(0)	-50	50	476	381	571
Cu	25	(2)	-23	27	511	409	613
Fe	100	100700	80560	120840	99320	79456	119184
Pb	10	(0)	-10	10	(49)	39	59
Mg	5000	255400	204320	306480	248000	198400	297600
Mn	15	(7)	-8	22	507	406	608
Ni	40	(2)	-38	42	954	763	1145
Se	35	(0)	-35	35	(46)	11	81
Ag	10	(0)	-10	10	201	161	241
Tl	25	(0)	-25	25	(108)	83	133
V	50	(0)	-50	50	491	393	589
Zn	60	(0)	-60	60	952	762	1142

* The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 20 percent of the listed certified value.

R: 10/09/13

Standard ID : M3081

(D) *CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS*

M3081 To M3090

ICV1-0307		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2521	504
Sb	994	199
As	999	200
Ba	497	99
Be	495	99
Cd	496	99
Ca	10026	2005
Cr	490	98
Co	499	100
Cu	492	98
Fe	5082	1016
Pb	1002	200
Mg	6074	1215
Mn	499	100
Ni	503	101
K	10021	2004
Se	1029	206
Ag	501	100
Na	10097	2019
Tl	1028	206
V	501	100
Zn	1025	205

ICV5-0508		ICV6-0400	
Element	Concentration (µg/L) (after 100-fold dilution)	Analyte	Concentration (µg/L) (after 100-fold dilution)
Hg	4.0	CN^-	99

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M3096-

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Arsenic in 2% (v/v) HNO3**

Catalog Number:	CGAS1-1, CGAS1-2, and CGAS1-5
Lot Number:	**G2-AS02102**
Starting Material:	As Lump
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1814
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 5 µg/mL -weighted mean-

Certified Density: 1.012 (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2);$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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R1. 01/17/14

M3097

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Sulfur in H2O**

Catalog Number:	CGS1-1, CGS1-2, and CGS1-5
Lot Number:	**G2-S02007**
Starting Material:	H2SO4
Starting Material Purity (%):	100.0000
Starting Material Lot No:	H44F03
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,005 ± 5 µg/mL -weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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M3098

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Selenium(+4) in 2% (v/v) HNO3**

Catalog Number:	CGSE(4)1-1, CGSE(4)1-2, and CGSE(4)1-5
Lot Number:	**E2-SE02033**
Starting Material:	Se shot
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1616
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 6 µg/mL - weighted mean

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1	**Assay Method #1**	**1,002 ± 4 µg/mL** ICP Assay NIST SRM 3149 Lot Number: 100901
	Assay Method #2	**1,000 ± 3 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

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M3099-

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

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2.0 DESCRIPTION OF CRM **1000 µg/mL Barium in 0.1%(v/v) HNO3**

Catalog Number:	CGBA1-1, CGBA1-2, and CGBA1-5
Lot Number:	**F2-BA02076**
Starting Material:	Ba(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	BAE42012A1
Matrix:	0.1%(v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	996 ± 5 µg/mL -No weighted mean-
Certified Density:	1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements

Uncertainty (±) = $2\ [\ \Sigma(s_i)^2\ ]^{½}$

2 = the coverage factor.
$[\ \Sigma(s_i)^2\ ]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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R : 01/17/14

CERTIFICATE OF ANALYSIS

M3100

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Beryllium in 3% (v/v) HNO3**

Catalog Number:	CGBE1-1, CGBE1-2, and CGBE1-5
Lot Number:	**F2-BE02021**
Starting Material:	Be4O(OOCCH3)6
Starting Material Purity (%):	99.9999
Starting Material Lot No:	1772
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,003 ± 4 µg/mL - weighted mean

Certified Density: 1.022 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M3101

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Strontium in 0.1% (v/v) HNO3**

Catalog Number:	CGSR1-1, CGSR1-2, and CGSR1-5
Lot Number:	**F2-SR02036**
Starting Material:	SrCO3
Starting Material Purity (%):	99.9988
Starting Material Lot No:	1610
Matrix:	0.1% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,000 ± 5 µg/mL - weighted mean

Certified Density: 1.001 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Boron in H2O**

Catalog Number:	CGB1-1, CGB1-2, and CGB1-5
Lot Number:	**F2-B02109**
Starting Material:	H3BO3
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1631
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 999 ± 5 µg/mL -weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M3104

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ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Vanadium in 2% (v/v) HNO3**

Catalog Number:	CGV1-1, CGV1-2, and CGV1-5
Lot Number:	**G2-V02081**
Starting Material:	V2O5
Starting Material Purity (%):	99.9991
Starting Material Lot No:	1782
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2);$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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M3106

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Silver in 5% (v/v) HNO3**

Catalog Number:	CGAG1-1, CGAG1-2, and CGAG1-5
Lot Number:	**G2-AG03035**
Starting Material:	Ag shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1641
Matrix:	5% (v/v) HNO3

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration:	1,002 ± 6 µg/mL -weighted mean-
Certified Density:	1.026 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

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Standard ID : M3108

R : 01)17)14

M3108

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Thallium in 0.7% (v/v) HNO3**

Catalog Number:	CGTL1-1, CGTL1-2, and CGTL1-5
Lot Number:	**F2-TL02003**
Starting Material:	TlNO3
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1576
Matrix:	0.7% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 5 µg/mL - weighted mean

Certified Density: 1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **1000 µg/mL Lead in 0.5%(v/v) HNO3**

Catalog Number:	CGPB1-1, CGPB1-2, and CGPB1-5
Lot Number:	**G2-PB03044**
Starting Material:	Pb(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1717
Matrix:	0.5%(v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 3 µg/mL -weighted mean-
Certified Density:	1.002 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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2.0 DESCRIPTION OF CRM **1000 µg/mL Titanium in 2% (v/v) HNO3 / tr. HF**

Catalog Number:	CGTI1-1, CGTI1-2, and CGTI1-5
Lot Number:	**F2-TI02094**
Starting Material:	Ti powder
Starting Material Purity (%):	99.9948
Starting Material Lot No:	1769
Matrix:	2% (v/v) HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 6 µg/mL - weighted mean
Certified Density:	1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M3112

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2.0 DESCRIPTION OF CRM **1000 µg/mL Cobalt in 3% (v/v) HNO3**

Catalog Number:	CGCO1-1, CGCO1-2, and CGCO1-5
Lot Number:	**F2-CO02052**
Starting Material:	Co powder
Starting Material Purity (%):	99.9982
Starting Material Lot No:	1749
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,003 ± 5 µg/mL - weighted mean
Certified Density:	1.018 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M3113

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2.0 DESCRIPTION OF CRM **1000 µg/mL Nickel in 2% (v/v) HNO3**

Catalog Number:	CGNI1-1, CGNI1-2, and CGNI1-5
Lot Number:	**G2-NI02086**
Starting Material:	Ni pieces
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1559
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,002 ± 4 µg/mL -weighted mean-

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2 [\Sigma(s_i)^2]^{½}$ 2 = the coverage factor.

$[\Sigma(s_i)^2]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **1,001 ± 3 µg/mL**
ICP Assay NIST SRM 3136 Lot Number: 000612

Assay Method #2 **1,002 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

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1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Cadmium in 3% (v/v) HNO3**

Catalog Number:	CGCD1-1, CGCD1-2, and CGCD1-5
Lot Number:	**G2-CD02043**
Starting Material:	Cd shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1714
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,004 ± 5 µg/mL -weighted mean-

Certified Density: 1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements

Uncertainty (±) = $2\ [\ \Sigma(s_i)^2\ ]^{½}$

2 = the coverage factor.
$[\ \Sigma(s_i)^2\ ]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Standard ID : M3117

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M3117

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Silicon in tr. HNO3 / tr. HF**

Catalog Number:	CGSI1-1, CGSI1-2, and CGSI1-5
Lot Number:	**G2-SI03023**
Starting Material:	SiO2
Starting Material Purity (%):	99.9993
Starting Material Lot No:	1551
Matrix:	tr. HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 5 µg/mL -weighted mean-
Certified Density:	1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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M3118

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2.0 DESCRIPTION OF CRM **10000 µg/mL Potassium in 2% (v/v) HNO3**

Catalog Number:	CGK10-1, CGK10-2, and CGK10-5
Lot Number:	**F2-K03033**
Starting Material:	KNO3
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1727
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 10,022 ± 60 µg/mL - weighted mean

Certified Density: 1.025 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **10000 µg/mL Sodium in 2% (v/v) HNO3**

Catalog Number:	CGNA10-1, CGNA10-2, and CGNA10-5
Lot Number:	**G2-NA03110**
Starting Material:	Na2CO3
Starting Material Purity (%):	99.9992
Starting Material Lot No:	1628
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,008 ± 17 µg/mL -weighted mean-
Certified Density:	1.033 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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CERTIFICATE OF ANALYSIS

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M3122

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM — 10000 µg/mL Iron in 5 % (v/v) HNO3

Catalog Number:	CGFE10-1, CGFE10-2, and CGFE10-5
Lot Number:	**G2-FE04029**
Starting Material:	Fe pieces
Starting Material Purity (%):	99.9977
Starting Material Lot No:	1762
Matrix:	5 % (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 9,977 ± 24 µg/mL -weighted mean-

Certified Density: 1.035 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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M3123

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Zinc in 2% (v/v) HNO3**

Catalog Number:	CGZN1-1, CGZN1-2, and CGZN1-5
Lot Number:	**F2-ZN02088**
Starting Material:	Zn shot
Starting Material Purity (%):	99.9999
Starting Material Lot No:	1689
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	998 ± 5 µg/mL -weighted mean-
Certified Density:	1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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M3124

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Copper in 3% (v/v) HNO3**

Catalog Number:	CGCU1-1, CGCU1-2, and CGCU1-5
Lot Number:	**F2-CU02147**
Starting Material:	Cu shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1718
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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Standard ID : M3145

CERTIFICATE OF ANALYSIS

M3145 TO M3147

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Stock Solution**

Catalog No.: CLPP-CAL-1

Lot Number: **G2-MEB479124**

Matrix: 5% HNO3(v/v)

5,000 µg/mL ea:
Ca, K, Mg, Na,

2,000 µg/mL ea:
Al, Ba,

1,000 µg/mL ea:
Fe,

500 µg/mL ea:
Co, Mn, Ni, V, Zn,

250 µg/mL ea:
Ag, Cu,

200 µg/mL ea:
Cr3,

50 µg/mL ea:
Be

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	2,002 ± 13 µg/mL	Barium, Ba	2,002 ± 13 µg/mL	Beryllium, Be	50.03 ± 0.28 µg/mL
Calcium, Ca	5,004 ± 35 µg/mL	Chromium+3, Cr3	200.2 ± 1.3 µg/mL	Cobalt, Co	500.5 ± 3.3 µg/mL
Copper, Cu	250.2 ± 1.6 µg/mL	Iron, Fe	1,001 ± 6 µg/mL	Magnesium, Mg	5,004 ± 33 µg/mL
Manganese, Mn	500.4 ± 3.2 µg/mL	Nickel, Ni	500.5 ± 3.3 µg/mL	Potassium, K	5,004 ± 22 µg/mL
Silver, Ag	250.2 ± 1.6 µg/mL	Sodium, Na	5,004 ± 33 µg/mL	Vanadium, V	500.4 ± 3.4 µg/mL
Zinc, Zn	500.4 ± 3.3 µg/mL				

Certified Density: 1.117 g/mL (measured at 20 ± 1° C)

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CERTIFICATE OF ANALYSIS

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1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM

	Stock Solution
Catalog No.:	CLPP-CAL-3
Lot Number:	**G2-MEB467069**
Matrix:	7% HNO3(v/v)

1,000 µg/mL ea:
As, Pb, Se, Tl,

500 µg/mL ea:
Cd

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Arsenic, As	1,000 ± 7 µg/mL	Cadmium, Cd	500.0 ± 3.2 µg/mL	Lead, Pb	1,000 ± 7 µg/mL
Selenium, Se	1,000 ± 7 µg/mL	Thallium, Tl	1,000 ± 7 µg/mL		

Certified Density: 1.043 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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CERTIFICATE OF ANALYSIS

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M3151

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Antimony in HF in 2% (v/v) HNO3 / tr. HF**

Catalog Number:	CGSBF1-1, CGSBF1-2, and CGSBF1-5
Lot Number:	**G2-SB03021**
Starting Material:	Sb shot
Starting Material Purity (%):	99.9997
Starting Material Lot No:	1647
Matrix:	2% (v/v) HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,006 ± 5 µg/mL -No weighted mean-
Certified Density:	1.010 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. **w_a and w_b** = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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Standard ID : M3156

R : 03/07/14

CERTIFICATE OF ANALYSIS

M3156 TO M3160

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1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Indium in 5% (v/v) HNO3**

Catalog Number:	CGIN10-1, CGIN10-2, and CGIN10-5
Lot Number:	**F2-IN01095**
Starting Material:	In shot
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1775, 1777
Matrix:	5% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,050 ± 51 µg/mL -weighted mean-
Certified Density:	1.033 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M3185

R : 05/08/14

ISO 9001 QS Registered
ISO 17025-34-35-43 Accredited
Scopes: http://AbsoluteStandards.com

381

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**57003**		C363101	Nitric Acid	
Lot Number:	**122713**				
Description:	**Lithium (Li)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	122716				
		Storage: 20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05 Balance Uncertainty			
Volume shown below was diluted to (mL):	1999.98	0.090 Flask Uncertainty			

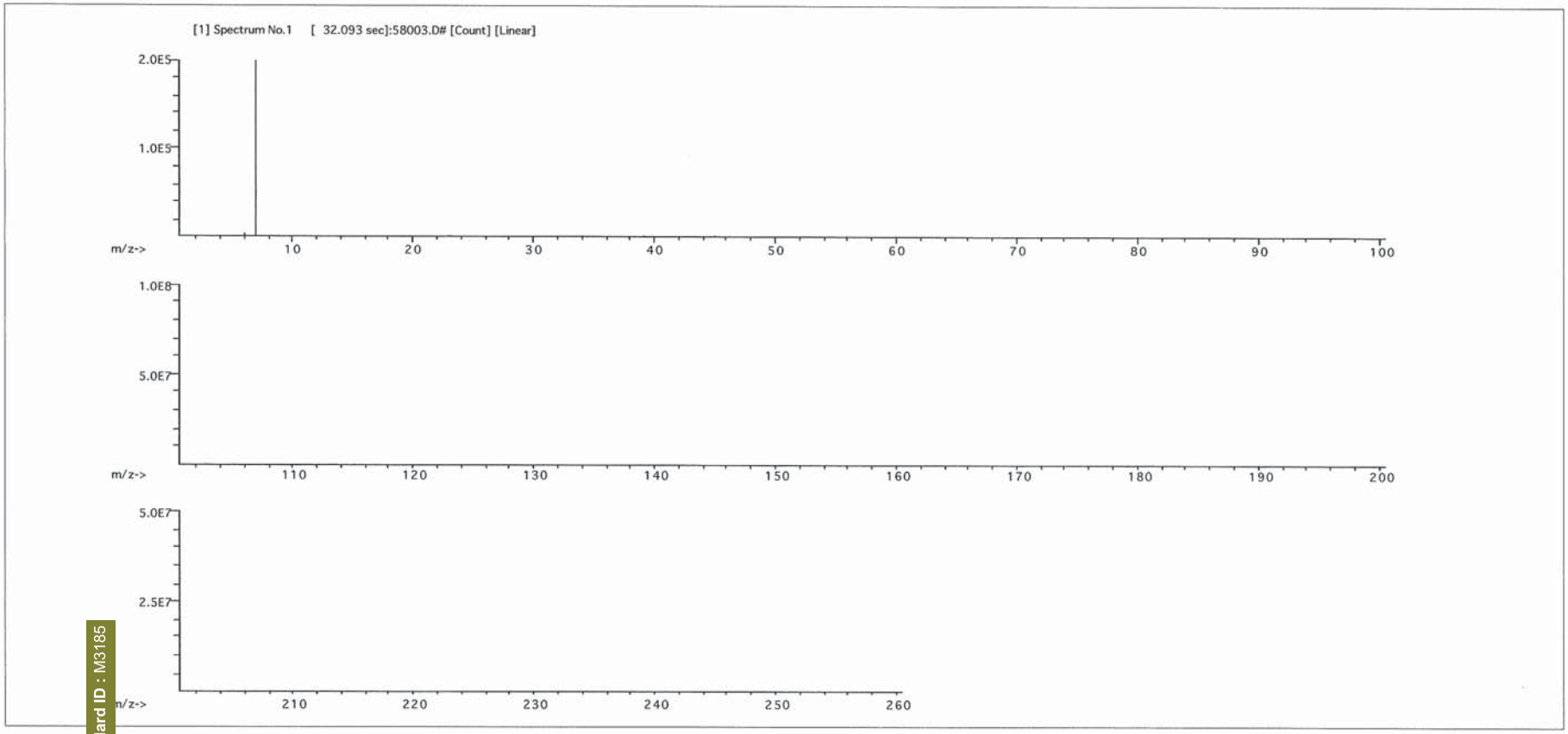
Gabriel Helland

Formulated By: Gabriel Helland 122713

Pedro Rentas

Reviewed By: Pedro L. Rentas 122713

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	**Final Conc. (µg/mL)**	Expanded Uncertainty (+/-)	MSDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lithium nitrate (Li)	58103	111412	0.1000	200.0	0.013	10001.5	**1000.2**	0.00201	07790-69-4	5 mg/m3	N/A	N/A



Standard ID : M3185

INORGANIC VENTURES™

Standard ID : M3187

R: 05/09/19

CERTIFICATE OF ANALYSIS

M3187

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Phosphorus in H2O**

Catalog Number:	CGP1-1, CGP1-2, and CGP1-5
Lot Number:	**G2-P02048**
Starting Material:	H3PO4
Starting Material Purity (%):	99.9997
Starting Material Lot No:	1704
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,001 ± 4 µg/mL -weighted mean-
Certified Density:	1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	**Characterization of CRM by one method**
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$ CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$ $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results: X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$ $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

Standard ID : M3207

Hydrogen Peroxide, 30%
BAKER ANALYZED® A.C.S. Reagent
(Stabilized)

M3207.
Received Date 7/3/14
Exp. Date 5/27/15 7/3/14.

Material No.: 2186-03
Batch No.: 0000064775
Manufactured Date: 2013/11/26
Expiration Date: 2015/05/27

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay (H_2O_2)	30.0 - 32.0 %	31.7
Color (APHA)	<= 10	5
Residue after Evaporation	<= 0.0020 %	0.0002
Titrable Acid (meq/g)	<= 0.0006	< 0.0001
Chloride (Cl)	<= 3 ppm	< 1
Nitrate (NO_3)	<= 2 ppm	< 2
Phosphate (PO_4)	<= 2 ppm	< 1
ACS - Sulfate (SO_4)	<= 5 ppm	< 3
Ammonium (NH_4)	<= 5 ppm	< 3
Trace Impurities - Copper (Cu)	<= 50.0 ppb	< 1.0
Trace Impurities - Iron (Fe)	<= 100.0 ppb	4.1
Heavy Metals (as Pb)	<= 1000 ppb	< 250
Trace Impurities - Lead (Pb)	<= 100.0 ppb	< 10.0
Trace Impurities - Nickel (Ni)	<= 50.0 ppb	< 5.0

For Laboratory, Research or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs

Country of Origin: US
Packaging Site: Paris Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Nitric Acid, 69.0-70.0%
Standard ID : M3215 ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

M 3215
Received D. 08/12/14
Exp. D. 04/15/19.

Material No.: 9598-34
Batch No.: 0000077192
Manufactured Date: 2014/04/16
Retest Date: 2019/04/15

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.7
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.419
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	< 0.7
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.3
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	2.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	< 1.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000077192

Test	Specification	Result
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	< 1.0
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.3
Trace Impurities - Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities - Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities - Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities - Silicon (Si)	<= 20.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 200.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

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Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Standard ID : M3218

Hydrochloric Acid, 36.5-38.0%
[redacted]ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

M 3218
Received d. 8/20/14
Exp. D. 25/03/19
By

Material No.: 9530-33
Batch No.: 0000075649
Manufactured Date: 2014/03/26
Retest Date: 2019/03/25

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	< 1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.190
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	< 1
ACS - Free Chlorine (as Cl_2)	<= 0.5 ppm	< 0.5
Phosphate (PO_4)	<= 0.05 ppm	< 0.03
Sulfate (SO_4)	<= 0.5 ppm	< 0.3
Sulfite (SO_3)	<= 0.8 ppm	0.2
Ammonium (NH_4)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	9.3
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9530-33
Batch No.: 0000075649

Test	Specification	Result
Trace Impurities - Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 15.0 ppb	< 1.0
Trace Impurities - Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 10.0 ppb	0.2
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.1
Trace Impurities - Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities - Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.2
Trace Impurities - Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities - Selenium (Se), For Information Only	ppb	1.0
Trace Impurities - Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Titanium (Ti)	<= 1.0 ppb	0.5
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

INORGANIC VENTURES

Standard ID : M3224

CERTIFICATE OF ANALYSIS

M3224

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number (010105).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.03

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGCA10
Lot Number:	G2-CA04095
Matrix:	2% (v/v) HNO3
Value/Analyte(s):	10,000 µg/mL Calcium
Starting Material:	CaO
Starting Material Lot#:	Multiple Lots
Starting Material Purity:	99.9990%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10,027 ± 23 µg/mL weighted mean

Certified Density: 1.040 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	**10031 ± 41 µg/mL** ICP Assay NIST SRM 3109a Lot Number: 050825
Assay Method #2	**10025 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

INORGANIC VENTURES

Standard ID : M3225

CERTIFICATE OF ANALYSIS

M3225

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number (010105).

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGMG10
Lot Number:	G2-MG03120
Matrix:	2% (v/v) HNO3
Value/Analyte(s):	10,000 µg/mL Magnesium
Starting Material:	Mg chips
Starting Material Lot#:	1484
Starting Material Purity:	99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9,973 ± 20 µg/mL -weighted mean-

Certified Density: 1.053 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	**9,955 ± 29 µg/mL** ICP Assay NIST SRM 3131a Lot Number: 050302
Assay Method #2	**9,986 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Standard ID : M3227 0-70.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

SEIDLER CHEMICAL COMPANY
537 Raymond Boulevard
Newark, NJ 07105

Material No.: 9598-34
Batch No.: 0000077192
Manufactured Date: 2014/04/16
Retest Date: 2019/04/15

M3227.
Received D. 9/3/14
Expired d. 4/15/19.
B 9/3/14.

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.7
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.419
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	< 0.7
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.3
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	2.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	< 1.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000077192

Test	Specification	Result
Trace Impurities – Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities – Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities – Magnesium (Mg)	<= 7.0 ppb	< 1.0
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities – Mercury (Hg)	<= 0.5 ppb	0.3
Trace Impurities – Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities – Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities – Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities – Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities – Silicon (Si)	<= 20.0 ppb	< 10.0
Trace Impurities – Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities – Sodium (Na)	<= 200.0 ppb	< 5.0
Trace Impurities – Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities – Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities – Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities – Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities – Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities – Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities – Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600

Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

INORGANIC VENTURES

CERTIFICATE OF ANALYSIS

Standard ID : M3240

M3240 R:09/05/14

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM**

	Stock Solution
Catalog No.:	CLPP-SPK-1
Lot Number:	**F2-MEB427123**
Matrix:	7% HNO3(v/v)

2,000 µg/mL ea:
Al, Ba,

1,000 µg/mL ea:
Fe,

500 µg/mL ea:
Co, Mn, Ni, V, Zn,

250 µg/mL ea:
Cu,

200 µg/mL ea:
Cr3,

50 µg/mL ea:
Ag, Be

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	2,000 ± 14 µg/mL	Barium, Ba	2,000 ± 13 µg/mL	Beryllium, Be	50.01 ± 0.34 µg/mL
Chromium+3, Cr3	200.0 ± 1.4 µg/mL	Cobalt, Co	500.0 ± 3.2 µg/mL	Copper, Cu	250.1 ± 1.6 µg/mL
Iron, Fe	1,000 ± 7 µg/mL	Manganese, Mn	500.0 ± 3.2 µg/mL	Nickel, Ni	499.9 ± 3.3 µg/mL
Silver, Ag	50.02 ± 0.32 µg/mL	Vanadium, V	500.0 ± 3.5 µg/mL	Zinc, Zn	500.0 ± 3.2 µg/mL

Certified Density: 1.070 g/mL (measured at 20 ± 1° C)

M3242 R: 09/05/14

INORGANIC VENTURES™
Standard ID : M3242
[redacted]gy Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Stock Solution**

Catalog No.: CLPP-SPK-5

Lot Number: **G2-MEB474100**

Matrix: 5% HNO3(v/v)

100 µg/mL ea:
Sb,

50 µg/mL ea:
Cd, Se, Tl,

40 µg/mL ea:
As,

20 µg/mL ea:
Pb

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Antimony, Sb	100.0 ± 0.8 µg/mL	Arsenic, As	40.01 ± 0.27 µg/mL	Cadmium, Cd	50.03 ± 0.32 µg/mL
Lead, Pb	20.00 ± 0.13 µg/mL	Selenium, Se	50.02 ± 0.33 µg/mL	Thallium, Tl	49.96 ± 0.33 µg/mL

Certified Density: 1.025 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ 2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

Standard ID : M3245 -70.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

M3245
Received 9/12/14
Exp. 07/01/19.
BS

Material No.: 9598-34
Batch No.: 0000084115
Manufactured Date: 2014/07/02
Retest Date: 2019/07/01

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.5
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	< 1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.420
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	0.5
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	0.8
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.0
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	3.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 0.2
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	0.5

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000084115

Test	Specification	Result
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	0.2
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	< 0.1
Trace Impurities - Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities - Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities - Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities - Silicon (Si)	<= 20.0 ppb	2.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 200.0 ppb	< 0.5
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	0.2

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

ISM01-3AES
3050B.

Sop:- MISM01-3- Trace metals-02

CHEMTECH

IEP AES
Soil/Sludge Preparation Sheet

PB78992

F3935, F3941.
NOMA

PrepBatch ID :	PB78992	Batch#	PB78992
SDG No :		ICP Digest Date:	9/17/14 Time : 9:30AM
Matrix :	Solid	Sample Received By :	Bin He
Final Volume :	100. ML	Acceptance Range: +/- 1%	N/A
(1) Balance Calibration Check(1.00g):	1.00g @ 10.0g = 10.00g	Dig Technician Signature:	Bhuvanna Patel Jignesh.
Method :	ISM01-3AES	Supervisor Signature:	[signature]
Hot Plate Temp :	(1.) 95°C 2. 3.	Prep Code:	CR1

End time for Hot Block 11:30AM

Standared Name	MLS USED	STD REF. # FROM LOG
LCSS	1.00ml	MP23660.
Spike Sol 6	2.00ml	MP23659.
BOILING STONE PTFE	1.00 gm	M2942
	[signature] 9/17/14.	

Chemical Used	ML/SAMPLE USED	Lot Number
1:1 HNO3	10.00ml	MP23410.
CONC: HNO3	5.00ml	M3245,
30% H2O2	3.00ml	M3207.
CONC: HCL	10.00ml	M3218 [signature] 9/17/14.

Date / Time	Received By	Relinquished By	Location
9/17/14. 12:30pm	Bin He	Bhuvanna	IEP-Lab.
	Analysis Group	Digestion Group	
	tr	BP, JP	

CHEMTECH Soil/Sludge Sample Preparation Workshee PrepBatch ID : **PB78992**

Lab Sample	Client Sample ID	Weight	Color Before	Color After	Texture	Artifact	Comments	Prep Pos
F3935-01	MH0608	1.37	BR	Y	M	NO		
F3935-02	MH0608D	1.36	BR	Y	M		8/9/17	114
F3935-03	MH0608S	1.05	BR	Y	M		MP23659	
F3935-04	MH0612	1.26	BR	Y	M			
F3935-05	MH0616	1.30	BR	Y	M			
F3935-06	MH0596	1.44	BR	Y	M			
F3935-07	MH0600	1.40	BR	Y	M			
F3935-08	MH0604	1.31	BR	Y	M			
F3941-01	MC0AF1	1.27	BR	Y	M			
F3941-02	MC0AF2	1.34	BR	Y	M			
F3941-03	MC0AF3	1.39	BR	Y	M			
F3941-04	MC0AF4	1.37	BR	Y	M			
F3941-05	MC0AF5	1.36	BR	Y	M			
F3941-06	MC0AF6	1.47	BR	Y	M			
F3941-07	MC0AF7	1.25	BR	Y	M			
F3941-08	MC0AF7D	1.26	BR	Y	M		8/9/17	114
F3941-09	MC0AF7S	1.09	BR	Y	M		MP23659	
F3941-10	MC0AF8	1.44	BR	Y	M			
F3941-11	MC0AF9	1.42	BR	Y	M			
F3941-12	MC0AG0	1.35	BR	Y	M			
F3941-13	MC0AG1	1.34	BR	Y	M			
F3941-14	MC0AG2	1.45	BR	Y	M			
F3941-15	MC0AG3	1.33	BR	Y	M			
PB78992BL	PBS01	1.00	C	C	F		8/9/17	114
PB78992BS	LCS01	1.00	C	C	F	Y	MP23660	

* BL=Blank BS=Blank Spike TB=TCLP Blank
* COLOR: R=Red BU=Blue Y=Yellow GR=Green O=Orange V=Violet W=White C=Colorless BR=Brown GY=Grey BL=Black
* CLARITY: CL=Clear CD=Cloudy O=Opaque
* TEXTURE: F=Fine M=Medium C=Coarse

CHEMTECH Soil/Sludge Sample Preparation Workshee PrepBatch ID : **PB78992**

Lab Sample ID	Client Sample ID	Weight	Color Before	Color After	Texture	Artifact	Comments	Prep Pos
F3935-01	MH0608	1.37	Brown	Yellow	Medium	No		
F3935-02	MH0608D	1.36	Brown	Yellow	Medium	No		
F3935-03	MH0608S	1.05	Brown	Yellow	Medium	No		
F3935-04	MH0612	1.26	Brown	Yellow	Medium	No		
F3935-05	MH0616	1.30	Brown	Yellow	Medium	No		
F3935-06	MH0596	1.44	Brown	Yellow	Medium	No		
F3935-07	MH0600	1.40	Brown	Yellow	Medium	No		
F3935-08	MH0604	1.31	Brown	Yellow	Medium	No		
F3941-01	MC0AF1	1.27	Brown	Yellow	Medium	No		
F3941-02	MC0AF2	1.34	Brown	Yellow	Medium	No		
F3941-03	MC0AF3	1.39	Brown	Yellow	Medium	No		
F3941-04	MC0AF4	1.37	Brown	Yellow	Medium	No		
F3941-05	MC0AF5	1.36	Brown	Yellow	Medium	No		
F3941-06	MC0AF6	1.47	Brown	Yellow	Medium	No		
F3941-07	MC0AF7	1.25	Brown	Yellow	Medium	No		
F3941-08	MC0AF7D	1.26	Brown	Yellow	Medium	No		
F3941-09	MC0AF7S	1.09	Brown	Yellow	Medium	No		
F3941-10	MC0AF8	1.44	Brown	Yellow	Medium	No		
F3941-11	MC0AF9	1.42	Brown	Yellow	Medium	No		
F3941-12	MC0AG0	1.35	Brown	Yellow	Medium	No		
F3941-13	MC0AG1	1.34	Brown	Yellow	Medium	No		
F3941-14	MC0AG2	1.45	Brown	Yellow	Medium	No		
F3941-15	MC0AG3	1.33	Brown	Yellow	Medium	No		
PB78992BL	PBS01	1.00	Colorless	Colorless	Fine	No		
PB78992BS	LCS01	1.00	Colorless	Colorless	Fine	No		

* BL=Blank BS=Blank Spike TB=TCLP Blank
* COLOR: R=Red BU=Blue Y=Yellow GR=Green O=Orange V=Violet W=White C=Colorless BR=Brown GY=Grey BL=Black
* CLARITY: CL=Clear CD=Cloudy O=Opaque
* TEXTURE: F=Fine M=Medium C=Coarse

CHEMTECH

PERCENT SOLIDS

Analyst Name: JIGNESH

Date: 9/17/2014

OVEN TEMP IN Celsius (°C) :	108	OVEN TEMP OUT Celsius (°C):	105
Time IN	5:38	Time OUT:	9:28
In Date:	09/16/2014	Out Date:	09/17/2014
Weight Check 1.0g=	1.00 g	Weight Check 1.0g=	1.00 g
Weight Check 10g=	10.00 g	Weight Check 10g=	10.00 g

QC: LB72739

Lab ID	Client Sample ID	Dish#	Dish Weight (g) (A)	Dish + Sample Wt. (g) (B)	Dish + Dry Sample Wt. (g) (C)	% Solid
F3941-01	MC0AF1	1	1.16	9.9	9.01	89.8
F3941-02	MC0AF2	2	1.17	9.55	8.22	84.1
F3941-03	MC0AF3	3	1.16	9.62	8.49	86.6
F3941-04	MC0AF4	4	1.16	9.71	7.49	74
F3941-05	MC0AF5	5	1.17	9.92	8.11	79.3
F3941-06	MC0AF6	6	1.17	9.83	5.94	55.1
F3941-07	MC0AF7	7	1.15	9.72	5.76	53.8
F3941-07DUP	MC0AF7DUP	8	1.14	9.74	5.88	55.1
F3941-08	MC0AF7D	9	1.15	9.72	5.76	53.8
F3941-09	MC0AF7S	10	1.15	9.72	5.76	53.8
F3941-10	MC0AF8	11	1.16	9.76	5.09	45.7
F3941-11	MC0AF9	12	1.16	9.93	5.38	48.1
F3941-12	MC0AG0	13	1.17	9.66	6.73	65.5
F3941-13	MC0AG1	14	1.16	9.54	4.81	43.6
F3941-14	MC0AG2	15	1.16	9.75	3.95	32.5
F3941-15	MC0AG3	16	1.17	9.55	6.84	67.7

$$\% \text{ Solid} = \frac{(C-A) * 100}{(B-A)}$$

WORKLIST(Hardcopy Internal Chain) 2372739

WorkList Name : %1-F3941 WorkList ID : 70531 Date : 9/16/2014 1:36:57 PM

Due Date	Matrix	Sample	Test	Preservative	Customer	Storage Location	Customer Sample	Collect Date	Method
09/20/2014	Solid	F3941-01	Percent Solids	Cool 4 deg C	USEP01	B42	MC0AF1	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3941-02	Percent Solids	Cool 4 deg C	USEP01	B42	MC0AF2	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3941-03	Percent Solids	Cool 4 deg C	USEP01	B42	MC0AF3	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3941-04	Percent Solids	Cool 4 deg C	USEP01	B42	MC0AF4	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3941-05	Percent Solids	Cool 4 deg C	USEP01	B42	MC0AF5	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3941-06	Percent Solids	Cool 4 deg C	USEP01	B42	MC0AF6	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3941-07	Percent Solids	Cool 4 deg C	USEP01	B42	MC0AF7	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3941-08	Percent Solids	Cool 4 deg C	USEP01	B42	MC0AF7D	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3941-09	Percent Solids	Cool 4 deg C	USEP01	B42	MC0AF7S	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3941-10	Percent Solids	Cool 4 deg C	USEP01	B42	MC0AF8	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3941-11	Percent Solids	Cool 4 deg C	USEP01	B42	MC0AF9	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3941-12	Percent Solids	Cool 4 deg C	USEP01	B42	MC0AG0	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3941-13	Percent Solids	Cool 4 deg C	USEP01	B42	MC0AG1	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3941-14	Percent Solids	Cool 4 deg C	USEP01	B42	MC0AG2	09/10/2014	Chemtech -SO
09/20/2014	Solid	F3941-15	Percent Solids	Cool 4 deg C	USEP01	B42	MC0AG3	09/10/2014	Chemtech -SO

400

Date/Time 09/16/14 2:30 pm
Received by: JP
Relinquished by: DP

Date/Time 09/16/14 3:30 pm
Received by: DP
Relinquished by: JP

From: (484) 213-8723
Erik Armistead
WESTON
1400 Weston Way

West Chester, PA 19380

Origin ID: BIGA

FedEx Express

J14201406190326

Ship Date: 12SEP14
ActWgt: 50.0 LB
CAD: 105266671/INET3550

Dims: 30 X 16 X 16 IN

Delivery Address Bar Code

Ref # 20403.016.003.0134.00
Invoice #
PO #
Dept #

9/13/14
10:00

SHIP TO: (908) 789-8900 BILL SENDER

Sample Recieving
Chemtech
284 SHEFFIELD ST

MOUNTAINSIDE, NJ 07092

2 of 5

MPS# 7711 3242 5152
0263

Mstr# 7711 3242 4708 0201

07 CDWA

SATURDAY 12:00P
PRIORITY OVERNIGHT

07092
NJ-US
EWR

522G1/CDB4/8AC9

After printing this label:
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3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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Sample # MC0AG3 Case: 44664
Tag: 1111 Sampler: Matt Fisher
Date: 9/10/2014 Time: 15:40
Location: WS07 Matrix: Sediment
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AF9 Case: 44664
Tag: 1103 Sampler: Matt Fisher
Date: 9/10/2014 Time: 13:45
Location: WS03 Matrix: Sediment
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AG2 Case: 44664
Tag: 1109 Sampler: Matt Fisher
Date: 9/10/2014 Time: 14:30
Location: WS06 Matrix: Sediment
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AG1 Case: 44664
Tag: 1107 Sampler: Matt Fisher
Date: 9/10/2014 Time: 14:20
Location: WS05 Matrix: Sediment
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AF8 Case: 44664
Tag: 1101 Sampler: Matt Fisher
Date: 9/10/2014 Time: 13:55
Location: WS02 Matrix: Sediment
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AG0 Case: 44664
Tag: 1105 Sampler: Matt Fisher
Date: 9/10/2014 Time: 14:05
Location: WS04 Matrix: Sediment
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AF7 Case: 44664
Tag: 1099 Sampler: Matt Fisher
Date: 9/10/2014 Time: 13:38
Location: WS01 Matrix: Sediment
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AF6 Case: 44664
Tag: 1097 Sampler: Matt Fisher
Date: 9/10/2014 Time: 13:38
Location: WS01 Matrix: Sediment
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AF5 Case: 44664
Tag: 1095 Sampler: Matt Fisher
Date: 9/10/2014 Time: 13:30
Location: SS21 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AF4 Case: 44664
Tag: 1093 Sampler: Matt Fisher
Date: 9/10/2014 Time: 13:20
Location: SS20 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AF3 Case: 44664
Tag: 1091 Sampler: Matt Fisher
Date: 9/10/2014 Time: 13:22
Location: SS19 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AF2 Case: 44664
Tag: 1089 Sampler: Matt Fisher
Date: 9/10/2014 Time: 11:20
Location: SS18 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # MC0AF1 Case: 44664
Tag: 1087 Sampler: Matt Fisher
Date: 9/10/2014 Time: 11:18
Location: SS17 Matrix: Soil
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Login Summary Report

Order ID :	F3941	Order Date :	9/13/2014 10:00:00 AM	Project Mgr :	Zhaleh
Client :	USEPA CLP SMO	Project :	44664	Report Type :	USEPA CLP
Contact :	Account Payable	Receive Date :	9/13/2014 10:00:00 AM	EDD Type :	EPA CLP
Date Sign Off :	9/15/2014 4:11:33 PM				

Sample ID	Client ID	Matrix	Sampling Date	Test	Test Group	Method	TAT Days	Fax Due Date	HC Due Date
F3941-01	MC0AF1	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3941-02	MC0AF2	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3941-03	MC0AF3	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3941-04	MC0AF4	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3941-05	MC0AF5	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3941-06	MC0AF6	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3941-07	MC0AF7	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3941-08	MC0AF7D	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3941-09	MC0AF7S	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3941-10	MC0AF8	Solid	09/10/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3941-11	MC0AF9	Solid	09/10/2014						

				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3941-12	MC0AG0	Solid	09/10/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3941-13	MC0AG1	Solid	09/10/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3941-14	MC0AG2	Solid	09/10/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3941-15	MC0AG3	Solid	09/10/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014

From: Dean, Whitlee <wdean9@fedcsc.com>
Sent: Thursday, September 18, 2014 11:59
To: Himanshu Prajapati; Divya Mehta; Mohammad Ahmed
Cc: Slizys, Dan; Jarmael Burman; Elaine Stiles; Colleen Walling; Kevin Martin; Sharon Roberson
Subject: Region 03 | Case 44664 | Lab CHEM | SDG MC0AF1 | Issue Non-standard matrix | FINAL

Himanshu,

Issue: Several samples from SDG MC0AF1 have % solids results less than 50% but more than 30%.

EPA Sample ID	% Solids
MC0AF8	45.7
MC0AF9	48.1
MC0AG1	43.6
MC0AG2	32.5

Resolution: Per the ISM01.3 SOW, the laboratory will proceed with the analysis of the samples according to Exhibit D, sections 1.6.4 and 1.6.5. The laboratory will note the issue in the SDG Narrative.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your PO.

Thanks,

WHITLEE DEAN
Environmental Coordinator- Region 3
CSC

15000 Conference Center Drive, Chantilly, VA 20151
Civil Division | t: 703-818-4367 | f: 703-818-4602 | wdean9@fedcsc.com | www.csc.com

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From: Himanshu Prajapati [mailto:Himanshu@chemtech.net]
Sent: Thursday, September 18, 2014 10:33 AM
To: Dean, Whitlee; CCS SUPPORT
Cc: Divya Mehta; Mohammad Ahmed
Subject: RE: REGION 3 | SDG MC0AF1 | CASE 44664 | EPW 09038 | ISSUE % SOLIDS | CHEMTECH ORDER ID F3941 |
Importance: High

Hello Whitlee,

We are sending this email with reference to % solids issue for SDG (MC0AF1) & Case (44664).

Some samples from SDG (MC0AF1) have % solids results less than 50% but more than 30%. Please see below table for detail.

EPA Sample ID	% Solids
MC0AF8	45.7

MC0AF9	48.1
MC0AG1	43.6
MC0AG2	32.5

Please advise.

Regards,

Himanshu Prajapati
QA/QC Director
Direct Line: (908)728-3152
General Number: (908)789-8900
Fax: (908)789-8922

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From: Dean, Whitlee <wdean9@fedcsc.com>
Sent: Monday, September 15, 2014 15:32
To: zhaleh@chemtech.net
Cc: Burman, Jarmael; Slizys, Dan; Stiles, Elaine; Martin, Kevin; Walling, Colleen; Sharon Roberson
Subject: Region 03 | Case 44664 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC | FINAL
Attachments: 44673 - Lab COCs.pdf; 44664 - Lab COCs.pdf

Zhaleh,

Issue 1:The laboratory received samples for Case 44673. The case number on the COC (attached), sample tag and label (attached) do not match.
Resolution 1: Per Region 3, the Case number on the sample tag and label are correct. The sample is for Case 44664. The COC contained an incorrect case number. The correct COC is attached for Case 44664 and Case 44673. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Issue 2: The sample IDs and tag numbers are missing from the sample tags and labels. The station location is listed in place of the sample number on both the sample tag and label.
Resolution 2: Per Region 3, MC0AJ3 is for Case 44664. The station location and collection time for sample MC0AJ3 match the sample tag and label per the attached corrected COC. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your PO.

Thanks,

WHITLEE DEAN
Environmental Coordinator- Region 3
CSC

15000 Conference Center Drive, Chantilly, VA 20151
Civil Division | t: 703-818-4367 | f: 703-818-4602 | wdean9@fedcsc.com | www.csc.com
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From: Burman, Jarmael [mailto:Burman.Jarmael@epa.gov]
Sent: Monday, September 15, 2014 3:19 PM
To: Dean, Whitlee; Slizys, Dan
Cc: Walling, Colleen; Stiles, Elaine; Martin, Kevin
Subject: RE: NEW ISSUE | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Hi Whitlee,

The response provided by Laura Matthews below is acceptable.

Jay

From: Dean, Whitlee [mailto:wdean9@fedcsc.com]
Sent: Monday, September 15, 2014 3:08 PM
To: Slizys, Dan
Cc: Burman, Jarmael; Walling, Colleen; Stiles, Elaine; Martin, Kevin
Subject: RE: NEW ISSUE | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Dan,

Could you confirm the sampler's response before I send the Final ROC?

For Issue 1: the case number on the sample tags and label are correct and are for Case 44664.

For Issue 2: per the corrected COC provided by the sampler, MC0AJ3 is for Case 44664. The station location and collection time for sample MC0AJ3 match the sample tag and label .

Please let me know if you have any questions.
Thanks!

WHITLEE DEAN
Environmental Coordinator- Region 3
CSC

15000 Conference Center Drive, Chantilly, VA 20151
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From: Mathew, Laura [mailto:mathewl@WestonSolutions.com]
Sent: Monday, September 15, 2014 1:52 PM
To: Slizys, Dan
Cc: Dean, Whitlee; Burman, Jarmael; Walling, Colleen; Stiles, Elaine; Martin, Kevin; Fisher, Matt; Shannon, Nancy; Armistead, Erik
Subject: RE: NEW ISSUE | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Dan,

The discrepancy of the case numbers was due to an incorrect case number on the chain of custody. I have attached corrected laboratory copies of the COCs for both RAS 44664 and RAS 44673. I hope this helps to clarify the issue, please let me know if you have additional questions.

Regards,
Laura

From: Slizys, Dan [mailto:Slizys.Dan@epa.gov]
Sent: Monday, September 15, 2014 11:26 AM
To: Mathew, Laura; Shannon, Nancy; fisher.mark@westonsolutions.com
Cc: Dean, Whitlee; Burman, Jarmael; Walling, Colleen; Stiles, Elaine; Martin, Kevin
Subject: RE: NEW ISSUE | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Whitlee,

The samples are for case 44673 Mark Fisher as collector. The TR/COC indicates in Station Location column NKWP-WS-11 This could be inorganic sample MC0AJ3.

Laura,

Please have Nancy and Mark try to resolve this issue.

Nancy Shannon is the sample collector for case 44664.

From: Dean, Whitlee [mailto:wdean9@fedcsc.com]
Sent: Monday, September 15, 2014 9:53 AM
To: Slizys, Dan; Burman, Jarmael; Stiles, Elaine; Martin, Kevin; Walling, Colleen
Subject: NEW ISSUE | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Good Morning,

CHEM is reporting the following issues. Please advise as to how the laboratory should proceed.

Issue 1:The laboratory received samples for Case 44673. The case number on the COC (attached), sample tag and label (attached) do not match.

Issue 2: The sample IDs and tag numbers are missing from the sample tags and labels. The station location is listed in place of the sample number on both the sample tag and label.

Please let me know if you have any questions.
Thanks,

WHITLEE DEAN
Environmental Coordinator- Region 3
CSC

15000 Conference Center Drive, Chantilly, VA 20151
Civil Division | t: 703-818-4367 | f: 703-818-4602 | wdean9@fedcsc.com | www.csc.com

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From: Zhaleh Rohani [mailto:zhaleh@chemtech.net]
Sent: Monday, September 15, 2014 8:50 AM
To: Dean, Whitlee
Subject: Region 03 | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Good morning Whitlee,

Laboratory received samples for case 44673, however case number on COC, sample tag and label do not match; in addition all CLP sample IDs and tag numbers are missing in sample tags and labels as well.

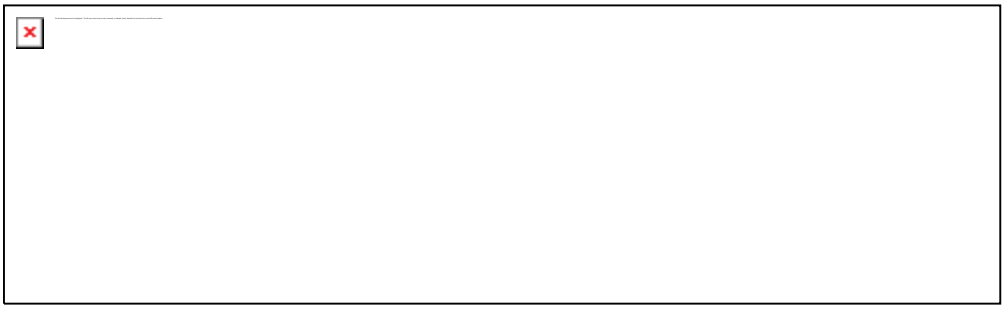
Please let me know if you have any questions.
Thanks.

Regards,

Zhaleh Rohani

EPA CLP Program Manager

Direct Line: (908) 728-3158



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WORKLIST(Hardcopy Internal Chain)

WorkList Name : F3941AESS WorkList ID : 70546 Date : 9/17/2014 8:46:36 AM

Due Date	Matrix	Sample	Test	Preservative	Customer	Storage Location	Customer Sample	Collect Date	Method
09/10/2014	Solid	F3935-01	Metals CLP Full	Cool 4 deg C	USEP01	B33	MH0608	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3935-02	Metals CLP Full	Cool 4 deg C	USEP01	B33	MH0608D	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3935-03	Metals CLP Full	Cool 4 deg C	USEP01	B33	MH0608S	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3935-04	Metals CLP Full	Cool 4 deg C	USEP01	B33	MH0612	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3935-05	Metals CLP Full	Cool 4 deg C	USEP01	B33	MH0616	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3935-06	Metals CLP Full	Cool 4 deg C	USEP01	B33	MH0596	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3935-07	Metals CLP Full	Cool 4 deg C	USEP01	B33	MH0600	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3935-08	Metals CLP Full	Cool 4 deg C	USEP01	B33	MH0604	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3941-01	Metals CLP Full	Cool 4 deg C	USEP01	B42	MC0AF1	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3941-02	Metals CLP Full	Cool 4 deg C	USEP01	B42	MC0AF2	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3941-03	Metals CLP Full	Cool 4 deg C	USEP01	B42	MC0AF3	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3941-04	Metals CLP Full	Cool 4 deg C	USEP01	B42	MC0AF4	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3941-05	Metals CLP Full	Cool 4 deg C	USEP01	B42	MC0AF5	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3941-06	Metals CLP Full	Cool 4 deg C	USEP01	B42	MC0AF6	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3941-07	Metals CLP Full	Cool 4 deg C	USEP01	B42	MC0AF7	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3941-08	Metals CLP Full	Cool 4 deg C	USEP01	B42	MC0AF7D	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3941-09	Metals CLP Full	Cool 4 deg C	USEP01	B42	MC0AF7S	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3941-10	Metals CLP Full	Cool 4 deg C	USEP01	B42	MC0AF8	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3941-11	Metals CLP Full	Cool 4 deg C	USEP01	B42	MC0AF9	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3941-12	Metals CLP Full	Cool 4 deg C	USEP01	B42	MC0AG0	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3941-13	Metals CLP Full	Cool 4 deg C	USEP01	B42	MC0AG1	09/10/2014	ISM01.3_AES

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Date/Time 9/17/14. 11:00AM
Received by: DP
Relinquished by: [signature]

WORKLIST(Hardcopy Internal Chain)

WorkList Name : F3941AESS WorkList ID : 70546 Date : 9/17/2014 8:46:36 AM

Due Date	Matrix	Sample	Test	Preservative	Customer	Storage Location	Customer Sample	Collect Date	Method
09/10/2014	Solid	F3941-14	Metals CLP Full	Cool 4 deg C	USEP01	B42	MC0AG2	09/10/2014	ISM01.3_AES
09/10/2014	Solid	F3941-15	Metals CLP Full	Cool 4 deg C	USEP01	B42	MC0AG3	09/10/2014	ISM01.3_AES

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
Environmental Sciences Center
701 Mapes Road
Fort Meade, Maryland 20755-5350

DATE: October 16, 2014

SUBJECT: Region III Data QA Review

FROM: Brandon McDonald
Region III ESAT PO (3EA22)

TO: Ruth Scharr
On-Scene Coordinator (3HS31)

Attached is the inorganic data validation report for the New Kent Wood Preservatives, Inc. site for Case 44664; SDG#:MC0AJ3 completed by the Region III Environmental Services Assistance Team (ESAT), ICF International, contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2607.

Attachment

cc: Laura Mathew (WESTON)

TO: #0002 TDF: #1014002

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ICF International
ESAT Region 3
US Environmental Protection Agency Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Phone 410-305-3011

Date: October 15, 2014

To: Brandon McDonald
ESAT Region 3 Project Officer

From: Lisa D. Penix
Inorganic Data Reviewer

Kurt Roby
Oversight Chemist

Subject: Inorganic Data Validation (S4VEM)
Site: New Kent Wood Preservative, Inc.
Case: 44664
SDG: MC0AJ3

OVERVIEW

Case 44664, Sample Delivery Group (SDG) MC0AJ3, consisted of nineteen (19) sediment samples, including one (1) field duplicate pair, analyzed for total metals by ICP – AES. All samples were analyzed by ChemTech Consulting Group, Inc. (CHEM) according to Contract Laboratory Program (CLP) Statement of Work (SOW) ISM01.3 through the Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to inorganic National Functional Guidelines utilizing the Environmental Data Exchange and Evaluation System (EXES) and is assigned the Superfund Data Validation Label S4VEM (Stage_4_Validation_Electronic_Manual). Areas of concern with respect to data usability are listed below.

MINOR PROBLEMS

The matrix spike recovery was high (>125%) for chromium (Cr). The post digestion matrix spike recovery was within control limits. Positive results are estimated and have been qualified "J".

Laboratory instrumentation reported negative values for arsenic (As) greater than the absolute value of the MDL in blank analyses. Positive result reported for these analytes in samples which were less than two times (<2X) the absolute values of the blank concentrations may be biased low and have been qualified "J-". Quantitation limits for these analytes are estimated and qualified "UJ".

The ICP interference check standards ISCA and ISCAB reported negative results for potassium (K) greater than the absolute value of the Method Detection Limit (MDL); however, this analyte is not present in these standards. The positive result reported for this analyte in sample MC0AJ3, which was less than ten times (<10X) the absolute value of the interference check standard concentration, is estimated low and has been qualified "J-". Quantitation limits are estimated and have been qualified "UJ". Results reported for this analyte attributed to positive blank contamination were not qualified based on this outlier.

NOTES

Analytes detected below CRQLs not attributed to blank contamination are qualified "J".

Analytes detected below CRQLs attributed to blank contamination are reported at CRQLs and qualified "U" in field samples due to presence of these analytes in associated laboratory blank analyses.

Reported results for the field duplicate pair MC0AK0/MC0AK1 were within 20% Relative Percent Difference (RPD), ±CRQL for all analytes except aluminum (Al), calcium (Ca), iron (Fe), lead (Pb) and manganese (Mn). No data were qualified due to field duplicate results.

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
B	The result is presumed a blank contaminant. This qualifier is used only in drinking water samples.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

DCN: ESATR3-2014-V549

Sample Summary Report

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	LCS	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:	09/18/2014	Sample Time:	23:41:28
% Moisture :				% Solids :	100		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Spike	35.5		mg/kg	35.5		1	Yes	S4VEM
Antimony	Spike	11.0		mg/kg	10.96		1	Yes	S4VEM
Arsenic	Spike	1.5		mg/kg	1.51		1	Yes	S4VEM
Barium	Spike	42.6		mg/kg	42.56		1	Yes	S4VEM
Beryllium	Spike	0.96		mg/kg	0.961		1	Yes	S4VEM
Cadmium	Spike	0.97		mg/kg	0.9715		1	Yes	S4VEM
Chromium	Spike	2.0		mg/kg	2.025		1	Yes	S4VEM
Cobalt	Spike	9.6		mg/kg	9.629		1	Yes	S4VEM
Copper	Spike	5.3		mg/kg	5.25		1	Yes	S4VEM
Iron	Spike	20.5		mg/kg	20.5		1	Yes	S4VEM
Lead	Spike	1.9		mg/kg	1.92		1	Yes	S4VEM
Manganese	Spike	3.2		mg/kg	3.21		1	Yes	S4VEM
Nickel	Spike	7.8		mg/kg	7.75		1	Yes	S4VEM
Selenium	Spike	6.4		mg/kg	6.39		1	Yes	S4VEM
Silver	Spike	1.9		mg/kg	1.897		1	Yes	S4VEM
Thallium	Spike	5.1		mg/kg	5.05		1	Yes	S4VEM
Potassium	Spike	974		mg/kg	974.1		1	Yes	S4VEM
Vanadium	Spike	10.3		mg/kg	10.28		1	Yes	S4VEM
Calcium	Spike	1060		mg/kg	1061.0		1	Yes	S4VEM
Zinc	Spike	11.4		mg/kg	11.4		1	Yes	S4VEM
Sodium	Spike	1000		mg/kg	1003.8		1	Yes	S4VEM
Magnesium	Spike	973		mg/kg	972.8		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AJ3	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-WS-11	pH:	2	Sample Date:	09/11/2014	Sample Time:	13:45:00
% Moisture :				% Solids :	51.8		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	10400		mg/kg	10400		1	Yes	S4VEM
Antimony	Target	0.96	J	mg/kg	0.96	J	1	Yes	S4VEM
Arsenic	Target	4.2		mg/kg	4.2		1	Yes	S4VEM
Barium	Target	91.3		mg/kg	91.3		1	Yes	S4VEM
Beryllium	Target	0.51	J	mg/kg	0.51	J	1	Yes	S4VEM
Cadmium	Target	0.40	J	mg/kg	0.40	J	1	Yes	S4VEM
Calcium	Target	2240		mg/kg	2240		1	Yes	S4VEM
Chromium	Target	18.0	J	mg/kg	18.0	N	1	Yes	S4VEM
Cobalt	Target	6.2	J	mg/kg	6.2	J	1	Yes	S4VEM
Copper	Target	47.9		mg/kg	47.9		1	Yes	S4VEM
Iron	Target	18300		mg/kg	18300		1	Yes	S4VEM
Lead	Target	37.0		mg/kg	37.0		1	Yes	S4VEM
Magnesium	Target	1340		mg/kg	1340		1	Yes	S4VEM
Manganese	Target	152		mg/kg	152		1	Yes	S4VEM
Nickel	Target	11.6		mg/kg	11.6		1	Yes	S4VEM
Potassium	Target	895	J-	mg/kg	895		1	Yes	S4VEM
Selenium	Target	5.1	U	mg/kg	3.5	J	1	Yes	S4VEM
Silver	Target	1.5	U	mg/kg	1.5	U	1	Yes	S4VEM
Sodium	Target	110	J	mg/kg	110	J	1	Yes	S4VEM
Thallium	Target	3.7	U	mg/kg	3.7	U	1	Yes	S4VEM
Vanadium	Target	29.1		mg/kg	29.1		1	Yes	S4VEM
Zinc	Target	767		mg/kg	767		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AJ4	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-WS-12	pH:	2	Sample Date:	09/11/2014	Sample Time:	13:55:00
% Moisture :				% Solids :	42.3		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	11100		mg/kg	11100		1	Yes	S4VEM
Antimony	Target	1.4	J	mg/kg	1.4	J	1	Yes	S4VEM
Arsenic	Target	14.6		mg/kg	14.6		1	Yes	S4VEM
Barium	Target	118		mg/kg	118		1	Yes	S4VEM
Beryllium	Target	1.4		mg/kg	1.4		1	Yes	S4VEM
Cadmium	Target	0.89	J	mg/kg	0.89	J	1	Yes	S4VEM
Calcium	Target	3250		mg/kg	3250		1	Yes	S4VEM
Chromium	Target	21.0	J	mg/kg	21.0	N	1	Yes	S4VEM
Cobalt	Target	12.6		mg/kg	12.6		1	Yes	S4VEM
Copper	Target	27.4		mg/kg	27.4		1	Yes	S4VEM
Iron	Target	36400		mg/kg	36400		1	Yes	S4VEM
Lead	Target	46.3		mg/kg	46.3		1	Yes	S4VEM
Magnesium	Target	1290		mg/kg	1290		1	Yes	S4VEM
Manganese	Target	166		mg/kg	166		1	Yes	S4VEM
Nickel	Target	12.8		mg/kg	12.8		1	Yes	S4VEM
Potassium	Target	902	U	mg/kg	489	J	1	Yes	S4VEM
Selenium	Target	6.3	U	mg/kg	6.2	J	1	Yes	S4VEM
Silver	Target	1.8	U	mg/kg	1.8	U	1	Yes	S4VEM
Sodium	Target	176	J	mg/kg	176	J	1	Yes	S4VEM
Thallium	Target	4.5	U	mg/kg	4.5	U	1	Yes	S4VEM
Vanadium	Target	43.7		mg/kg	43.7		1	Yes	S4VEM
Zinc	Target	498		mg/kg	498		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AJ5	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-WS-13	pH:	2	Sample Date:	09/11/2014	Sample Time:	14:25:00
% Moisture :				% Solids :	54.3		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	11100		mg/kg	11100		1	Yes	S4VEM
Antimony	Target	0.34	J	mg/kg	0.34	J	1	Yes	S4VEM
Arsenic	Target	5.0		mg/kg	5.0		1	Yes	S4VEM
Barium	Target	44.4		mg/kg	44.4		1	Yes	S4VEM
Beryllium	Target	0.64	J	mg/kg	0.64	J	1	Yes	S4VEM
Cadmium	Target	0.23	J	mg/kg	0.23	J	1	Yes	S4VEM
Calcium	Target	640	J	mg/kg	640	J	1	Yes	S4VEM
Chromium	Target	15.9	J	mg/kg	15.9	N	1	Yes	S4VEM
Cobalt	Target	2.7	J	mg/kg	2.7	J	1	Yes	S4VEM
Copper	Target	12.9		mg/kg	12.9		1	Yes	S4VEM
Iron	Target	12100		mg/kg	12100		1	Yes	S4VEM
Lead	Target	49.9		mg/kg	49.9		1	Yes	S4VEM
Magnesium	Target	760		mg/kg	760		1	Yes	S4VEM
Manganese	Target	29.6		mg/kg	29.6		1	Yes	S4VEM
Nickel	Target	8.9		mg/kg	8.9		1	Yes	S4VEM
Potassium	Target	708	U	mg/kg	314	J	1	Yes	S4VEM
Selenium	Target	5.0	U	mg/kg	2.5	J	1	Yes	S4VEM
Silver	Target	1.4	U	mg/kg	1.4	U	1	Yes	S4VEM
Sodium	Target	129	J	mg/kg	129	J	1	Yes	S4VEM
Thallium	Target	3.5	U	mg/kg	3.5	U	1	Yes	S4VEM
Vanadium	Target	29.0		mg/kg	29.0		1	Yes	S4VEM
Zinc	Target	31.3		mg/kg	31.3		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AJ7	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-01	pH:	2	Sample Date:	09/11/2014	Sample Time:	08:00:00
% Moisture :				% Solids :	71.3		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	1060		mg/kg	1060		1	Yes	S4VEM
Antimony	Target	6.6	U	mg/kg	6.6	U	1	Yes	S4VEM
Arsenic	Target	1.1	J	mg/kg	1.1	J	1	Yes	S4VEM
Barium	Target	16.9	J	mg/kg	16.9	J	1	Yes	S4VEM
Beryllium	Target	0.29	J	mg/kg	0.29	J	1	Yes	S4VEM
Cadmium	Target	0.12	J	mg/kg	0.12	J	1	Yes	S4VEM
Calcium	Target	893		mg/kg	893		1	Yes	S4VEM
Chromium	Target	2.5	J	mg/kg	2.5	N	1	Yes	S4VEM
Cobalt	Target	4.7	J	mg/kg	4.7	J	1	Yes	S4VEM
Copper	Target	2.8	U	mg/kg	2.4	J	1	Yes	S4VEM
Iron	Target	2800		mg/kg	2800		1	Yes	S4VEM
Lead	Target	8.0		mg/kg	8.0		1	Yes	S4VEM
Magnesium	Target	157	J	mg/kg	157	J	1	Yes	S4VEM
Manganese	Target	36.9		mg/kg	36.9		1	Yes	S4VEM
Nickel	Target	1.6	J	mg/kg	1.6	J	1	Yes	S4VEM
Potassium	Target	552	UJ	mg/kg	552	U	1	Yes	S4VEM
Selenium	Target	3.9	U	mg/kg	0.64	J	1	Yes	S4VEM
Silver	Target	1.1	U	mg/kg	1.1	U	1	Yes	S4VEM
Sodium	Target	552	U	mg/kg	552	U	1	Yes	S4VEM
Thallium	Target	2.8	U	mg/kg	2.8	U	1	Yes	S4VEM
Vanadium	Target	4.7	J	mg/kg	4.7	J	1	Yes	S4VEM
Zinc	Target	13.9		mg/kg	13.9		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AJ8	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-02	pH:	2	Sample Date:	09/11/2014	Sample Time:	08:15:00
% Moisture :				% Solids :	53.8		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	3630		mg/kg	3630		1	Yes	S4VEM
Antimony	Target	0.56	J	mg/kg	0.56	J	1	Yes	S4VEM
Arsenic	Target	13.0		mg/kg	13.0		1	Yes	S4VEM
Barium	Target	53.4		mg/kg	53.4		1	Yes	S4VEM
Beryllium	Target	0.54	J	mg/kg	0.54	J	1	Yes	S4VEM
Cadmium	Target	0.23	J	mg/kg	0.23	J	1	Yes	S4VEM
Calcium	Target	1950		mg/kg	1950		1	Yes	S4VEM
Chromium	Target	9.2	J	mg/kg	9.2	N	1	Yes	S4VEM
Cobalt	Target	3.9	J	mg/kg	3.9	J	1	Yes	S4VEM
Copper	Target	9.1		mg/kg	9.1		1	Yes	S4VEM
Iron	Target	9200		mg/kg	9200		1	Yes	S4VEM
Lead	Target	21.4		mg/kg	21.4		1	Yes	S4VEM
Magnesium	Target	245	J	mg/kg	245	J	1	Yes	S4VEM
Manganese	Target	1540		mg/kg	1540		1	Yes	S4VEM
Nickel	Target	4.9	J	mg/kg	4.9	J	1	Yes	S4VEM
Potassium	Target	683	UJ	mg/kg	683	U	1	Yes	S4VEM
Selenium	Target	4.8	U	mg/kg	1.6	J	1	Yes	S4VEM
Silver	Target	1.4	U	mg/kg	1.4	U	1	Yes	S4VEM
Sodium	Target	50.2	J	mg/kg	50.2	J	1	Yes	S4VEM
Thallium	Target	3.4	U	mg/kg	3.4	U	1	Yes	S4VEM
Vanadium	Target	11.8		mg/kg	11.8		1	Yes	S4VEM
Zinc	Target	29.2		mg/kg	29.2		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AJ9	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-03	pH:	2	Sample Date:	09/11/2014	Sample Time:	08:33:00
% Moisture :				% Solids :	55.6		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	1550		mg/kg	1550		1	Yes	S4VEM
Antimony	Target	7.7	U	mg/kg	7.7	U	1	Yes	S4VEM
Arsenic	Target	1.5		mg/kg	1.5		1	Yes	S4VEM
Barium	Target	23.0	J	mg/kg	23.0	J	1	Yes	S4VEM
Beryllium	Target	0.36	J	mg/kg	0.36	J	1	Yes	S4VEM
Cadmium	Target	0.049	J	mg/kg	0.049	J	1	Yes	S4VEM
Calcium	Target	563	J	mg/kg	563	J	1	Yes	S4VEM
Chromium	Target	2.8	J	mg/kg	2.8	N	1	Yes	S4VEM
Cobalt	Target	1.6	J	mg/kg	1.6	J	1	Yes	S4VEM
Copper	Target	1.4	J	mg/kg	1.4	J	1	Yes	S4VEM
Iron	Target	2110		mg/kg	2110		1	Yes	S4VEM
Lead	Target	22.1		mg/kg	22.1		1	Yes	S4VEM
Magnesium	Target	82.8	J	mg/kg	82.8	J	1	Yes	S4VEM
Manganese	Target	59.7		mg/kg	59.7		1	Yes	S4VEM
Nickel	Target	1.2	J	mg/kg	1.2	J	1	Yes	S4VEM
Potassium	Target	642	UJ	mg/kg	642	U	1	Yes	S4VEM
Selenium	Target	4.5	U	mg/kg	1.2	J	1	Yes	S4VEM
Silver	Target	1.3	U	mg/kg	1.3	U	1	Yes	S4VEM
Sodium	Target	642	U	mg/kg	51.4	J	1	Yes	S4VEM
Thallium	Target	3.2	U	mg/kg	3.2	U	1	Yes	S4VEM
Vanadium	Target	3.5	J	mg/kg	3.5	J	1	Yes	S4VEM
Zinc	Target	7.7	U	mg/kg	7.6	J	1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AK0	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-04	pH:	2	Sample Date:	09/11/2014	Sample Time:	08:55:00
% Moisture :				% Solids :	56		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	1210		mg/kg	1210		1	Yes	S4VEM
Antimony	Target	8.2	U	mg/kg	8.2	U	1	Yes	S4VEM
Arsenic	Target	0.88	J	mg/kg	0.88	J	1	Yes	S4VEM
Barium	Target	15.2	J	mg/kg	15.2	J	1	Yes	S4VEM
Beryllium	Target	0.37	J	mg/kg	0.37	J	1	Yes	S4VEM
Cadmium	Target	0.059	J	mg/kg	0.059	J	1	Yes	S4VEM
Calcium	Target	1260		mg/kg	1260		1	Yes	S4VEM
Chromium	Target	2.5	J	mg/kg	2.5	N	1	Yes	S4VEM
Cobalt	Target	1.4	J	mg/kg	1.4	J	1	Yes	S4VEM
Copper	Target	1.3	J	mg/kg	1.3	J	1	Yes	S4VEM
Iron	Target	3190		mg/kg	3190		1	Yes	S4VEM
Lead	Target	4.8		mg/kg	4.8		1	Yes	S4VEM
Magnesium	Target	58.4	J	mg/kg	58.4	J	1	Yes	S4VEM
Manganese	Target	70.8		mg/kg	70.8		1	Yes	S4VEM
Nickel	Target	1.2	J	mg/kg	1.2	J	1	Yes	S4VEM
Potassium	Target	687	UJ	mg/kg	687	U	1	Yes	S4VEM
Selenium	Target	4.8	U	mg/kg	0.65	J	1	Yes	S4VEM
Silver	Target	1.4	U	mg/kg	1.4	U	1	Yes	S4VEM
Sodium	Target	687	U	mg/kg	687	U	1	Yes	S4VEM
Thallium	Target	3.4	U	mg/kg	3.4	U	1	Yes	S4VEM
Vanadium	Target	5.7	J	mg/kg	5.7	J	1	Yes	S4VEM
Zinc	Target	9.5		mg/kg	9.5		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AK1	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-04-01	pH:	2	Sample Date:	09/11/2014	Sample Time:	08:55:00
% Moisture :				% Solids :	73.5		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	694		mg/kg	694		1	Yes	S4VEM
Antimony	Target	6.2	U	mg/kg	6.2	U	1	Yes	S4VEM
Arsenic	Target	0.51	J-	mg/kg	0.51	J	1	Yes	S4VEM
Barium	Target	7.0	J	mg/kg	7.0	J	1	Yes	S4VEM
Beryllium	Target	0.12	J	mg/kg	0.12	J	1	Yes	S4VEM
Cadmium	Target	0.52	U	mg/kg	0.52	U	1	Yes	S4VEM
Calcium	Target	272	J	mg/kg	272	J	1	Yes	S4VEM
Chromium	Target	2.1	J	mg/kg	2.1	N	1	Yes	S4VEM
Cobalt	Target	0.72	J	mg/kg	0.72	J	1	Yes	S4VEM
Copper	Target	0.38	J	mg/kg	0.38	J	1	Yes	S4VEM
Iron	Target	1720		mg/kg	1720		1	Yes	S4VEM
Lead	Target	3.0		mg/kg	3.0		1	Yes	S4VEM
Magnesium	Target	34.7	J	mg/kg	34.7	J	1	Yes	S4VEM
Manganese	Target	26.8		mg/kg	26.8		1	Yes	S4VEM
Nickel	Target	0.65	J	mg/kg	0.65	J	1	Yes	S4VEM
Potassium	Target	519	UJ	mg/kg	519	U	1	Yes	S4VEM
Selenium	Target	3.6	U	mg/kg	0.30	J	1	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1.0	U	1	Yes	S4VEM
Sodium	Target	519	U	mg/kg	519	U	1	Yes	S4VEM
Thallium	Target	2.6	U	mg/kg	2.6	U	1	Yes	S4VEM
Vanadium	Target	3.2	J	mg/kg	3.2	J	1	Yes	S4VEM
Zinc	Target	6.2	U	mg/kg	5.4	J	1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AK1A	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	F3939-08A	pH:	2	Sample Date:	09/11/2014	Sample Time:	08:55:00
% Moisture :				% Solids :	73.5		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Chromium	Spike	6.4		mg/kg	6.40		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AK1D	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	F3939-09	pH:	2	Sample Date:	09/11/2014	Sample Time:	08:55:00
% Moisture :				% Solids :	73.5		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	632		mg/kg	632.4861		1	Yes	S4VEM
Antimony	Target	6.2	U	mg/kg	6.1843	U	1	Yes	S4VEM
Arsenic	Target	0.65	J	mg/kg	0.6546	J	1	Yes	S4VEM
Barium	Target	6.8	J	mg/kg	6.8068	J	1	Yes	S4VEM
Beryllium	Target	0.12	J	mg/kg	0.1220	J	1	Yes	S4VEM
Cadmium	Target	0.52	U	mg/kg	0.5154	U	1	Yes	S4VEM
Calcium	Target	275	J	mg/kg	274.7451	J	1	Yes	S4VEM
Chromium	Target	2.0		mg/kg	1.9926		1	Yes	S4VEM
Cobalt	Target	0.72	J	mg/kg	0.7179	J	1	Yes	S4VEM
Copper	Target	0.47	J	mg/kg	0.4746	J	1	Yes	S4VEM
Iron	Target	1710		mg/kg	1707.8560		1	Yes	S4VEM
Lead	Target	3.0		mg/kg	2.9664		1	Yes	S4VEM
Magnesium	Target	31.6	J	mg/kg	31.5924	J	1	Yes	S4VEM
Manganese	Target	26.8		mg/kg	26.8149		1	Yes	S4VEM
Nickel	Target	0.64	J	mg/kg	0.6417	J	1	Yes	S4VEM
Potassium	Target	515	UJ	mg/kg	515.3577	U	1	Yes	S4VEM
Selenium	Target	3.6	U	mg/kg	3.6075	U	1	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1.0307	U	1	Yes	S4VEM
Sodium	Target	515	U	mg/kg	515.3577	U	1	Yes	S4VEM
Thallium	Target	2.6	U	mg/kg	2.5768	U	1	Yes	S4VEM
Vanadium	Target	3.1	J	mg/kg	3.0700	J	1	Yes	S4VEM
Zinc	Target	6.2	U	mg/kg	5.1018	J	1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AK1S	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	F3939-10	pH:	2	Sample Date:	09/11/2014	Sample Time:	08:55:00
% Moisture :				% Solids :	73.5		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Antimony	Spike	26.1		mg/kg	26.1266		1	Yes	S4VEM
Arsenic	Spike	11.0		mg/kg	10.9961		1	Yes	S4VEM
Barium	Spike	627		mg/kg	626.6130		1	Yes	S4VEM
Beryllium	Spike	14.6		mg/kg	14.5709		1	Yes	S4VEM
Cadmium	Spike	13.7		mg/kg	13.7130		1	Yes	S4VEM
Chromium	Spike	67.8		mg/kg	67.7881	N	1	Yes	S4VEM
Cobalt	Spike	141		mg/kg	141.3692		1	Yes	S4VEM
Copper	Spike	75.9		mg/kg	75.8903		1	Yes	S4VEM
Lead	Spike	8.6		mg/kg	8.5788		1	Yes	S4VEM
Manganese	Spike	181		mg/kg	181.3649		1	Yes	S4VEM
Nickel	Spike	141		mg/kg	140.9463		1	Yes	S4VEM
Selenium	Spike	13.3		mg/kg	13.2807		1	Yes	S4VEM
Silver	Spike	13.6		mg/kg	13.5696		1	Yes	S4VEM
Thallium	Spike	13.0		mg/kg	13.0089		1	Yes	S4VEM
Vanadium	Spike	157		mg/kg	156.7566		1	Yes	S4VEM
Zinc	Spike	140		mg/kg	140.4352		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AK2	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-05	pH:	2	Sample Date:	09/11/2014	Sample Time:	09:27:00
% Moisture :				% Solids :	74.2		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	743		mg/kg	743		1	Yes	S4VEM
Antimony	Target	6.1	U	mg/kg	6.1	U	1	Yes	S4VEM
Arsenic	Target	0.46	J-	mg/kg	0.46	J	1	Yes	S4VEM
Barium	Target	7.3	J	mg/kg	7.3	J	1	Yes	S4VEM
Beryllium	Target	0.15	J	mg/kg	0.15	J	1	Yes	S4VEM
Cadmium	Target	0.51	U	mg/kg	0.51	U	1	Yes	S4VEM
Calcium	Target	170	J	mg/kg	170	J	1	Yes	S4VEM
Chromium	Target	1.9	J	mg/kg	1.9	N	1	Yes	S4VEM
Cobalt	Target	0.92	J	mg/kg	0.92	J	1	Yes	S4VEM
Copper	Target	0.48	J	mg/kg	0.48	J	1	Yes	S4VEM
Iron	Target	1810		mg/kg	1810		1	Yes	S4VEM
Lead	Target	2.7		mg/kg	2.7		1	Yes	S4VEM
Magnesium	Target	36.0	J	mg/kg	36.0	J	1	Yes	S4VEM
Manganese	Target	18.6		mg/kg	18.6		1	Yes	S4VEM
Nickel	Target	0.65	J	mg/kg	0.65	J	1	Yes	S4VEM
Potassium	Target	510	UJ	mg/kg	510	U	1	Yes	S4VEM
Selenium	Target	3.6	U	mg/kg	0.30	J	1	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1.0	U	1	Yes	S4VEM
Sodium	Target	510	U	mg/kg	31.7	J	1	Yes	S4VEM
Thallium	Target	2.6	U	mg/kg	2.6	U	1	Yes	S4VEM
Vanadium	Target	2.9	J	mg/kg	2.9	J	1	Yes	S4VEM
Zinc	Target	6.1	U	mg/kg	5.4	J	1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AK3	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-06	pH:	2	Sample Date:	09/11/2014	Sample Time:	09:47:00
% Moisture :				% Solids :	52.8		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	3890		mg/kg	3890		1	Yes	S4VEM
Antimony	Target	0.26	J	mg/kg	0.26	J	1	Yes	S4VEM
Arsenic	Target	3.7		mg/kg	3.7		1	Yes	S4VEM
Barium	Target	41.5		mg/kg	41.5		1	Yes	S4VEM
Beryllium	Target	0.68	J	mg/kg	0.68	J	1	Yes	S4VEM
Cadmium	Target	0.098	J	mg/kg	0.098	J	1	Yes	S4VEM
Calcium	Target	1300		mg/kg	1300		1	Yes	S4VEM
Chromium	Target	6.8	J	mg/kg	6.8	N	1	Yes	S4VEM
Cobalt	Target	7.0	J	mg/kg	7.0	J	1	Yes	S4VEM
Copper	Target	2.9	J	mg/kg	2.9	J	1	Yes	S4VEM
Iron	Target	11500		mg/kg	11500		1	Yes	S4VEM
Lead	Target	10.1		mg/kg	10.1		1	Yes	S4VEM
Magnesium	Target	184	J	mg/kg	184	J	1	Yes	S4VEM
Manganese	Target	95.2		mg/kg	95.2		1	Yes	S4VEM
Nickel	Target	3.6	J	mg/kg	3.6	J	1	Yes	S4VEM
Potassium	Target	746	U	mg/kg	68.3	J	1	Yes	S4VEM
Selenium	Target	5.2	U	mg/kg	1.4	J	1	Yes	S4VEM
Silver	Target	1.5	U	mg/kg	1.5	U	1	Yes	S4VEM
Sodium	Target	746	U	mg/kg	77.9	J	1	Yes	S4VEM
Thallium	Target	3.7	U	mg/kg	3.7	U	1	Yes	S4VEM
Vanadium	Target	13.1		mg/kg	13.1		1	Yes	S4VEM
Zinc	Target	29.1		mg/kg	29.1		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AK4	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-07	pH:	2	Sample Date:	09/11/2014	Sample Time:	10:00:00
% Moisture :				% Solids :	69.2		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	2830		mg/kg	2830		1	Yes	S4VEM
Antimony	Target	6.4	U	mg/kg	6.4	U	1	Yes	S4VEM
Arsenic	Target	2.0		mg/kg	2.0		1	Yes	S4VEM
Barium	Target	36.3		mg/kg	36.3		1	Yes	S4VEM
Beryllium	Target	0.94		mg/kg	0.94		1	Yes	S4VEM
Cadmium	Target	0.94		mg/kg	0.94		1	Yes	S4VEM
Calcium	Target	1560		mg/kg	1560		1	Yes	S4VEM
Chromium	Target	5.0	J	mg/kg	5.0	N	1	Yes	S4VEM
Cobalt	Target	2.8	J	mg/kg	2.8	J	1	Yes	S4VEM
Copper	Target	2.7		mg/kg	2.7		1	Yes	S4VEM
Iron	Target	5460		mg/kg	5460		1	Yes	S4VEM
Lead	Target	9.6		mg/kg	9.6		1	Yes	S4VEM
Magnesium	Target	127	J	mg/kg	127	J	1	Yes	S4VEM
Manganese	Target	60.9		mg/kg	60.9		1	Yes	S4VEM
Nickel	Target	2.7	J	mg/kg	2.7	J	1	Yes	S4VEM
Potassium	Target	535	U	mg/kg	24.9	J	1	Yes	S4VEM
Selenium	Target	3.7	U	mg/kg	0.83	J	1	Yes	S4VEM
Silver	Target	1.1	U	mg/kg	1.1	U	1	Yes	S4VEM
Sodium	Target	535	U	mg/kg	54.0	J	1	Yes	S4VEM
Thallium	Target	2.7	U	mg/kg	2.7	U	1	Yes	S4VEM
Vanadium	Target	13.2		mg/kg	13.2		1	Yes	S4VEM
Zinc	Target	21.9		mg/kg	21.9		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AK5	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-08	pH:	2	Sample Date:	09/11/2014	Sample Time:	10:35:00
% Moisture :				% Solids :	70.8		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	5460		mg/kg	5460		1	Yes	S4VEM
Antimony	Target	6.1	U	mg/kg	6.1	U	1	Yes	S4VEM
Arsenic	Target	2.0		mg/kg	2.0		1	Yes	S4VEM
Barium	Target	42.8		mg/kg	42.8		1	Yes	S4VEM
Beryllium	Target	0.49	J	mg/kg	0.49	J	1	Yes	S4VEM
Cadmium	Target	0.50	U	mg/kg	0.50	U	1	Yes	S4VEM
Calcium	Target	404	J	mg/kg	404	J	1	Yes	S4VEM
Chromium	Target	8.4	J	mg/kg	8.4	N	1	Yes	S4VEM
Cobalt	Target	3.3	J	mg/kg	3.3	J	1	Yes	S4VEM
Copper	Target	1.9	J	mg/kg	1.9	J	1	Yes	S4VEM
Iron	Target	6350		mg/kg	6350		1	Yes	S4VEM
Lead	Target	9.4		mg/kg	9.4		1	Yes	S4VEM
Magnesium	Target	253	J	mg/kg	253	J	1	Yes	S4VEM
Manganese	Target	38.1		mg/kg	38.1		1	Yes	S4VEM
Nickel	Target	2.9	J	mg/kg	2.9	J	1	Yes	S4VEM
Potassium	Target	504	U	mg/kg	139	J	1	Yes	S4VEM
Selenium	Target	3.5	U	mg/kg	0.67	J	1	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1.0	U	1	Yes	S4VEM
Sodium	Target	504	U	mg/kg	62.6	J	1	Yes	S4VEM
Thallium	Target	2.5	U	mg/kg	2.5	U	1	Yes	S4VEM
Vanadium	Target	15.0		mg/kg	15.0		1	Yes	S4VEM
Zinc	Target	11.9		mg/kg	11.9		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AK6	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-09	pH:	2	Sample Date:	09/11/2014	Sample Time:	10:50:00
% Moisture :				% Solids :	44.2		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	6820		mg/kg	6820		1	Yes	S4VEM
Antimony	Target	10.4	U	mg/kg	10.4	U	1	Yes	S4VEM
Arsenic	Target	8.2		mg/kg	8.2		1	Yes	S4VEM
Barium	Target	83.1		mg/kg	83.1		1	Yes	S4VEM
Beryllium	Target	1.2		mg/kg	1.2		1	Yes	S4VEM
Cadmium	Target	0.11	J	mg/kg	0.11	J	1	Yes	S4VEM
Calcium	Target	1640		mg/kg	1640		1	Yes	S4VEM
Chromium	Target	12.1	J	mg/kg	12.1	N	1	Yes	S4VEM
Cobalt	Target	14.2		mg/kg	14.2		1	Yes	S4VEM
Copper	Target	4.8		mg/kg	4.8		1	Yes	S4VEM
Iron	Target	20900		mg/kg	20900		1	Yes	S4VEM
Lead	Target	15.2		mg/kg	15.2		1	Yes	S4VEM
Magnesium	Target	308	J	mg/kg	308	J	1	Yes	S4VEM
Manganese	Target	534		mg/kg	534		1	Yes	S4VEM
Nickel	Target	6.3	J	mg/kg	6.3	J	1	Yes	S4VEM
Potassium	Target	870	U	mg/kg	131	J	1	Yes	S4VEM
Selenium	Target	6.1	U	mg/kg	2.5	J	1	Yes	S4VEM
Silver	Target	1.7	U	mg/kg	1.7	U	1	Yes	S4VEM
Sodium	Target	870	U	mg/kg	84.7	J	1	Yes	S4VEM
Thallium	Target	4.4	U	mg/kg	4.4	U	1	Yes	S4VEM
Vanadium	Target	21.4		mg/kg	21.4		1	Yes	S4VEM
Zinc	Target	43.5		mg/kg	43.5		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AK7	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-10	pH:	2	Sample Date:	09/11/2014	Sample Time:	11:10:00
% Moisture :				% Solids :	75.1		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	617		mg/kg	617		1	Yes	S4VEM
Antimony	Target	6.1	U	mg/kg	6.1	U	1	Yes	S4VEM
Arsenic	Target	1.9		mg/kg	1.9		1	Yes	S4VEM
Barium	Target	6.8	J	mg/kg	6.8	J	1	Yes	S4VEM
Beryllium	Target	0.18	J	mg/kg	0.18	J	1	Yes	S4VEM
Cadmium	Target	0.51	U	mg/kg	0.51	U	1	Yes	S4VEM
Calcium	Target	184	J	mg/kg	184	J	1	Yes	S4VEM
Chromium	Target	2.2	J	mg/kg	2.2	N	1	Yes	S4VEM
Cobalt	Target	0.97	J	mg/kg	0.97	J	1	Yes	S4VEM
Copper	Target	1.7	J	mg/kg	1.7	J	1	Yes	S4VEM
Iron	Target	6810		mg/kg	6810		1	Yes	S4VEM
Lead	Target	1.9		mg/kg	1.9		1	Yes	S4VEM
Magnesium	Target	38.6	J	mg/kg	38.6	J	1	Yes	S4VEM
Manganese	Target	50.0		mg/kg	50.0		1	Yes	S4VEM
Nickel	Target	1.0	J	mg/kg	1.0	J	1	Yes	S4VEM
Potassium	Target	512	UJ	mg/kg	512	U	1	Yes	S4VEM
Selenium	Target	3.6	U	mg/kg	0.73	J	1	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1.0	U	1	Yes	S4VEM
Sodium	Target	512	U	mg/kg	34.1	J	1	Yes	S4VEM
Thallium	Target	2.6	U	mg/kg	2.6	U	1	Yes	S4VEM
Vanadium	Target	2.3	J	mg/kg	2.3	J	1	Yes	S4VEM
Zinc	Target	9.4		mg/kg	9.4		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AK8	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-11	pH:	2	Sample Date:	09/11/2014	Sample Time:	11:32:00
% Moisture :				% Solids :	55		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	7140		mg/kg	7140		1	Yes	S4VEM
Antimony	Target	0.29	J	mg/kg	0.29	J	1	Yes	S4VEM
Arsenic	Target	8.8		mg/kg	8.8		1	Yes	S4VEM
Barium	Target	66.2		mg/kg	66.2		1	Yes	S4VEM
Beryllium	Target	0.61	J	mg/kg	0.61	J	1	Yes	S4VEM
Cadmium	Target	0.13	J	mg/kg	0.13	J	1	Yes	S4VEM
Calcium	Target	2890		mg/kg	2890		1	Yes	S4VEM
Chromium	Target	47.6	J	mg/kg	47.6	N	1	Yes	S4VEM
Cobalt	Target	3.9	J	mg/kg	3.9	J	1	Yes	S4VEM
Copper	Target	27.2		mg/kg	27.2		1	Yes	S4VEM
Iron	Target	8170		mg/kg	8170		1	Yes	S4VEM
Lead	Target	12.9		mg/kg	12.9		1	Yes	S4VEM
Magnesium	Target	569	J	mg/kg	569	J	1	Yes	S4VEM
Manganese	Target	62.0		mg/kg	62.0		1	Yes	S4VEM
Nickel	Target	5.7		mg/kg	5.7		1	Yes	S4VEM
Potassium	Target	694	U	mg/kg	268	J	1	Yes	S4VEM
Selenium	Target	4.9	U	mg/kg	1.4	J	1	Yes	S4VEM
Silver	Target	1.4	U	mg/kg	1.4	U	1	Yes	S4VEM
Sodium	Target	694	U	mg/kg	74.2	J	1	Yes	S4VEM
Thallium	Target	3.5	U	mg/kg	3.5	U	1	Yes	S4VEM
Vanadium	Target	14.8		mg/kg	14.8		1	Yes	S4VEM
Zinc	Target	96.8		mg/kg	96.8		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AK9	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-12	pH:	2	Sample Date:	09/11/2014	Sample Time:	11:45:00
% Moisture :				% Solids :	67		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	3230		mg/kg	3230		1	Yes	S4VEM
Antimony	Target	6.9	U	mg/kg	6.9	U	1	Yes	S4VEM
Arsenic	Target	2.5		mg/kg	2.5		1	Yes	S4VEM
Barium	Target	29.8		mg/kg	29.8		1	Yes	S4VEM
Beryllium	Target	0.29	J	mg/kg	0.29	J	1	Yes	S4VEM
Cadmium	Target	0.029	J	mg/kg	0.029	J	1	Yes	S4VEM
Calcium	Target	970		mg/kg	970		1	Yes	S4VEM
Chromium	Target	16.7	J	mg/kg	16.7	N	1	Yes	S4VEM
Cobalt	Target	2.3	J	mg/kg	2.3	J	1	Yes	S4VEM
Copper	Target	7.7		mg/kg	7.7		1	Yes	S4VEM
Iron	Target	4260		mg/kg	4260		1	Yes	S4VEM
Lead	Target	5.6		mg/kg	5.6		1	Yes	S4VEM
Magnesium	Target	267	J	mg/kg	267	J	1	Yes	S4VEM
Manganese	Target	37.3		mg/kg	37.3		1	Yes	S4VEM
Nickel	Target	2.5	J	mg/kg	2.5	J	1	Yes	S4VEM
Potassium	Target	579	U	mg/kg	129	J	1	Yes	S4VEM
Selenium	Target	4.0	U	mg/kg	0.71	J	1	Yes	S4VEM
Silver	Target	1.2	U	mg/kg	1.2	U	1	Yes	S4VEM
Sodium	Target	579	U	mg/kg	41.7	J	1	Yes	S4VEM
Thallium	Target	2.9	U	mg/kg	2.9	U	1	Yes	S4VEM
Vanadium	Target	8.6		mg/kg	8.6		1	Yes	S4VEM
Zinc	Target	39.5		mg/kg	39.5		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AL0	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-13	pH:	2	Sample Date:	09/11/2014	Sample Time:	12:00:00
% Moisture :				% Solids :	51.2		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	8600		mg/kg	8600		1	Yes	S4VEM
Antimony	Target	0.26	J	mg/kg	0.26	J	1	Yes	S4VEM
Arsenic	Target	11.4		mg/kg	11.4		1	Yes	S4VEM
Barium	Target	68.7		mg/kg	68.7		1	Yes	S4VEM
Beryllium	Target	0.80		mg/kg	0.80		1	Yes	S4VEM
Cadmium	Target	0.044	J	mg/kg	0.044	J	1	Yes	S4VEM
Calcium	Target	818		mg/kg	818		1	Yes	S4VEM
Chromium	Target	26.3	J	mg/kg	26.3	N	1	Yes	S4VEM
Cobalt	Target	5.1	J	mg/kg	5.1	J	1	Yes	S4VEM
Copper	Target	13.2		mg/kg	13.2		1	Yes	S4VEM
Iron	Target	9800		mg/kg	9800		1	Yes	S4VEM
Lead	Target	21.4		mg/kg	21.4		1	Yes	S4VEM
Magnesium	Target	433	J	mg/kg	433	J	1	Yes	S4VEM
Manganese	Target	77.3		mg/kg	77.3		1	Yes	S4VEM
Nickel	Target	4.6	J	mg/kg	4.6	J	1	Yes	S4VEM
Potassium	Target	751	U	mg/kg	194	J	1	Yes	S4VEM
Selenium	Target	5.3	U	mg/kg	1.3	J	1	Yes	S4VEM
Silver	Target	1.5	U	mg/kg	1.5	U	1	Yes	S4VEM
Sodium	Target	751	U	mg/kg	73.2	J	1	Yes	S4VEM
Thallium	Target	3.8	U	mg/kg	3.8	U	1	Yes	S4VEM
Vanadium	Target	22.4		mg/kg	22.4		1	Yes	S4VEM
Zinc	Target	50.7		mg/kg	50.7		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AL1	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-14	pH:	2	Sample Date:	09/11/2014	Sample Time:	14:35:00
% Moisture :				% Solids :	80.2		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	288		mg/kg	288		1	Yes	S4VEM
Antimony	Target	5.6	U	mg/kg	5.6	U	1	Yes	S4VEM
Arsenic	Target	0.93	UJ	mg/kg	0.93	U	1	Yes	S4VEM
Barium	Target	2.7	J	mg/kg	2.7	J	1	Yes	S4VEM
Beryllium	Target	0.47	U	mg/kg	0.47	U	1	Yes	S4VEM
Cadmium	Target	0.47	U	mg/kg	0.47	U	1	Yes	S4VEM
Calcium	Target	85.9	J	mg/kg	85.9	J	1	Yes	S4VEM
Chromium	Target	1.0	J	mg/kg	1.0	N	1	Yes	S4VEM
Cobalt	Target	0.30	J	mg/kg	0.30	J	1	Yes	S4VEM
Copper	Target	2.3	U	mg/kg	2.3	U	1	Yes	S4VEM
Iron	Target	776		mg/kg	776		1	Yes	S4VEM
Lead	Target	1.0		mg/kg	1.0		1	Yes	S4VEM
Magnesium	Target	15.7	J	mg/kg	15.7	J	1	Yes	S4VEM
Manganese	Target	10.0		mg/kg	10.0		1	Yes	S4VEM
Nickel	Target	0.29	J	mg/kg	0.29	J	1	Yes	S4VEM
Potassium	Target	465	UJ	mg/kg	465	U	1	Yes	S4VEM
Selenium	Target	3.3	U	mg/kg	0.17	J	1	Yes	S4VEM
Silver	Target	0.93	U	mg/kg	0.93	U	1	Yes	S4VEM
Sodium	Target	465	U	mg/kg	26.7	J	1	Yes	S4VEM
Thallium	Target	2.3	U	mg/kg	2.3	U	1	Yes	S4VEM
Vanadium	Target	1.6	J	mg/kg	1.6	J	1	Yes	S4VEM
Zinc	Target	5.6	U	mg/kg	1.9	J	1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	MC0AL2	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:	NKWP-SD-15	pH:	2	Sample Date:	09/11/2014	Sample Time:	14:45:00
% Moisture :				% Solids :	75.1		

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	2070		mg/kg	2070		1	Yes	S4VEM
Antimony	Target	6.4	U	mg/kg	6.4	U	1	Yes	S4VEM
Arsenic	Target	1.3		mg/kg	1.3		1	Yes	S4VEM
Barium	Target	17.2	J	mg/kg	17.2	J	1	Yes	S4VEM
Beryllium	Target	0.36	J	mg/kg	0.36	J	1	Yes	S4VEM
Cadmium	Target	0.53	U	mg/kg	0.53	U	1	Yes	S4VEM
Calcium	Target	343	J	mg/kg	343	J	1	Yes	S4VEM
Chromium	Target	3.8	J	mg/kg	3.8	N	1	Yes	S4VEM
Cobalt	Target	1.5	J	mg/kg	1.5	J	1	Yes	S4VEM
Copper	Target	1.2	J	mg/kg	1.2	J	1	Yes	S4VEM
Iron	Target	4530		mg/kg	4530		1	Yes	S4VEM
Lead	Target	12.6		mg/kg	12.6		1	Yes	S4VEM
Magnesium	Target	94.9	J	mg/kg	94.9	J	1	Yes	S4VEM
Manganese	Target	26.6		mg/kg	26.6		1	Yes	S4VEM
Nickel	Target	1.3	J	mg/kg	1.3	J	1	Yes	S4VEM
Potassium	Target	533	U	mg/kg	27.6	J	1	Yes	S4VEM
Selenium	Target	3.7	U	mg/kg	0.71	J	1	Yes	S4VEM
Silver	Target	1.1	U	mg/kg	1.1	U	1	Yes	S4VEM
Sodium	Target	533	U	mg/kg	34.1	J	1	Yes	S4VEM
Thallium	Target	2.7	U	mg/kg	2.7	U	1	Yes	S4VEM
Vanadium	Target	7.6		mg/kg	7.6		1	Yes	S4VEM
Zinc	Target	8.9		mg/kg	8.9		1	Yes	S4VEM

Case No:	44664	Contract:	EPW09038	SDG No:	MC0AJ3	Lab Code:	CHEM
Sample Number:	PBS01	Method:	ICP_AES	Matrix:	Soil	MA Number:	DEFAULT
Sample Location:		pH:		Sample Date:	09/18/2014	Sample Time:	23:37:21
% Moisture :				% Solids :			

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Aluminum	Target	20.0	U	mg/kg	20.000	U	1	Yes	S4VEM
Antimony	Target	6.0	U	mg/kg	6.000	U	1	Yes	S4VEM
Arsenic	Target	-0.29	J	mg/kg	-0.295	J	1	Yes	S4VEM
Barium	Target	20.0	U	mg/kg	20.000	U	1	Yes	S4VEM
Beryllium	Target	0.50	U	mg/kg	0.500	U	1	Yes	S4VEM
Cadmium	Target	0.50	U	mg/kg	0.5000	U	1	Yes	S4VEM
Calcium	Target	500	U	mg/kg	500.000	U	1	Yes	S4VEM
Chromium	Target	1.0	U	mg/kg	1.000	U	1	Yes	S4VEM
Cobalt	Target	5.0	U	mg/kg	5.000	U	1	Yes	S4VEM
Copper	Target	2.5	U	mg/kg	2.500	U	1	Yes	S4VEM
Iron	Target	10.0	U	mg/kg	10.000	U	1	Yes	S4VEM
Lead	Target	1.0	U	mg/kg	1.000	U	1	Yes	S4VEM
Magnesium	Target	500	U	mg/kg	500.000	U	1	Yes	S4VEM
Manganese	Target	1.5	U	mg/kg	1.500	U	1	Yes	S4VEM
Nickel	Target	4.0	U	mg/kg	4.000	U	1	Yes	S4VEM
Potassium	Target	500	U	mg/kg	14.037	J	1	Yes	S4VEM
Selenium	Target	0.26	J	mg/kg	0.260	J	1	Yes	S4VEM
Silver	Target	1.0	U	mg/kg	1.000	U	1	Yes	S4VEM
Sodium	Target	500	U	mg/kg	500.000	U	1	Yes	S4VEM
Thallium	Target	2.5	U	mg/kg	2.500	U	1	Yes	S4VEM
Vanadium	Target	5.0	U	mg/kg	5.000	U	1	Yes	S4VEM
Zinc	Target	6.0	U	mg/kg	6.000	U	1	Yes	S4VEM

FULL INORGANICS COMPLETE SDG FILE (CSF) INVENTORY SHEET

LABORATORY NAME :	CHEMTECH CONSULTING GROUP, INC.		
CITY / STATE :	MOUNTAINSIDE, NJ		
CASE NO :	44664	SDG NO :	MC0AJ3
SDG NOs TO FOLLOW			
MOD. REF. NO :			
CONTRACT NO :	EPW09038		
SOW NO :	ISM01.3		

All documents delivered in the Complete SDG File must be original documents where possible. (Reference - Exhibit B Section 2.6)

		PAGE NOS: FROM	TO	CHECK LAB	REGION
1.	Inventory Sheet (DC-2)	1	2	✔	
2.	SDG Narrative	3	5	✔	
3.	Sample Log-In Sheet (DC-1)	6	6	✔	
4.	Traffic Report/Chain of Custody Record(s)	7	11	✔	
5.	Cover Page	12	13	✔	
	Inorganic Analysis				
6.	Data Sheet (Form IA-IN)	14	32	✔	
7.	Initial & Continuing Calibration Verification (Form IIA-IN)	33	39	✔	
8.	Blanks (Form III-IN)	40	44	✔	
9.	ICP-AES Interference Check Sample (Form IVA-IN)	45	47	✔	
10.	ICP-MS Interference Check Sample (Form IVB-IN)	NA	NA	✔	
11.	Matrix Spike Sample Recovery (Form VA-IN)	48	48	✔	
12.	Post-Digestion Spike Sample Recovery (Form VB-IN)	49	49	✔	
13.	Duplicates (Form VI-IN)	50	50	✔	
14.	Laboratory Control Sample (Form VII-IN)	51	51	✔	
15.	ICP-AES and ICP-MS Serial Dilutions (Form VIII-IN)	52	52	✔	
16.	Method Detection Limits (Annually) (Form IX-IN)	53	54	✔	
17.	ICP-AES Interelement Correction Factors (Annually) (Form XA-IN)	55	55	✔	
18.	ICP-AES Interelement Correction Factor (Annually) (Form XB-IN)	56	57	✔	
19.	Internal Standard Association (Form XI-IN)	NA	NA	✔	
20.	Preparation Log (Form XII-IN)	58	58	✔	
21.	Analysis Run Log (Form XIII-IN)	59	67	✔	
22.	ICP-MS Tune (Form XIV-IN)	NA	NA	✔	
23.	ICP-MS Internal Standards Relative Intensity Summary (Form XV-IN)	NA	NA	✔	
24.	Initial Calibration (Form XVI-IN)	68	75	✔	
25.	ICP-AES Raw Data	76	605	✔	
26.	ICP-MS Raw Data	NA	NA	✔	
27.	Mercury Raw Data	NA	NA	✔	

28.	Cyanide Raw Data	NA	NA	✔	
29.	Preparation Logs Raw Data	606	608	✔	
30.	Percent Solids Determination Log	609	610	✔	
31.	**USEPA Shipping/Receiving Documents**				
	Airbill (No. of Shipments) 1	611	611	✔	
	Sample Tags (***In a Plastic Bag w/ Page #)***	612	615	✔	
	Sample Log-In Sheet (Lab)	616	617	✔	
32.	Misc. Shipping/Receiving Records				
	(list all individual records)				
	Telephone log	618	623	✔	
	PE Instruction Page	NA	NA	✔	
	Modified Analysis Page	NA	NA	✔	
33.	Internal Lab Sample Transfer Records &				
	Tracking Sheets (describe or list)				
	Internal Lab COC	624	624	✔	
	Miscellaneous	NA	NA	✔	
34.	Internal Original Sample Prep &				
	Analysis Records (describe or list)				
	Prep Records	NA	NA	✔	
	Analysis Records	NA	NA	✔	
	Description	NA	NA	✔	
35.	Other Records (describe or list) Communications Log	NA	NA	✔	
36.	Comments : NA				

Completed By :

(CLP Lab) Zh. Rohi for — (Signature)

Mildred V. Reyes,Document Control Officer — (Print Name & Title)

09/29/2014 — (Date)

Audited By :

(USEPA) _____ (Signature)

_____ (Print Name & Title)

_____ (Date)

CHEMTECH
284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # MC0AJ3
CASE # 44664
CONTRACT # EPW09038
LAB NAME: CHEMTECH
LAB CODE: CHEM
CHEMTECH PROJECT #F3939

A. Number of Samples and Date of Receipt

19 soil samples were delivered to the laboratory intact on 09/13/2014.

B. Parameters

Test requested for Metals CLP Full = Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Silver, Selenium, Sodium, Thallium, Vanadium, Zinc.

C. Cooler Temp

Indicator Bottle: **Presence**/Absence
Cooler: 5°C

D. Detail Documentation (related to Sample Handling Shipping, Analytical Problem, Temp of Cooler etc):

Issue 1: Several samples from SDG MC0AJ3 have % solids results less than 50% but more than 30%.

EPA Sample ID	% Solids
MC0AJ4	42.3
MC0AK6	44.2

Issue 2:The laboratory received samples for Case 44673. The case number on the COC (attached), sample tag and label (attached) do not match.

Issue 3: The sample IDs and tag numbers are missing from the sample tags and labels. The station location is listed in place of the sample number on both the sample tag and label.

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284 Sheffield Street
Mountainside, NJ 07092

E. Corrective Action taken for above:

Resolution 1: Per the ISM01.3 SOW, the laboratory will proceed with the analysis of the samples according to Exhibit D, sections 1.6.4 and 1.6.5. The laboratory will note the issue in the SDG Narrative.

Resolution 2: Per Region 3, the Case number on the sample tag and label are correct. The sample is for Case 44664. The COC contained an incorrect case number. The correct COC is attached for Case 44664 and Case 44673. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Resolution 3: Per Region 3, MC0AJ3 is for Case 44664. The station location and collection time for sample MC0AJ3 match the sample tag and label per the attached corrected COC. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

F. Analytical Techniques:

All analyses were based on CLP Methodology by method ISM01.3

G. Calculation:

Calculation for ICP-AES Soil Sample:

Conversion of Results from mg/L or ppm to mg/kg (Dry Weight Basis):

$$\text{Concentration (mg/kg)} = C \times \frac{V_f}{W \times S} \times DF$$

Where,

C = Instrument value in ppm (The average of all replicate exposures)
V_f = Final digestion volume (mL)
W = Initial aliquot amount (g) (Sample amount taken in prep)
S = % Solids / 100 (Fraction of Percent Solids)
DF = Dilution Factor

Example Calculation:

If C = 12.34 ppm
V_f = 100 ml
W = 1.20 g

CHEMTECH
284 Sheffield Street
Mountainside, NJ 07092

S = 0.90 (90/100)
DF = 1

$$\text{Concentration (mg/kg)} = 12.34 \times \frac{100}{1.2 \times 0.90} \times 1$$

$$= 1142.6 \text{ mg/kg}$$

$$= 1140 \text{ mg/kg (Reported Result with Signification)}$$

H. QA/ QC

Calibrations met requirements. Interference check met requirements. Blank analyses did not indicate any presence of contamination. Laboratory Control sample was within control limits. Spike sample did meet requirements except for Chromium. Duplicate sample did meet requirements. Serial Dilution did meet requirements.

I certify that the data package is in compliance with the terms and conditions of the contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature M. Rohen for Name: Mildred V. Reyes

Date 09/29/2014 Title: Document Control Officer

SAMPLE LOG-IN SHEET

Lab Name CHEMTECH CONSULTING GROUP

Page 1 of 1

Received By (Print) DEEPAK PARMAR

Log-in Date **9/13/2014**

Received By (Signature)

Case Number 44664

Sample Delivery Group No. MC0AJ3

MOD.REF.NO N/A

Remarks:

1. Custody Seal(s) — Present/Absent* / Intact/Broken
2. Custody Seal Nos. — N/A
3. Traffic Reports/Chain Of Custody Records — Present/Absent*
4. Airbill — Airbill/Sticker Present/Absent*
5. Airbill No. — 7711 3242 4616
6. Sample Tags Present/Absent* — Sample Tag # Listed/Not Listed On TR/ Chain-of-Custody
7. Sample Condition — Intact/Broken*/Leaking
8. Cooler Temperature Indicator Bottle — Present/Absent*
9. Cooler Temperature — 5°C
10. Does information on custody records, traffic reports, and sample tags — Yes/No*
11. Date Received at Lab — 9/13/14
12. Time Received — 10:00 AM

Corresponding

EPA Sample #	Aqueous Sample pH	Sample Tag #	Assigned Lab#	Remarks: Condition of Sample shipment, etc.
MC0AJ3	N/A	1151	F3939-01	Intact
MC0AJ4		1153	F3939-02	
MC0AJ5		1155	F3939-03	
MC0AJ7		1159	F3939-04	
MC0AJ8		1161	F3939-05	
MC0AJ9		1163	F3939-06	
MC0AK0		1165	F3939-07	
MC0AK1		1167	F3939-08	
MC0AK1D			F3939-09	
MC0AK1S		↓	F3939-10	
MC0AK2		1169	F3939-11	
MC0AK3		1171	F3939-12	
MC0AK4		1173	F3939-13	
MC0AK5		1175	F3939-14	
MC0AK6		1177	F3939-15	
MC0AK7		1179	F3939-16	
MC0AK8		1181	F3939-17	
MC0AK9		1183	F3939-18	
MC0AL0		1185	F3939-19	
MC0AL1		1187	F3939-20	
MC0AL2	↓	1189	F3939-21	↓

Sample Transfer

Fraction	Fraction Metals
Area #	Area #
By	By Deepak
On	On 9/15/14

* Contact SMO and attach record of

Reviewed By Zhaleh	Logbook No.
Date 09/16/2014	Logbook Page

Sample Delivery Group (SDG) Cover Sheet

SDG Number	MC0AJ3	Case Number	44664	Contract Number	EPW09038
Lab Code	CHEM	SDG Turnaround	21 days	Delivery CLIN(s)	—

First Sample Received in SDG	MC0AJ3	Last Sample Received in SDG	MC0AL2
First Sample Receipt Date	9/13/2014 10:00:00 AM	Last Sample Receipt Date	9/13/2014 10:00:00 AM

USEPA Sample Numbers in SDG (Listed in Numerical Order)

CLP Sample ID	Sample Type	Requested Analytical CLIN(s)/SubCLIN(s)	Solicitation Number	MA Number(s)
MC0AJ3	Field Sample	0025C	None	None
MC0AJ4	Field Sample	0025C		
MC0AJ5	Field Sample	0025C		
MC0AJ7	Field Sample	0025C		
MC0AJ8	Field Sample	0025C		
MC0AJ9	Field Sample	0025C		
MC0AK0	Field Sample	0025C		
MC0AK1	Field Sample	0025C		
MC0AK1D	Field Sample	0025C		
MC0AK1S	Field Sample	0025C		
MC0AK2	Field Sample	0025C		
MC0AK3	Field Sample	0025C		
MC0AK4	Field Sample	0025C		
MC0AK5	Field Sample	0025C		
MC0AK6	Field Sample	0025C		
MC0AK7	Field Sample	0025C		
MC0AK8	Field Sample	0025C		
MC0AK9	Field Sample	0025C		
MC0AL0	Field Sample	0025C		
MC0AL1	Field Sample	0025C		
MC0AL2	Field Sample	0025C		

Note: *There are a maximum of 20* ***field*** *samples (excluding PE samples) in an SDG. Attach TR/COC Records to this form in alphanumeric order (the order listed above on this form).*

Signature Th. Rohe [illegible] Date 09/16/2014

Page 1 of 2

USEPA CLP COC (LAB COPY)
DateShipped: 9/12/2014
CarrierName: FedEx
AirbillNo: 7711 3242 4616

CHAIN OF CUSTODY RECORD
Site #: TK
Case #: 44673
Cooler #: 5 of 5

No: 3-091114-220825-0015
Lab: Chemtech Consulting Group
Lab Contact: Sample Recieving
Lab Phone: 908-789-8900

Inorganic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Organic Sample #	For Lab Use Only
MC0AJ3	Sediment/ Matt Fisher	Grab	Metals(21)	1151 (4 C) (1)	NKWP-WS-11	09/11/2014 13:45	C0AJ3	1
MC0AJ4	Sediment/ Matt Fisher	Grab	Metals(21)	1153 (4 C) (1)	NKWP-WS-12	09/11/2014 13:55	C0AJ4	1
MC0AJ5	Sediment/ Matt Fisher	Grab	Metals(21)	1155 (4 C) (1)	NKWP-WS-13	09/11/2014 14:25	C0AJ5	1
MC0AJ7	Sediment/ Matt Fisher	Grab	Metals(21)	1159 (4 C) (1)	NKWP-SD-01	09/11/2014 08:00	C0AJ7	1
MC0AJ8	Sediment/ Matt Fisher	Grab	Metals(21)	1161 (4 C) (1)	NKWP-SD-02	09/11/2014 08:15	C0AJ8	1
MC0AJ9	Sediment/ Matt Fisher	Grab	Metals(21)	1163 (4 C) (1)	NKWP-SD-03	09/11/2014 08:33	C0AJ9	1
MC0AK0	Sediment/ Matt Fisher	Grab	Metals(21)	1165 (4 C) (1)	NKWP-SD-04	09/11/2014 08:55	C0AK0	1
MC0AK1	Sediment/ Matt Fisher	Grab	Metals(21)	1167 (4 C) (1)	NKWP-SD-04-01	09/11/2014 08:55	C0AK1	1
MC0AK2	Sediment/ Matt Fisher	Grab	Metals(21)	1169 (4 C) (1)	NKWP-SD-05	09/11/2014 09:27	C0AK2	1
MC0AK3	Sediment/ Matt Fisher	Grab	Metals(21)	1171 (4 C) (1)	NKWP-SD-06	09/11/2014 09:47	C0AK3	1
MC0AK4	Sediment/ Matt Fisher	Grab	Metals(21)	1173 (4 C) (1)	NKWP-SD-07	09/11/2014 10:00	C0AK4	1

Sample(s) to be used for Lab QC: MC0AK1

Shipment for Case Complete? Y
Samples Transferred From Chain of Custody #

Analysis Key: Metals=ICP-AES 11+ Metals

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
EPA Region 3 START	Matt Fisher	9/12/2014 1200							Deepak Dhiman	9/13/14 10:00	10:00 AM

Temp. 5 °C

MC0AJ3

Page 2 of 2

USEPA CLP COC (LAB COPY)
DateShipped: 9/12/2014
CarrierName: FedEx
AirbillNo: 7711 3242 4616

CHAIN OF CUSTODY RECORD
Site #: TK
Case #: 44673
Cooler #: 5 of 5

No: 3-091114-220825-0015
Lab: Chemtech Consulting Group
Lab Contact: Sample Recieving
Lab Phone: 908-789-8900

Inorganic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Organic Sample #	For Lab Use Only
MC0AK5	Sediment/ Matt Fisher	Grab	Metals(21)	1175 (4 C) (1)	NKWP-SD-08	09/11/2014 10:35	C0AK5	1
MC0AK6	Sediment/ Matt Fisher	Grab	Metals(21)	1177 (4 C) (1)	NKWP-SD-09	09/11/2014 10:50	C0AK6	1
MC0AK7	Sediment/ Matt Fisher	Grab	Metals(21)	1179 (4 C) (1)	NKWP-SD-10	09/11/2014 11:10	C0AK7	1
MC0AK8	Sediment/ Matt Fisher	Grab	Metals(21)	1181 (4 C) (1)	NKWP-SD-11	09/11/2014 11:32	C0AK8	1
MC0AK9	Sediment/ Matt Fisher	Grab	Metals(21)	1183 (4 C) (1)	NKWP-SD-12	09/11/2014 11:45	C0AK9	1
MC0AL0	Sediment/ Matt Fisher	Grab	Metals(21)	1185 (4 C) (1)	NKWP-SD-13	09/11/2014 12:00	C0AL0	1
MC0AL1	Sediment/ Matt Fisher	Grab	Metals(21)	1187 (4 C) (1)	NKWP-SD-14	09/11/2014 14:35	C0AL1	1
MC0AL2	Sediment/ Matt Fisher	Grab	Metals(21)	1189 (4 C) (1)	NKWP-SD-15	09/11/2014 14:45	C0AL2	

Special Instructions:

Shipment for Case Complete? Y
Samples Transferred From Chain of Custody #

Analysis Key: Metals=ICP-AES 11+ Metals

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
EPA Region 3 START	Matt Fisher	9/12/14 1200							Deepak Premnani	9/13/14	10:00Am

Temp. 5°C

USEPA CLP COC (LAB COPY)
DateShipped: 9/12/2014
CarrierName: FedEx
AirbillNo: 7711 3242 4616

CHAIN OF CUSTODY RECORD
Site #: TK
Case #: 44664
Cooler #: 5 of 5

No: 3-091114-220825-0015
Lab: Chemtech Consulting Group
Lab Contact: Sample Recieving
Lab Phone: 908-789-8900

Inorganic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Organic Sample #	For Lab Use Only
MC0AJ3	Sediment/ Matt Fisher	Grab	Metals(21)	1151 (4 C) (1)	NKWP-WS-11	09/11/2014 13:45	C0AJ3	
MC0AJ4	Sediment/ Matt Fisher	Grab	Metals(21)	1153 (4 C) (1)	NKWP-WS-12	09/11/2014 13:55	C0AJ4	
MC0AJ5	Sediment/ Matt Fisher	Grab	Metals(21)	1155 (4 C) (1)	NKWP-WS-13	09/11/2014 14:25	C0AJ5	
MC0AJ7	Sediment/ Matt Fisher	Grab	Metals(21)	1159 (4 C) (1)	NKWP-SD-01	09/11/2014 08:00	C0AJ7	
MC0AJ8	Sediment/ Matt Fisher	Grab	Metals(21)	1161 (4 C) (1)	NKWP-SD-02	09/11/2014 08:15	C0AJ8	
MC0AJ9	Sediment/ Matt Fisher	Grab	Metals(21)	1163 (4 C) (1)	NKWP-SD-03	09/11/2014 08:33	C0AJ9	
MC0AK0	Sediment/ Matt Fisher	Grab	Metals(21)	1165 (4 C) (1)	NKWP-SD-04	09/11/2014 08:55	C0AK0	
MC0AK1	Sediment/ Matt Fisher	Grab	Metals(21)	1167 (4 C) (1)	NKWP-SD-04-01	09/11/2014 08:55	C0AK1	
MC0AK2	Sediment/ Matt Fisher	Grab	Metals(21)	1169 (4 C) (1)	NKWP-SD-05	09/11/2014 09:27	C0AK2	
MC0AK3	Sediment/ Matt Fisher	Grab	Metals(21)	1171 (4 C) (1)	NKWP-SD-06	09/11/2014 09:47	C0AK3	
MC0AK4	Sediment/ Matt Fisher	Grab	Metals(21)	1173 (4 C) (1)	NKWP-SD-07	09/11/2014 10:00	C0AK4	

Sample(s) to be used for Lab QC: MC0AK1

Shipment for Case Complete? Y

Samples Transferred From Chain of Custody #

Analysis Key: Metals=ICP-AES 11+ Metals

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time

Page 2 of 2

USEPA CLP COC (LAB COPY)
DateShipped: 9/12/2014
CarrierName: FedEx
AirbillNo: 7711 3242 4616

CHAIN OF CUSTODY RECORD
Site #: TK
Case #: 44664
Cooler #: 5 of 5

No: 3-091114-220825-0015
Lab: Chemtech Consulting Group
Lab Contact: Sample Recieving
Lab Phone: 908-789-8900

Inorganic Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Organic Sample #	For Lab Use Only
MC0AK5	Sediment/ Matt Fisher	Grab	Metals(21)	1175 (4 C) (1)	NKWP-SD-08	09/11/2014 10:35	C0AK5	
MC0AK6	Sediment/ Matt Fisher	Grab	Metals(21)	1177 (4 C) (1)	NKWP-SD-09	09/11/2014 10:50	C0AK6	
MC0AK7	Sediment/ Matt Fisher	Grab	Metals(21)	1179 (4 C) (1)	NKWP-SD-10	09/11/2014 11:10	C0AK7	
MC0AK8	Sediment/ Matt Fisher	Grab	Metals(21)	1181 (4 C) (1)	NKWP-SD-11	09/11/2014 11:32	C0AK8	
MC0AK9	Sediment/ Matt Fisher	Grab	Metals(21)	1183 (4 C) (1)	NKWP-SD-12	09/11/2014 11:45	C0AK9	
MC0AL0	Sediment/ Matt Fisher	Grab	Metals(21)	1185 (4 C) (1)	NKWP-SD-13	09/11/2014 12:00	C0AL0	
MC0AL1	Sediment/ Matt Fisher	Grab	Metals(21)	1187 (4 C) (1)	NKWP-SD-14	09/11/2014 14:35	C0AL1	
MC0AL2	Sediment/ Matt Fisher	Grab	Metals(21)	1189 (4 C) (1)	NKWP-SD-15	09/11/2014 14:45	C0AL2	

Special Instructions:	**Shipment for Case Complete? Y**
	Samples Transferred From Chain of Custody #
Analysis Key: Metals=ICP-AES 11+ Metals	

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time

US EPA-CLP

COVER PAGE

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No: 44664 Mod. Ref. No.: SDG No: MC0AJ3

SOW No.: ISM01.3

EPA Sample No.	Lab Sample ID
MC0AJ3	F3939-01
MC0AJ4	F3939-02
MC0AJ5	F3939-03
MC0AJ7	F3939-04
MC0AJ8	F3939-05
MC0AJ9	F3939-06
MC0AK0	F3939-07
MC0AK1	F3939-08
MC0AK1D	F3939-09
MC0AK1S	F3939-10
MC0AK2	F3939-11
MC0AK3	F3939-12
MC0AK4	F3939-13
MC0AK5	F3939-14
MC0AK6	F3939-15
MC0AK7	F3939-16
MC0AK8	F3939-17

		ICP-AES	ICP-MS
Were ICP-AES and ICP-MS interelement corrections applied?	(Yes/No)	YES	N/A
Were ICP-AES and ICP-MS background corrections applied?	(Yes/No)	YES	N/A
If yes, were raw data generated before application of background corrections?	(Yes/No)	NO	N/A

The laboratory did not receive any instructions with this SDG to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy Data Package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Th. Rokes For Name: MILDRED REYES

Date: 09/29/2014 Title: DOCUMENT CONTROL OFFICER

US EPA-CLP

COVER PAGE

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No: 44664 Mod. Ref. No.: SDG No: MC0AJ3

SOW No.: ISM01.3

EPA Sample No.	Lab Sample ID
MC0AK9	F3939-18
MC0AL0	F3939-19
MC0AL1	F3939-20
MC0AL2	F3939-21

		ICP-AES	ICP-MS
Were ICP-AES and ICP-MS interelement corrections applied?	(Yes/No)	YES	N/A
Were ICP-AES and ICP-MS background corrections applied?	(Yes/No)	YES	N/A
If yes, were raw data generated before application of background corrections?	(Yes/No)	NO	N/A

The laboratory did not receive any instructions with this SDG to modify the SOW standard laboratory sample preparation procedures (e.g., subsampling). To aid in the determination of data usability with respect to project decisions, any modifications performed are described below.

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy Data Package and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: M. Rohani for Name: MILDRED REYES

Date: 09/29/2014 Title: DOCUMENT CONTROL OFFICER

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AJ3

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-01

% Solids: 51.8 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10400			P
7440-36-0	Antimony	0.96	J		P
7440-38-2	Arsenic	4.2			P
7440-39-3	Barium	91.3			P
7440-41-7	Beryllium	0.51	J		P
7440-43-9	Cadmium	0.40	J		P
7440-70-2	Calcium	2240			P
7440-47-3	Chromium	18.0		N	P
7440-48-4	Cobalt	6.2	J		P
7440-50-8	Copper	47.9			P
7439-89-6	Iron	18300			P
7439-92-1	Lead	37.0			P
7439-95-4	Magnesium	1340			P
7439-96-5	Manganese	152			P
7440-02-0	Nickel	11.6			P
7440-09-7	Potassium	895			P
7782-49-2	Selenium	3.5	J		P
7440-22-4	Silver	1.5	U		P
7440-23-5	Sodium	110	J		P
7440-28-0	Thallium	3.7	U		P
7440-62-2	Vanadium	29.1			P
7440-66-6	Zinc	767			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AJ4

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-02

% Solids: 42.3 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11100			P
7440-36-0	Antimony	1.4	J		P
7440-38-2	Arsenic	14.6			P
7440-39-3	Barium	118			P
7440-41-7	Beryllium	1.4			P
7440-43-9	Cadmium	0.89	J		P
7440-70-2	Calcium	3250			P
7440-47-3	Chromium	21.0		N	P
7440-48-4	Cobalt	12.6			P
7440-50-8	Copper	27.4			P
7439-89-6	Iron	36400			P
7439-92-1	Lead	46.3			P
7439-95-4	Magnesium	1290			P
7439-96-5	Manganese	166			P
7440-02-0	Nickel	12.8			P
7440-09-7	Potassium	489	J		P
7782-49-2	Selenium	6.2	J		P
7440-22-4	Silver	1.8	U		P
7440-23-5	Sodium	176	J		P
7440-28-0	Thallium	4.5	U		P
7440-62-2	Vanadium	43.7			P
7440-66-6	Zinc	498			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AJ5

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-03

% Solids: 54.3 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11100			P
7440-36-0	Antimony	0.34	J		P
7440-38-2	Arsenic	5.0			P
7440-39-3	Barium	44.4			P
7440-41-7	Beryllium	0.64	J		P
7440-43-9	Cadmium	0.23	J		P
7440-70-2	Calcium	640	J		P
7440-47-3	Chromium	15.9		N	P
7440-48-4	Cobalt	2.7	J		P
7440-50-8	Copper	12.9			P
7439-89-6	Iron	12100			P
7439-92-1	Lead	49.9			P
7439-95-4	Magnesium	760			P
7439-96-5	Manganese	29.6			P
7440-02-0	Nickel	8.9			P
7440-09-7	Potassium	314	J		P
7782-49-2	Selenium	2.5	J		P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	129	J		P
7440-28-0	Thallium	3.5	U		P
7440-62-2	Vanadium	29.0			P
7440-66-6	Zinc	31.3			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AJ7

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-04

% Solids: 71.3 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1060			P
7440-36-0	Antimony	6.6	U		P
7440-38-2	Arsenic	1.1	J		P
7440-39-3	Barium	16.9	J		P
7440-41-7	Beryllium	0.29	J		P
7440-43-9	Cadmium	0.12	J		P
7440-70-2	Calcium	893			P
7440-47-3	Chromium	2.5		N	P
7440-48-4	Cobalt	4.7	J		P
7440-50-8	Copper	2.4	J		P
7439-89-6	Iron	2800			P
7439-92-1	Lead	8.0			P
7439-95-4	Magnesium	157	J		P
7439-96-5	Manganese	36.9			P
7440-02-0	Nickel	1.6	J		P
7440-09-7	Potassium	552	U		P
7782-49-2	Selenium	0.64	J		P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	552	U		P
7440-28-0	Thallium	2.8	U		P
7440-62-2	Vanadium	4.7	J		P
7440-66-6	Zinc	13.9			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AJ8

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-05

% Solids: 53.8 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3630			P
7440-36-0	Antimony	0.56	J		P
7440-38-2	Arsenic	13.0			P
7440-39-3	Barium	53.4			P
7440-41-7	Beryllium	0.54	J		P
7440-43-9	Cadmium	0.23	J		P
7440-70-2	Calcium	1950			P
7440-47-3	Chromium	9.2		N	P
7440-48-4	Cobalt	3.9	J		P
7440-50-8	Copper	9.1			P
7439-89-6	Iron	9200			P
7439-92-1	Lead	21.4			P
7439-95-4	Magnesium	245	J		P
7439-96-5	Manganese	1540			P
7440-02-0	Nickel	4.9	J		P
7440-09-7	Potassium	683	U		P
7782-49-2	Selenium	1.6	J		P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	50.2	J		P
7440-28-0	Thallium	3.4	U		P
7440-62-2	Vanadium	11.8			P
7440-66-6	Zinc	29.2			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AJ9

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-06

% Solids: 55.6 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1550			P
7440-36-0	Antimony	7.7	U		P
7440-38-2	Arsenic	1.5			P
7440-39-3	Barium	23.0	J		P
7440-41-7	Beryllium	0.36	J		P
7440-43-9	Cadmium	0.049	J		P
7440-70-2	Calcium	563	J		P
7440-47-3	Chromium	2.8		N	P
7440-48-4	Cobalt	1.6	J		P
7440-50-8	Copper	1.4	J		P
7439-89-6	Iron	2110			P
7439-92-1	Lead	22.1			P
7439-95-4	Magnesium	82.8	J		P
7439-96-5	Manganese	59.7			P
7440-02-0	Nickel	1.2	J		P
7440-09-7	Potassium	642	U		P
7782-49-2	Selenium	1.2	J		P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	51.4	J		P
7440-28-0	Thallium	3.2	U		P
7440-62-2	Vanadium	3.5	J		P
7440-66-6	Zinc	7.6	J		P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AK0

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-07

% Solids: 56.0 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1210			P
7440-36-0	Antimony	8.2	U		P
7440-38-2	Arsenic	0.88	J		P
7440-39-3	Barium	15.2	J		P
7440-41-7	Beryllium	0.37	J		P
7440-43-9	Cadmium	0.059	J		P
7440-70-2	Calcium	1260			P
7440-47-3	Chromium	2.5		N	P
7440-48-4	Cobalt	1.4	J		P
7440-50-8	Copper	1.3	J		P
7439-89-6	Iron	3190			P
7439-92-1	Lead	4.8			P
7439-95-4	Magnesium	58.4	J		P
7439-96-5	Manganese	70.8			P
7440-02-0	Nickel	1.2	J		P
7440-09-7	Potassium	687	U		P
7782-49-2	Selenium	0.65	J		P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	687	U		P
7440-28-0	Thallium	3.4	U		P
7440-62-2	Vanadium	5.7	J		P
7440-66-6	Zinc	9.5			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AK1

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No: SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-08

% Solids: 73.5 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	694			P
7440-36-0	Antimony	6.2	U		P
7440-38-2	Arsenic	0.51	J		P
7440-39-3	Barium	7.0	J		P
7440-41-7	Beryllium	0.12	J		P
7440-43-9	Cadmium	0.52	U		P
7440-70-2	Calcium	272	J		P
7440-47-3	Chromium	2.1		N	P
7440-48-4	Cobalt	0.72	J		P
7440-50-8	Copper	0.38	J		P
7439-89-6	Iron	1720			P
7439-92-1	Lead	3.0			P
7439-95-4	Magnesium	34.7	J		P
7439-96-5	Manganese	26.8			P
7440-02-0	Nickel	0.65	J		P
7440-09-7	Potassium	519	U		P
7782-49-2	Selenium	0.30	J		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	519	U		P
7440-28-0	Thallium	2.6	U		P
7440-62-2	Vanadium	3.2	J		P
7440-66-6	Zinc	5.4	J		P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AK2

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-11

% Solids: 74.2 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	743			P
7440-36-0	Antimony	6.1	U		P
7440-38-2	Arsenic	0.46	J		P
7440-39-3	Barium	7.3	J		P
7440-41-7	Beryllium	0.15	J		P
7440-43-9	Cadmium	0.51	U		P
7440-70-2	Calcium	170	J		P
7440-47-3	Chromium	1.9		N	P
7440-48-4	Cobalt	0.92	J		P
7440-50-8	Copper	0.48	J		P
7439-89-6	Iron	1810			P
7439-92-1	Lead	2.7			P
7439-95-4	Magnesium	36.0	J		P
7439-96-5	Manganese	18.6			P
7440-02-0	Nickel	0.65	J		P
7440-09-7	Potassium	510	U		P
7782-49-2	Selenium	0.30	J		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	31.7	J		P
7440-28-0	Thallium	2.6	U		P
7440-62-2	Vanadium	2.9	J		P
7440-66-6	Zinc	5.4	J		P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AK3

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-12

% Solids: 52.8 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3890			P
7440-36-0	Antimony	0.26	J		P
7440-38-2	Arsenic	3.7			P
7440-39-3	Barium	41.5			P
7440-41-7	Beryllium	0.68	J		P
7440-43-9	Cadmium	0.098	J		P
7440-70-2	Calcium	1300			P
7440-47-3	Chromium	6.8		N	P
7440-48-4	Cobalt	7.0	J		P
7440-50-8	Copper	2.9	J		P
7439-89-6	Iron	11500			P
7439-92-1	Lead	10.1			P
7439-95-4	Magnesium	184	J		P
7439-96-5	Manganese	95.2			P
7440-02-0	Nickel	3.6	J		P
7440-09-7	Potassium	68.3	J		P
7782-49-2	Selenium	1.4	J		P
7440-22-4	Silver	1.5	U		P
7440-23-5	Sodium	77.9	J		P
7440-28-0	Thallium	3.7	U		P
7440-62-2	Vanadium	13.1			P
7440-66-6	Zinc	29.1			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AK4

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-13

% Solids: 69.2 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2830			P
7440-36-0	Antimony	6.4	U		P
7440-38-2	Arsenic	2.0			P
7440-39-3	Barium	36.3			P
7440-41-7	Beryllium	0.94			P
7440-43-9	Cadmium	0.94			P
7440-70-2	Calcium	1560			P
7440-47-3	Chromium	5.0		N	P
7440-48-4	Cobalt	2.8	J		P
7440-50-8	Copper	2.7			P
7439-89-6	Iron	5460			P
7439-92-1	Lead	9.6			P
7439-95-4	Magnesium	127	J		P
7439-96-5	Manganese	60.9			P
7440-02-0	Nickel	2.7	J		P
7440-09-7	Potassium	24.9	J		P
7782-49-2	Selenium	0.83	J		P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	54.0	J		P
7440-28-0	Thallium	2.7	U		P
7440-62-2	Vanadium	13.2			P
7440-66-6	Zinc	21.9			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AK5

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-14

% Solids: 70.8 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5460			P
7440-36-0	Antimony	6.1	U		P
7440-38-2	Arsenic	2.0			P
7440-39-3	Barium	42.8			P
7440-41-7	Beryllium	0.49	J		P
7440-43-9	Cadmium	0.50	U		P
7440-70-2	Calcium	404	J		P
7440-47-3	Chromium	8.4		N	P
7440-48-4	Cobalt	3.3	J		P
7440-50-8	Copper	1.9	J		P
7439-89-6	Iron	6350			P
7439-92-1	Lead	9.4			P
7439-95-4	Magnesium	253	J		P
7439-96-5	Manganese	38.1			P
7440-02-0	Nickel	2.9	J		P
7440-09-7	Potassium	139	J		P
7782-49-2	Selenium	0.67	J		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	62.6	J		P
7440-28-0	Thallium	2.5	U		P
7440-62-2	Vanadium	15.0			P
7440-66-6	Zinc	11.9			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AK6

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-15

% Solids: 44.2 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6820			P
7440-36-0	Antimony	10.4	U		P
7440-38-2	Arsenic	8.2			P
7440-39-3	Barium	83.1			P
7440-41-7	Beryllium	1.2			P
7440-43-9	Cadmium	0.11	J		P
7440-70-2	Calcium	1640			P
7440-47-3	Chromium	12.1		N	P
7440-48-4	Cobalt	14.2			P
7440-50-8	Copper	4.8			P
7439-89-6	Iron	20900			P
7439-92-1	Lead	15.2			P
7439-95-4	Magnesium	308	J		P
7439-96-5	Manganese	534			P
7440-02-0	Nickel	6.3	J		P
7440-09-7	Potassium	131	J		P
7782-49-2	Selenium	2.5	J		P
7440-22-4	Silver	1.7	U		P
7440-23-5	Sodium	84.7	J		P
7440-28-0	Thallium	4.4	U		P
7440-62-2	Vanadium	21.4			P
7440-66-6	Zinc	43.5			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AK7

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-16

% Solids: 75.1 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	617			P
7440-36-0	Antimony	6.1	U		P
7440-38-2	Arsenic	1.9			P
7440-39-3	Barium	6.8	J		P
7440-41-7	Beryllium	0.18	J		P
7440-43-9	Cadmium	0.51	U		P
7440-70-2	Calcium	184	J		P
7440-47-3	Chromium	2.2		N	P
7440-48-4	Cobalt	0.97	J		P
7440-50-8	Copper	1.7	J		P
7439-89-6	Iron	6810			P
7439-92-1	Lead	1.9			P
7439-95-4	Magnesium	38.6	J		P
7439-96-5	Manganese	50.0			P
7440-02-0	Nickel	1.0	J		P
7440-09-7	Potassium	512	U		P
7782-49-2	Selenium	0.73	J		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	34.1	J		P
7440-28-0	Thallium	2.6	U		P
7440-62-2	Vanadium	2.3	J		P
7440-66-6	Zinc	9.4			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AK8

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-17

% Solids: 55.0 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7140			P
7440-36-0	Antimony	0.29	J		P
7440-38-2	Arsenic	8.8			P
7440-39-3	Barium	66.2			P
7440-41-7	Beryllium	0.61	J		P
7440-43-9	Cadmium	0.13	J		P
7440-70-2	Calcium	2890			P
7440-47-3	Chromium	47.6		N	P
7440-48-4	Cobalt	3.9	J		P
7440-50-8	Copper	27.2			P
7439-89-6	Iron	8170			P
7439-92-1	Lead	12.9			P
7439-95-4	Magnesium	569	J		P
7439-96-5	Manganese	62.0			P
7440-02-0	Nickel	5.7			P
7440-09-7	Potassium	268	J		P
7782-49-2	Selenium	1.4	J		P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	74.2	J		P
7440-28-0	Thallium	3.5	U		P
7440-62-2	Vanadium	14.8			P
7440-66-6	Zinc	96.8			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AK9

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-18

% Solids: 67.0 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3230			P
7440-36-0	Antimony	6.9	U		P
7440-38-2	Arsenic	2.5			P
7440-39-3	Barium	29.8			P
7440-41-7	Beryllium	0.29	J		P
7440-43-9	Cadmium	0.029	J		P
7440-70-2	Calcium	970			P
7440-47-3	Chromium	16.7		N	P
7440-48-4	Cobalt	2.3	J		P
7440-50-8	Copper	7.7			P
7439-89-6	Iron	4260			P
7439-92-1	Lead	5.6			P
7439-95-4	Magnesium	267	J		P
7439-96-5	Manganese	37.3			P
7440-02-0	Nickel	2.5	J		P
7440-09-7	Potassium	129	J		P
7782-49-2	Selenium	0.71	J		P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	41.7	J		P
7440-28-0	Thallium	2.9	U		P
7440-62-2	Vanadium	8.6			P
7440-66-6	Zinc	39.5			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AL0

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-19

% Solids: 51.2 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8600			P
7440-36-0	Antimony	0.26	J		P
7440-38-2	Arsenic	11.4			P
7440-39-3	Barium	68.7			P
7440-41-7	Beryllium	0.80			P
7440-43-9	Cadmium	0.044	J		P
7440-70-2	Calcium	818			P
7440-47-3	Chromium	26.3		N	P
7440-48-4	Cobalt	5.1	J		P
7440-50-8	Copper	13.2			P
7439-89-6	Iron	9800			P
7439-92-1	Lead	21.4			P
7439-95-4	Magnesium	433	J		P
7439-96-5	Manganese	77.3			P
7440-02-0	Nickel	4.6	J		P
7440-09-7	Potassium	194	J		P
7782-49-2	Selenium	1.3	J		P
7440-22-4	Silver	1.5	U		P
7440-23-5	Sodium	73.2	J		P
7440-28-0	Thallium	3.8	U		P
7440-62-2	Vanadium	22.4			P
7440-66-6	Zinc	50.7			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AL1

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-20

% Solids: 80.2 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	288			P
7440-36-0	Antimony	5.6	U		P
7440-38-2	Arsenic	0.93	U		P
7440-39-3	Barium	2.7	J		P
7440-41-7	Beryllium	0.47	U		P
7440-43-9	Cadmium	0.47	U		P
7440-70-2	Calcium	85.9	J		P
7440-47-3	Chromium	1.0		N	P
7440-48-4	Cobalt	0.30	J		P
7440-50-8	Copper	2.3	U		P
7439-89-6	Iron	776			P
7439-92-1	Lead	1.0			P
7439-95-4	Magnesium	15.7	J		P
7439-96-5	Manganese	10.0			P
7440-02-0	Nickel	0.29	J		P
7440-09-7	Potassium	465	U		P
7782-49-2	Selenium	0.17	J		P
7440-22-4	Silver	0.93	U		P
7440-23-5	Sodium	26.7	J		P
7440-28-0	Thallium	2.3	U		P
7440-62-2	Vanadium	1.6	J		P
7440-66-6	Zinc	1.9	J		P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MC0AL2

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No: SDG No.: MC0AJ3

Matrix: SOIL Lab Sample ID: F3939-21

% Solids: 75.1 Date Received: 09/13/2014

Concentration Units (ug/L, ug, or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2070			P
7440-36-0	Antimony	6.4	U		P
7440-38-2	Arsenic	1.3			P
7440-39-3	Barium	17.2	J		P
7440-41-7	Beryllium	0.36	J		P
7440-43-9	Cadmium	0.53	U		P
7440-70-2	Calcium	343	J		P
7440-47-3	Chromium	3.8		N	P
7440-48-4	Cobalt	1.5	J		P
7440-50-8	Copper	1.2	J		P
7439-89-6	Iron	4530			P
7439-92-1	Lead	12.6			P
7439-95-4	Magnesium	94.9	J		P
7439-96-5	Manganese	26.6			P
7440-02-0	Nickel	1.3	J		P
7440-09-7	Potassium	27.6	J		P
7782-49-2	Selenium	0.71	J		P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	34.1	J		P
7440-28-0	Thallium	2.7	U		P
7440-62-2	Vanadium	7.6			P
7440-66-6	Zinc	8.9			P

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts: NO

Comments:

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AJ3

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	2521.0	2426.09	96	400000.0	398340.00	100	391809.80	98	P
Antimony	994.0	907.20	91	5000.0	5117.53	102	5033.26	101	P
Arsenic	999.0	920.45	92	5000.0	5151.47	103	5059.46	101	P
Barium	497.0	521.28	105	10000.0	10631.50	106	10541.61	105	P
Beryllium	495.0	489.77	99	500.0	522.95	105	513.84	103	P
Cadmium	496.0	486.66	98	2500.0	2650.88	106	2592.41	104	P
Calcium	10026.0	10421.93	104	400000.0	420683.20	105	417010.90	104	P
Chromium	490.0	533.96	109	15500.0	16593.77	107	16229.67	105	P
Cobalt	499.0	486.07	97	2500.0	2632.29	105	2584.71	103	P
Copper	492.0	509.20	103	15000.0	15953.53	106	15707.25	105	P
Iron	5082.0	5452.37	107	400000.0	405238.60	101	398204.60	100	P
Lead	1002.0	985.42	98	25000.0	26314.32	105	25844.56	103	P
Magnesium	6074.0	6017.59	99	400000.0	408573.30	102	402145.80	101	P
Manganese	499.0	530.61	106	15000.0	15755.01	105	15551.92	104	P
Nickel	503.0	496.19	99	2500.0	2609.47	104	2557.49	102	P
Potassium	10021.0	9365.29	93	150000.0	161084.20	107	159141.20	106	P
Selenium	1029.0	937.50	91	5000.0	5120.37	102	5011.57	100	P
Silver	501.0	489.13	98	1250.0	1356.07	108	1327.71	106	P
Sodium	10097.0	9748.83	97	400000.0	396824.10	99	397718.40	99	P
Thallium	1028.0	1074.30	105	5000.0	5167.49	103	5086.88	102	P
Vanadium	501.0	518.65	104	2500.0	2615.95	105	2586.06	103	P
Zinc	1025.0	979.39	96	15000.0	15550.68	104	15154.63	101	P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AJ3

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum				400000.0	390848.80	98	392015.10	98	P
Antimony				5000.0	5000.81	100	4997.00	100	P
Arsenic				5000.0	4998.76	100	4968.16	99	P
Barium				10000.0	10545.16	105	10582.41	106	P
Beryllium				500.0	501.30	100	496.94	99	P
Cadmium				2500.0	2567.56	103	2521.78	101	P
Calcium				400000.0	417704.90	104	419570.50	105	P
Chromium				15500.0	15945.94	103	15835.92	102	P
Cobalt				2500.0	2578.70	103	2550.03	102	P
Copper				15000.0	15538.88	104	15533.75	104	P
Iron				400000.0	394619.00	99	393984.50	98	P
Lead				25000.0	25875.83	104	25526.55	102	P
Magnesium				400000.0	394167.00	99	391633.60	98	P
Manganese				15000.0	15370.85	102	15353.74	102	P
Nickel				2500.0	2530.77	101	2496.91	100	P
Potassium				150000.0	156627.20	104	156348.60	104	P
Selenium				5000.0	4940.38	99	4914.89	98	P
Silver				1250.0	1316.07	105	1314.84	105	P
Sodium				400000.0	396851.10	99	403360.50	101	P
Thallium				5000.0	5044.35	101	4992.87	100	P
Vanadium				2500.0	2556.26	102	2562.85	103	P
Zinc				15000.0	14988.84	100	14994.97	100	P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AJ3

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum				400000.0	393031.70	98	410814.10	103	P
Antimony				5000.0	4970.44	99	4805.55	96	P
Arsenic				5000.0	4943.11	99	4741.40	95	P
Barium				10000.0	10744.39	107			P
Beryllium				500.0	489.76	98	499.54	100	P
Cadmium				2500.0	2520.82	101	2435.99	97	P
Calcium				400000.0	424561.40	106			P
Chromium				15500.0	15715.90	101	15446.69	100	P
Cobalt				2500.0	2567.55	103	2538.75	102	P
Copper				15000.0	15564.41	104	16057.00	107	P
Iron				400000.0	390304.20	98	392096.60	98	P
Lead				25000.0	25846.84	103	25925.35	104	P
Magnesium				400000.0	388780.70	97	392201.00	98	P
Manganese				15000.0	15389.12	103	16173.42	108	P
Nickel				2500.0	2492.82	100	2404.67	96	P
Potassium				150000.0	156618.80	104	156667.50	104	P
Selenium				5000.0	4849.72	97	4548.85	91	P
Silver				1250.0	1317.51	105	1317.50	105	P
Sodium				400000.0	404962.70	101	420370.10	105	P
Thallium				5000.0	5018.86	100	4962.21	99	P
Vanadium				2500.0	2551.22	102	2667.67	107	P
Zinc				15000.0	15076.74	101	15051.44	100	P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AJ3

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum	2521.0	2363.57	94	400000.0	398063.80	100	409576.40	102	P
Antimony	994.0	905.05	91	5000.0	4982.24	100	4989.82	100	P
Arsenic	999.0	914.75	92	5000.0	5016.73	100	5042.55	101	P
Barium	497.0	510.35	103	10000.0	10053.66	101	10213.69	102	P
Beryllium	495.0	484.55	98	500.0	520.55	104	531.10	106	P
Cadmium	496.0	482.37	97	2500.0	2579.00	103	2593.92	104	P
Calcium	10026.0	10286.42	103	400000.0	407673.10	102	416840.50	104	P
Chromium	490.0	535.23	109	15500.0	16069.99	104	16591.45	107	P
Cobalt	499.0	481.28	96	2500.0	2549.17	102	2553.86	102	P
Copper	492.0	496.87	101	15000.0	15331.29	102	15652.90	104	P
Iron	5082.0	5332.90	105	400000.0	397359.10	99	405451.40	101	P
Lead	1002.0	968.00	97	25000.0	25359.07	101	25389.55	102	P
Magnesium	6074.0	5843.79	96	400000.0	400772.60	100	418489.90	105	P
Manganese	499.0	524.50	105	15000.0	15083.71	101	15551.48	104	P
Nickel	503.0	493.72	98	2500.0	2548.15	102	2520.99	101	P
Potassium	10021.0	9582.70	96	150000.0	156468.10	104	157097.10	105	P
Selenium	1029.0	980.62	95	5000.0	4986.63	100	4928.52	99	P
Silver	501.0	479.94	96	1250.0	1291.77	103	1321.89	106	P
Sodium	10097.0	9855.09	98	400000.0	385514.60	96	399458.00	100	P
Thallium	1028.0	1051.66	102	5000.0	5041.37	101	5051.92	101	P
Vanadium	501.0	514.78	103	2500.0	2565.06	103	2589.96	104	P
Zinc	1025.0	967.77	94	15000.0	15384.54	103	15463.70	103	P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AJ3

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum				400000.0	408106.50	102	402026.00	101	P
Antimony				5000.0	5090.21	102	5063.21	101	P
Arsenic				5000.0	5125.49	103	5046.28	101	P
Barium				10000.0	10389.80	104	10172.59	102	P
Beryllium				500.0	523.32	105	495.86	99	P
Cadmium				2500.0	2547.34	102	2438.43	98	P
Calcium				400000.0	409253.00	102	400218.20	100	P
Chromium				15500.0	16378.93	106	15735.85	102	P
Cobalt				2500.0	2539.19	102	2464.54	99	P
Copper				15000.0	15712.62	105	15272.17	102	P
Iron				400000.0	392648.70	98	385087.40	96	P
Lead				25000.0	25140.30	101	24235.11	97	P
Magnesium				400000.0	401680.20	100	388719.00	97	P
Manganese				15000.0	15148.93	101	14668.32	98	P
Nickel				2500.0	2496.30	100	2423.07	97	P
Potassium				150000.0	159245.20	106	154335.60	103	P
Selenium				5000.0	5025.31	101	4987.44	100	P
Silver				1250.0	1304.85	104	1291.73	103	P
Sodium				400000.0	398748.20	100	397512.40	99	P
Thallium				5000.0	5025.79	101	4882.54	98	P
Vanadium				2500.0	2602.01	104	2489.11	100	P
Zinc				15000.0	15057.67	100	14708.66	98	P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AJ3

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Aluminum				400000.0	404340.50	101	398340.20	100	P
Antimony				5000.0	5109.19	102	5150.53	103	P
Arsenic				5000.0	5127.93	103	5082.23	102	P
Barium				10000.0	10502.08	105	10335.46	103	P
Beryllium				500.0	515.89	103	489.16	98	P
Cadmium				2500.0	2520.91	101	2404.78	96	P
Calcium				400000.0	413919.40	103	394947.30	99	P
Chromium				15500.0	15972.23	103	15599.84	101	P
Cobalt				2500.0	2520.33	101	2456.17	98	P
Copper				15000.0	15915.61	106	15326.73	102	P
Iron				400000.0	393573.30	98	373257.40	93	P
Lead				25000.0	24877.92	100	24043.28	96	P
Magnesium				400000.0	401132.10	100	377785.70	94	P
Manganese				15000.0	15298.35	102	14456.85	96	P
Nickel				2500.0	2477.36	99	2403.64	96	P
Potassium				150000.0	161609.20	108	156071.90	104	P
Selenium				5000.0	5072.17	101	5047.01	101	P
Silver				1250.0	1314.61	105	1292.60	103	P
Sodium				400000.0	408618.40	102	391741.20	98	P
Thallium				5000.0	4981.37	100	4867.56	97	P
Vanadium				2500.0	2600.93	104	2508.02	100	P
Zinc				15000.0	15128.74	101	14471.54	96	P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

US EPA-CLP

2A-IN

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AJ3

Initial Calibration Verification Source: EPA-0307

Continuing Calibration Verification Source: MP23663

Concentration Units: ug/L

	Initial Calibration Verification			Continuing Calibration Verification					M
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Chromium	490.0	508.85	104	15500.0	15707.60	101	15711.88	101	P

(1) Control Limits: Mercury 85-115; Other Metals 90-110; Cyanide 85-115

3-IN
BLANKS

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AJ3

Preparation Blank Matrix (soil/water/wipe/filter): SOIL

Preparation Blank Concentration Units (ug/L, ug, or mg/kg): MG/KG

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum	200.000	U	200.000	U	22.076	J	200.000	U	20.000	U	P
Antimony	60.000	U	60.000	U	60.000	U	60.000	U	6.000	U	P
Arsenic	10.000	U	10.000	U	10.000	U	10.000	U	-0.295	J	P
Barium	200.000	U	200.000	U	200.000	U	200.000	U	20.000	U	P
Beryllium	5.000	U	-0.779	J	5.000	U	5.000	U	0.500	U	P
Cadmium	5.000	U	5.000	U	5.000	U	5.000	U	0.5000	U	P
Calcium	5000.000	U	5000.000	U	5000.000	U	5000.000	U	500.000	U	P
Chromium	10.000	U	10.000	U	10.000	U	10.000	U	1.000	U	P
Cobalt	50.000	U	50.000	U	50.000	U	50.000	U	5.000	U	P
Copper	25.000	U	25.000	U	4.261	J	25.000	U	2.500	U	P
Iron	100.000	U	100.000	U	19.865	J	13.442	J	10.000	U	P
Lead	10.000	U	10.000	U	10.000	U	10.000	U	1.000	U	P
Magnesium	5000.000	U	5000.000	U	5000.000	U	5000.000	U	500.000	U	P
Manganese	15.000	U	15.000	U	15.000	U	15.000	U	1.500	U	P
Nickel	40.000	U	40.000	U	40.000	U	40.000	U	4.000	U	P
Potassium	5000.000	U	298.589	J	122.050	J	212.243	J	14.037	J	P
Selenium	35.000	U	35.000	U	35.000	U	35.000	U	0.260	J	P
Silver	10.000	U	10.000	U	10.000	U	10.000	U	1.000	U	P
Sodium	5000.000	U	5000.000	U	5000.000	U	5000.000	U	500.000	U	P
Thallium	25.000	U	25.000	U	25.000	U	3.575	J	2.500	U	P
Vanadium	50.000	U	50.000	U	50.000	U	50.000	U	5.000	U	P
Zinc	60.000	U	60.000	U	3.819	J	60.000	U	6.000	U	P

3-IN
BLANKS

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AJ3

Preparation Blank Matrix (soil/water/wipe/filter):

Preparation Blank Concentration Units (ug/L, ug, or mg/kg):

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum			200.000	U	200.000	U	200.000	U			P
Antimony			60.000	U	60.000	U	60.000	U			P
Arsenic			10.000	U	10.000	U	10.000	U			P
Barium			200.000	U	200.000	U					P
Beryllium			5.000	U	5.000	U	5.000	U			P
Cadmium			5.000	U	5.000	U	5.000	U			P
Calcium			5000.000	U	5000.000	U					P
Chromium			10.000	U	10.000	U	10.000	U			P
Cobalt			50.000	U	50.000	U	50.000	U			P
Copper			25.000	U	25.000	U	25.000	U			P
Iron			12.646	J	100.000	U	12.908	J			P
Lead			10.000	U	10.000	U	10.000	U			P
Magnesium			5000.000	U	5000.000	U	5000.000	U			P
Manganese			15.000	U	15.000	U	15.000	U			P
Nickel			40.000	U	40.000	U	40.000	U			P
Potassium			303.009	J	263.613	J	696.440	J			P
Selenium			35.000	U	35.000	U	35.000	U			P
Silver			10.000	U	10.000	U	10.000	U			P
Sodium			5000.000	U	5000.000	U	5000.000	U			P
Thallium			2.152	J	25.000	U	25.000	U			P
Vanadium			50.000	U	50.000	U	50.000	U			P
Zinc			60.000	U	60.000	U	60.000	U			P

3-IN
BLANKS

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AJ3

Preparation Blank Matrix (soil/water/wipe/filter):

Preparation Blank Concentration Units (ug/L, ug, or mg/kg):

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum	200.000	U	200.000	U	200.000	U	200.000	U			P
Antimony	60.000	U	60.000	U	60.000	U	60.000	U			P
Arsenic	10.000	U	10.000	U	10.000	U	10.000	U			P
Barium	200.000	U	200.000	U	200.000	U	200.000	U			P
Beryllium	5.000	U	5.000	U	5.000	U	5.000	U			P
Cadmium	5.000	U	5.000	U	5.000	U	5.000	U			P
Calcium	5000.000	U	5000.000	U	5000.000	U	5000.000	U			P
Chromium	10.000	U	10.000	U	10.000	U	10.000	U			P
Cobalt	50.000	U	50.000	U	50.000	U	50.000	U			P
Copper	25.000	U	25.000	U	25.000	U	25.000	U			P
Iron	100.000	U	17.327	J	15.392	J	23.600	J			P
Lead	10.000	U	10.000	U	10.000	U	10.000	U			P
Magnesium	5000.000	U	5000.000	U	5000.000	U	5000.000	U			P
Manganese	15.000	U	15.000	U	15.000	U	15.000	U			P
Nickel	40.000	U	40.000	U	40.000	U	40.000	U			P
Potassium	5000.000	U	5000.000	U	5000.000	U	5000.000	U			P
Selenium	35.000	U	35.000	U	35.000	U	35.000	U			P
Silver	10.000	U	10.000	U	10.000	U	10.000	U			P
Sodium	5000.000	U	5000.000	U	5000.000	U	5000.000	U			P
Thallium	25.000	U	25.000	U	25.000	U	25.000	U			P
Vanadium	50.000	U	50.000	U	50.000	U	50.000	U			P
Zinc	60.000	U	60.000	U	3.965	J	60.000	U			P

3-IN
BLANKS

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AJ3

Preparation Blank Matrix (soil/water/wipe/filter):

Preparation Blank Concentration Units (ug/L, ug, or mg/kg):

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Aluminum			27.873	J	200.000	U	200.000	U			P
Antimony			60.000	U	60.000	U	60.000	U			P
Arsenic			10.000	U	10.000	U	10.000	U			P
Barium			200.000	U	200.000	U	200.000	U			P
Beryllium			5.000	U	5.000	U	5.000	U			P
Cadmium			5.000	U	5.000	U	5.000	U			P
Calcium			5000.000	U	5000.000	U	5000.000	U			P
Chromium			10.000	U	0.625	J	10.000	U			P
Cobalt			50.000	U	50.000	U	50.000	U			P
Copper			25.000	U	25.000	U	25.000	U			P
Iron			27.892	J	21.665	J	100.000	U			P
Lead			10.000	U	10.000	U	10.000	U			P
Magnesium			5000.000	U	5000.000	U	5000.000	U			P
Manganese			1.062	J	15.000	U	15.000	U			P
Nickel			40.000	U	40.000	U	40.000	U			P
Potassium			5000.000	U	5000.000	U	5000.000	U			P
Selenium			35.000	U	35.000	U	35.000	U			P
Silver			10.000	U	10.000	U	10.000	U			P
Sodium			5000.000	U	5000.000	U	341.278	J			P
Thallium			25.000	U	2.266	J	25.000	U			P
Vanadium			50.000	U	50.000	U	50.000	U			P
Zinc			4.127	J	60.000	U	60.000	U			P

3-IN
BLANKS

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AJ3

Preparation Blank Matrix (soil/water/wipe/filter):

Preparation Blank Concentration Units (ug/L, ug, or mg/kg):

Analyte	Initial Calibration Blank(ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Chromium	10.000	U	10.000	U	10.000	U					P

US EPA-CLP

4A-IN

ICP-AES INTERFERENCE CHECK SAMPLE

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AJ3

ICP-AES Instrument ID: P5 ICS Source: EPA-1211/0710

Concentration Units: ug/L

Analyte	True		Found			
	Sol.A	Sol.AB	Sol.A	%R	Sol. AB	%R
Aluminum	254900.0	246800.0	241000	95	243000	98
Antimony	0.0	618.0	4.1	0	562	91
Arsenic	0.0	104.0	2.1	0	94.9	91
Barium	6.0	537.0	7.1	118	531	99
Beryllium	0.0	495.0	0.77	0	511	103
Cadmium	1.0	972.0	1.3	130	1020	105
Calcium	244500.0	234900.0	249000	102	251000	107
Chromium	52.0	542.0	60.8	117	594	110
Cobalt	0.0	476.0	0.11	0	503	106
Copper	2.0	511.0	4.0	200	513	100
Iron	100700.0	99320.0	102000	101	103000	104
Lead	0.0	49.0	-0.50	0	46.8	96
Magnesium	255400.0	248000.0	257000	101	259000	104
Manganese	7.0	507.0	14.3	204	538	106
Nickel	2.0	954.0	1.2	60	1010	106
Potassium	0.0	0.0	-475	0	-957	
Selenium	0.0	46.0	16.1	0	64.8	141
Silver	0.0	201.0	-2.4	0	200	100
Sodium	0.0	0.0	156	0	57.0	
Thallium	0.0	108.0	-0.89	0	98.5	91
Vanadium	0.0	491.0	0.79	0	510	104
Zinc	0.0	952.0	22.2	0	982	103

US EPA-CLP

4A-IN

ICP-AES INTERFERENCE CHECK SAMPLE

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AJ3

ICP-AES Instrument ID: P5 ICS Source: EPA-1211/0710

Concentration Units: ug/L

Analyte	True		Found			
	Sol.A	Sol.AB	Sol.A	%R	Sol. AB	%R
Aluminum	254900.0	246800.0	245000	96	252000	102
Antimony	0.0	618.0	1.4	0	574	93
Arsenic	0.0	104.0	3.3	0	97.1	93
Barium	6.0	537.0	7.2	120	534	99
Beryllium	0.0	495.0	1.3	0	534	108
Cadmium	1.0	972.0	-0.47	-47	1040	107
Calcium	244500.0	234900.0	251000	103	257000	109
Chromium	52.0	542.0	60.8	117	618	114
Cobalt	0.0	476.0	-0.027	0	510	107
Copper	2.0	511.0	-1.4	-70	517	101
Iron	100700.0	99320.0	103000	102	106000	107
Lead	0.0	49.0	-1.7	0	49.2	100
Magnesium	255400.0	248000.0	260000	102	267000	108
Manganese	7.0	507.0	14.4	206	550	108
Nickel	2.0	954.0	3.2	160	1030	108
Potassium	0.0	0.0	-110	0	-268	
Selenium	0.0	46.0	11.3	0	61.4	133
Silver	0.0	201.0	-0.016	0	205	102
Sodium	0.0	0.0	221	0	3.7	
Thallium	0.0	108.0	-0.30	0	102	94
Vanadium	0.0	491.0	1.2	0	525	107
Zinc	0.0	952.0	18.9	0	1030	108

US EPA-CLP

4A-IN

ICP-AES INTERFERENCE CHECK SAMPLE

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AJ3

ICP-AES Instrument ID: P5 ICS Source: EPA-1211/0710

Concentration Units: ug/L

Analyte	True		Found			
	Sol.A	Sol.AB	Sol.A	%R	Sol. AB	%R
Aluminum	254900.0	246800.0	252000	99	255000	103
Antimony	0.0	618.0	3.6	0	603	98
Arsenic	0.0	104.0	1.9	0	101	97
Barium	6.0	537.0	7.3	122	547	102
Beryllium	0.0	495.0	0.90	0	530	107
Cadmium	1.0	972.0	0.80	80	1050	108
Calcium	244500.0	234900.0	256000	105	259000	110
Chromium	52.0	542.0	56.8	109	571	105
Cobalt	0.0	476.0	-0.28	0	524	110
Copper	2.0	511.0	0.26	13	525	103
Iron	100700.0	99320.0	105000	104	107000	108
Lead	0.0	49.0	-0.46	0	51.1	104
Magnesium	255400.0	248000.0	264000	103	268000	108
Manganese	7.0	507.0	13.9	199	561	111
Nickel	2.0	954.0	1.0	50	1040	109
Potassium	0.0	0.0	-134	0	-581	
Selenium	0.0	46.0	16.2	0	63.6	138
Silver	0.0	201.0	-2.4	0	211	105
Sodium	0.0	0.0	185	0	197	
Thallium	0.0	108.0	-1.6	0	102	94
Vanadium	0.0	491.0	2.0	0	540	110
Zinc	0.0	952.0	17.8	0	1020	107

US EPA-CLP

5A-IN

MATRIX SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MC0AK1S

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AJ3

Matrix: SOIL

% Solids for Sample: 73.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony	75 - 125	26.1266		6.2315	U	25.92	101		P
Arsenic	75 - 125	10.9961		0.5122	J	10.37	101		P
Barium	75 - 125	626.6130		6.9983	J	518.30	120		P
Beryllium	75 - 125	14.5709		0.1194	J	12.96	112		P
Cadmium	75 - 125	13.7130		0.5193	U	12.96	106		P
Chromium	75 - 125	67.7881		2.0649		51.83	127	N	P
Cobalt	75 - 125	141.3692		0.7164	J	129.58	109		P
Copper	75 - 125	75.8903		0.3788	J	64.79	117		P
Lead	75 - 125	8.5788		3.0192		5.18	107		P
Manganese	75 - 125	181.3649		26.7571		129.58	119		P
Nickel	75 - 125	140.9463		0.6460	J	129.58	108		P
Selenium	75 - 125	13.2807		0.2952	J	12.96	100		P
Silver	75 - 125	13.5696		1.0386	U	12.96	105		P
Thallium	75 - 125	13.0089		2.5965	U	12.96	100		P
Vanadium	75 - 125	156.7566		3.2160	J	129.58	118		P
Zinc	75 - 125	140.4352		5.3898	J	129.58	104		P

Comments:

5B-IN

POST-DIGESTION SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

MC0AK1A

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AJ3

Matrix: SOIL

Concentration Units: (ug/L or mg/Kg dry weight): mg/kg

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Chromium		6.40		2.06		4.2	103.3		P

Comments:

6-IN

DUPLICATES

EPA SAMPLE NO.

MC0AK1D

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AJ3

Matrix: SOIL

% Solids for Sample: 73.5

Concentration Units:(ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		693.9777		632.4861		9		P
Antimony		6.2315	U	6.1843	U			P
Arsenic		0.5122	J	0.6546	J	24		P
Barium		6.9983	J	6.8068	J	3		P
Beryllium		0.1194	J	0.1220	J	2		P
Cadmium		0.5193	U	0.5154	U			P
Calcium		271.6958	J	274.7451	J	1		P
Chromium	1.0307	2.0649		1.9926		4		P
Cobalt		0.7164	J	0.7179	J	0		P
Copper		0.3788	J	0.4746	J	22		P
Iron		1716.7770		1707.8560		1		P
Lead	1.0307	3.0192		2.9664		2		P
Magnesium		34.6980	J	31.5924	J	9		P
Manganese		26.7571		26.8149		0		P
Nickel		0.6460	J	0.6417	J	1		P
Potassium		519.29	U	515.3577	U			P
Selenium		0.2952	J	3.6075	U	200		P
Silver		1.0386	U	1.0307	U			P
Sodium		519.29	U	515.3577	U			P
Thallium		2.5965	U	2.5768	U			P
Vanadium		3.2160	J	3.0700	J	5		P
Zinc		5.3898	J	5.1018	J	5		P

7 - IN

LABORATORY CONTROL SAMPLE

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AJ3

Analyte	Aqueous/Water (ug/L), Soil Sediment (mg/Kg), Wipe/Filter (ug)		
	True	Found	%R
Aluminum	40.0	35.5	89
Antimony	12.0	10.96	91
Arsenic	2.0	1.51	76
Barium	40.0	42.56	106
Beryllium	1.0	0.961	96
Cadmium	1.0	0.9715	97
Calcium	1000.0	1061.0	106
Chromium	2.0	2.025	101
Cobalt	10.0	9.629	96
Copper	5.0	5.25	105
Iron	20.0	20.5	102
Lead	2.0	1.92	96
Magnesium	1000.0	972.8	97
Manganese	3.0	3.21	107
Nickel	8.0	7.75	97
Potassium	1000.0	974.1	97
Selenium	7.0	6.39	91
Silver	2.0	1.897	95
Sodium	1000.0	1003.8	100
Thallium	5.0	5.05	101
Vanadium	10.0	10.28	103
Zinc	12.0	11.4	95

8-IN

ICP-AES and ICP-MS SERIAL DILUTIONS

EPA SAMPLE NO.

MC0AK1L

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref.No.: SDG No.: MC0AJ3

Matrix: SOIL

Concentration Units (ug/L or mg/kg dry weight): mg/kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	693.98		706.54		2		P
Antimony	6.23	U	31.16	U			P
Arsenic	0.51	J	5.19	U	100		P
Barium	7.00	J	7.16	J	2		P
Beryllium	0.12	J	2.60	U	100		P
Cadmium	0.52	U	2.60	U			P
Calcium	271.70	J	268.68	J	1		P
Chromium	2.06		2.05	J	0		P
Cobalt	0.72	J	0.79	J	10		P
Copper	0.38	J	12.98	U	100		P
Iron	1716.78		1715.90		0		P
Lead	3.02		2.72	J	10		P
Magnesium	34.70	J	29.25	J	16		P
Manganese	26.76		26.85		0		P
Nickel	0.65	J	0.86	J	32		P
Potassium	519.29	U	2596.46	U			P
Selenium	0.30	J	18.18	U	100		P
Silver	1.04	U	5.19	U			P
Sodium	519.29	U	2596.46	U			P
Thallium	2.60	U	12.98	U			P
Vanadium	3.22	J	4.15	J	29		P
Zinc	5.39	J	5.93	J	10		P

US EPA-CLP

9-IN

METHOD DETECTION LIMITS (MDL) (ANNUALLY)

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AJ3

Instrument Type: P Instrument ID: P5 Date: 01/09/2014

Preparation Method: 200.7

Concentration Units (ug/L, mg/kg, or ug): UG/L

Analyte	Wavelength/Mass	MDL
Aluminum	396.10	15.4
Antimony	206.83	2.7
Arsenic	189.04	2.1
Barium	493.41	2.8
Beryllium	234.80	0.64
Cadmium	214.40	0.18
Calcium	373.60	59.9
Chromium	267.72	0.51
Cobalt	228.62	0.86
Copper	324.75	3.4
Iron	259.80	10.7
Lead	220.35	1.6
Magnesium	279.08	63.2
Manganese	257.61	0.75
Nickel	231.60	1.3
Potassium	769.80	105
Selenium	196.02	2.8
Silver	328.07	0.38
Sodium	818.30	252
Thallium	190.86	2.0
Vanadium	292.40	3.7
Zinc	213.80	3.5

Comments:

9-IN

METHOD DETECTION LIMITS (MDL) (ANNUALLY)

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AJ3

Instrument Type: P Instrument ID: P5 Date: 01/09/2014

Preparation Method: 3050B

Concentration Units (ug/L, mg/kg, or ug): MG/KG

Analyte	Wavelength/Mass	MDL
Aluminum	396.10	1.8
Antimony	206.83	0.16
Arsenic	189.04	0.24
Barium	493.41	0.37
Beryllium	234.80	0.074
Cadmium	214.40	0.0078
Calcium	373.60	8.6
Chromium	267.72	0.069
Cobalt	228.62	0.097
Copper	324.75	0.29
Iron	259.80	1.7
Lead	220.35	0.16
Magnesium	279.08	3.7
Manganese	257.61	0.13
Nickel	231.60	0.12
Potassium	769.80	10.8
Selenium	196.02	0.16
Silver	328.07	0.050
Sodium	818.30	24.2
Thallium	190.86	0.25
Vanadium	292.40	0.59
Zinc	213.80	1.1

Comments:

US EPA-CLP

10A-IN

ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref.No.: SDG No.: MC0AJ3

ICP-AES Instrument ID: P5 Date: 01/22/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	Co
Aluminum	396.152	0.000000	0.003712	0.000000	0.000000	0.000000
Antimony	206.833	0.000000	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000000	-0.000095	0.000000	0.000000
Barium	493.409	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	234.861	0.000000	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	0.000000	0.000000	0.000032	0.000000	0.000000
Calcium	373.690	0.000000	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000	0.000000
Cobalt	228.616	0.000000	0.000000	0.000000	0.000000	0.000000
Copper	324.754	0.000000	0.000000	-0.000123	0.000000	-0.000740
Iron	259.837	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.353	-0.000072	0.000000	0.000030	0.000000	0.000000
Magnesium	279.079	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.610	0.000000	0.000000	0.000000	0.000000	0.000000
Nickel	231.604	0.000000	0.000000	0.000000	0.000000	-0.000294
Potassium	769.896	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.090	0.000000	0.000000	-0.000268	0.000000	-0.000478
Silver	328.068	0.000000	0.000000	-0.000054	0.000000	0.000000
Sodium	818.326	0.000000	0.000000	0.000000	0.000000	0.000000
Thallium	190.856	0.000000	0.000000	-0.000049	0.000000	0.002115
Vanadium	292.402	0.000000	0.000000	0.000000	0.000000	0.000000
Zinc	213.856	0.000000	0.000000	0.000063	0.000000	0.000000

Comments:

US EPA-CLP

10B-IN

ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

ICP-AES Instrument ID: P5 Date: 01/22/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Cr	Cu	Mn	Mo	Ni
Aluminum	396.152	0.000000	0.000000	0.000000	0.038320	0.001814
Antimony	206.833	0.009638	0.000000	0.000000	-0.003330	-0.000475
Arsenic	189.042	0.000283	0.000000	0.000000	0.000345	0.000000
Barium	493.409	0.000000	0.000000	0.000000	0.000000	0.000000
Beryllium	234.861	0.000000	0.000000	0.000000	-0.000170	0.000000
Cadmium	214.438	0.000000	0.000000	0.000000	0.000000	0.000000
Calcium	373.690	0.000000	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000276	0.000000	0.000000
Cobalt	228.616	0.000000	0.000000	0.000000	-0.001000	0.000000
Copper	324.754	0.000000	0.000000	0.000000	0.000374	0.000000
Iron	259.837	0.000000	0.000000	0.000000	0.000000	0.000000
Lead	220.353	0.000000	0.000385	0.000087	-0.001220	0.000149
Magnesium	279.079	0.000000	0.000000	0.000000	0.000000	0.000000
Manganese	257.610	0.000000	0.000000	0.000000	0.000000	0.000000
Nickel	231.604	0.000000	0.000000	0.000000	0.000000	0.000000
Potassium	769.896	0.000000	0.000000	0.000000	0.000000	0.000000
Selenium	196.090	0.000000	0.000000	0.000550	0.000223	0.000000
Silver	328.068	0.000000	0.000000	0.000000	0.000000	0.000000
Sodium	818.326	0.000000	0.000000	0.000000	0.000000	0.000000
Thallium	190.856	0.000220	0.000000	0.000849	-0.002166	0.000000
Vanadium	292.402	-0.002627	0.000000	-0.000280	-0.008872	0.000000
Zinc	213.856	0.000000	0.000240	0.000000	0.000000	0.004587

Comments:

US EPA-CLP

10B-IN

ICP-AES INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

ICP-AES Instrument ID: P5 Date: 01/22/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Pb	Ti	V	Zn
Aluminum	396.152	0.000000	0.000000	0.000000	0.000000
Antimony	206.833	0.000000	0.000000	0.000000	0.000000
Arsenic	189.042	0.000000	0.000000	0.000000	0.000000
Barium	493.409	0.000000	0.000000	0.000000	0.000000
Beryllium	234.861	0.000000	0.000000	0.000000	0.000000
Cadmium	214.438	0.000000	0.000000	0.000000	0.000000
Calcium	373.690	0.000000	0.000000	0.000000	0.000000
Chromium	267.716	0.000000	0.000000	0.000000	0.000000
Cobalt	228.616	0.000000	0.001813	0.000000	0.000000
Copper	324.754	0.000000	-0.000282	-0.000234	0.000000
Iron	259.837	0.000000	0.000000	0.000000	0.000000
Lead	220.353	0.000000	0.000000	-0.001249	0.000000
Magnesium	279.079	0.000000	0.000000	0.000000	0.000000
Manganese	257.610	0.000000	0.000000	0.000000	0.000000
Nickel	231.604	0.000000	0.000000	0.000000	0.000000
Potassium	769.896	0.000000	0.000000	0.000000	0.000000
Selenium	196.090	0.000000	0.000000	0.000000	0.000000
Silver	328.068	0.000000	0.000000	-0.001258	0.000000
Sodium	818.326	0.000000	0.000000	0.000000	0.000000
Thallium	190.856	0.000000	-0.000580	-0.001321	0.000000
Vanadium	292.402	0.000000	0.000568	0.000000	0.000000
Zinc	213.856	0.000000	0.000000	0.000000	0.000000

Comments:

US EPA-CLP

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PREPARATION LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No. SDG No.: MC0AJ3

Preparation Method: 3050B

EPA Sample No.	Preparation Date	Initial Weight/Volume (g) or (mL)	Final Volume (mL)
PBS01	09/17/2014	1.00	100
LCS01	09/17/2014	1.00	100
MC0AJ3	09/17/2014	1.32	100
MC0AJ4	09/17/2014	1.31	100
MC0AJ5	09/17/2014	1.30	100
MC0AJ7	09/17/2014	1.27	100
MC0AJ8	09/17/2014	1.36	100
MC0AJ9	09/17/2014	1.40	100
MC0AK0	09/17/2014	1.30	100
MC0AK1	09/17/2014	1.31	100
MC0AK1D	09/17/2014	1.32	100
MC0AK1S	09/17/2014	1.05	100
MC0AK2	09/17/2014	1.32	100
MC0AK3	09/17/2014	1.27	100
MC0AK4	09/17/2014	1.35	100
MC0AK5	09/17/2014	1.40	100
MC0AK6	09/17/2014	1.30	100
MC0AK7	09/17/2014	1.30	100
MC0AK8	09/17/2014	1.31	100
MC0AK9	09/17/2014	1.29	100
MC0AL0	09/17/2014	1.30	100
MC0AL1	09/17/2014	1.34	100
MC0AL2	09/17/2014	1.25	100

US EPA-CLP

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ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Instrument ID: P5 Analysis Method: P

Start Date: 09/18/2014 End Date: 09/19/2014

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
S0	1.0	1713	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1717	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1721	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1725	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1729	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1733	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1737	X						X				X		X							X							
ICV53	1.0	1751	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICB53	1.0	1755	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSA53	1.0	1759	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSAB53	1.0	1803	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV54	1.0	1807	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB54	1.0	1811	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	1.0	1815																											
ZZZZZZ	1.0	1819																											
ZZZZZZ	1.0	1823																											
ZZZZZZ	1.0	1827																											
ZZZZZZ	1.0	1831																											
ZZZZZZ	1.0	1836																											
ZZZZZZ	1.0	1840																											
ZZZZZZ	1.0	1844																											
ZZZZZZ	1.0	1848																											
ZZZZZZ	1.0	1851																											
ZZZZZZ	1.0	1855																											
ZZZZZZ	1.0	1859																											
ZZZZZZ	1.0	1904																											
ZZZZZZ	1.0	1908																											
ZZZZZZ	1.0	1912																											
ZZZZZZ	1.0	1919																											
ZZZZZZ	1.0	1923																											
ZZZZZZ	1.0	1927																											
ZZZZZZ	1.0	1931																											
ZZZZZZ	5.0	1935																											
CCV55	1.0	1939	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB55	1.0	1943	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	1.0	1947																											
ZZZZZZ	1.0	1951																											

US EPA-CLP

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ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No _____ SDG No.: MC0AJ3

Instrument ID: P5 Analysis Method: P

Start Date: 09/18/2014 End Date: 09/19/2014

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ZZZZZZ	1.0	1955																											
ZZZZZZ	1.0	1959																											
ZZZZZZ	1.0	2003																											
ZZZZZZ	1.0	2007																											
ZZZZZZ	1.0	2011																											
ZZZZZZ	10	2015																											
ZZZZZZ	10	2019																											
ZZZZZZ	10	2023																											
ZZZZZZ	50	2027																											
ZZZZZZ	1.0	2031																											
ZZZZZZ	1.0	2035																											
ZZZZZZ	1.0	2039																											
ZZZZZZ	1.0	2043																											
ZZZZZZ	1.0	2048																											
ZZZZZZ	1.0	2052																											
ZZZZZZ	1.0	2056																											
ZZZZZZ	1.0	2100																											
ZZZZZZ	1.0	2104																											
CCV56	1.0	2108	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB56	1.0	2112	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	5.0	2116																											
ZZZZZZ	1.0	2120																											
ZZZZZZ	1.0	2124																											
ZZZZZZ	1.0	2129																											
ZZZZZZ	1.0	2133																											
ZZZZZZ	1.0	2137																											
ZZZZZZ	1.0	2141																											
ZZZZZZ	1.0	2145																											
ZZZZZZ	1.0	2149																											
ZZZZZZ	1.0	2153																											
ZZZZZZ	1.0	2157																											
ZZZZZZ	5.0	2201																											
ZZZZZZ	1.0	2205																											
ZZZZZZ	1.0	2209																											
ZZZZZZ	1.0	2213																											
ZZZZZZ	1.0	2217																											
ZZZZZZ	1.0	2221																											
ZZZZZZ	1.0	2225																											

US EPA-CLP

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ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Instrument ID: P5 Analysis Method: P

Start Date: 09/18/2014 End Date: 09/19/2014

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ZZZZZZ	1.0	2229																											
ZZZZZZ	1.0	2233																											
CCV57	1.0	2237	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB57	1.0	2241	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	1.0	2245																											
ZZZZZZ	1.0	2249																											
ZZZZZZ	1.0	2253																											
ZZZZZZ	1.0	2257																											
ZZZZZZ	1.0	2301																											
ZZZZZZ	1.0	2305																											
ZZZZZZ	5.0	2309																											
ZZZZZZ	1.0	2313																											
ZZZZZZ	1.0	2317																											
ZZZZZZ	1.0	2321																											
ZZZZZZ	1.0	2325																											
ZZZZZZ	1.0	2329																											
ZZZZZZ	1.0	2333																											
PBS01	1.0	2337	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
LCS01	1.0	2341	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AJ3	1.0	2345	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AJ4	1.0	2349	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AJ5	1.0	2353	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AJ7	1.0	2357	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
MC0AJ8	1.0	0001	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV58	1.0	0005	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB58	1.0	0009	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	1.0	0013																											
ZZZZZZ	1.0	0017																											
ZZZZZZ	1.0	0021																											
ZZZZZZ	1.0	0026																											
ZZZZZZ	1.0	0030																											
ZZZZZZ	5.0	0034																											
ZZZZZZ	1.0	0038																											
ZZZZZZ	1.0	0042																											
ZZZZZZ	1.0	0046																											
ZZZZZZ	1.0	0050																											
ZZZZZZ	1.0	0054																											

US EPA-CLP

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ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Instrument ID: P5 Analysis Method: P

Start Date: 09/18/2014 End Date: 09/19/2014

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ZZZZZZ	1.0	0058																											
ZZZZZZ	1.0	0102																											
ZZZZZZ	1.0	0106																											
ZZZZZZ	1.0	0110																											
ZZZZZZ	1.0	0114																											
ZZZZZZ	1.0	0118																											
CCV59	1.0	0135	X	X	X		X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB59	1.0	0139	X	X	X		X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				

US EPA-CLP

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ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Instrument ID: P5 Analysis Method: P

Start Date: 09/19/2014 End Date: 09/19/2014

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
S0	1.0	1212	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1216	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1220	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1224	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1228	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1232	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
S	1.0	1237	X						X				X		X							X							
ICV54	1.0	1245	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICB54	1.0	1249	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSA54	1.0	1258	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSAB54	1.0	1302	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV60	1.0	1306	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB60	1.0	1310	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	1.0	1314																											
ZZZZZZ	1.0	1318																											
ZZZZZZ	1.0	1322																											
ZZZZZZ	1.0	1327																											
ZZZZZZ	1.0	1331																											
ZZZZZZ	1.0	1335																											
ZZZZZZ	1.0	1339																											
ZZZZZZ	1.0	1343																											
ZZZZZZ	1.0	1347																											
ZZZZZZ	1.0	1351																											
ZZZZZZ	1.0	1355																											
ZZZZZZ	1.0	1359																											
ZZZZZZ	1.0	1403																											
ZZZZZZ	1.0	1408																											
ZZZZZZ	1.0	1412																											
ZZZZZZ	1.0	1416																											
ZZZZZZ	1.0	1420																											
ZZZZZZ	1.0	1424																											
ZZZZZZ	1.0	1428																											
CCV61	1.0	1432	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB61	1.0	1436	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	1.0	1456																											
ZZZZZZ	1.0	1500																											
ZZZZZZ	1.0	1505																											

US EPA-CLP

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ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Instrument ID: P5 Analysis Method: P

Start Date: 09/19/2014 End Date: 09/19/2014

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ZZZZZZ	1.0	1509																											
ZZZZZZ	1.0	1513																											
ZZZZZZ	1.0	1517																											
ZZZZZZ	1.0	1521																											
ZZZZZZ	1.0	1525																											
ZZZZZZ	1.0	1529																											
ZZZZZZ	1.0	1533																											
ZZZZZZ	1.0	1537																											
ZZZZZZ	1.0	1541																											
ZZZZZZ	5.0	1545																											
ZZZZZZ	1.0	1549																											
ZZZZZZ	1.0	1553																											
ZZZZZZ	1.0	1557																											
CCV62	1.0	1601	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCB62	1.0	1605	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ZZZZZZ	1.0	1609																											
ZZZZZZ	1.0	1613																											
ZZZZZZ	1.0	1617																											
ZZZZZZ	10	1635																											
ZZZZZZ	1.0	1638																											
ZZZZZZ	1.0	1643																											
ZZZZZZ	1.0	1647																											
ZZZZZZ	1.0	1651																											
ZZZZZZ	1.0	1655																											
ZZZZZZ	1.0	1659																											
ZZZZZZ	1.0	1703																											
ZZZZZZ	1.0	1707																											
ZZZZZZ	5.0	1711																											
ZZZZZZ	1.0	1715																											
ZZZZZZ	1.0	1719																											
ZZZZZZ	1.0	1723																											
ZZZZZZ	1.0	1727																											
ZZZZZZ	1.0	1731																											
ZZZZZZ	1.0	1735																											
ZZZZZZ	1.0	1739																											
ZZZZZZ	1.0	1743																											
ZZZZZZ	1.0	1747																											
CCV63	1.0	1756	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				

US EPA-CLP

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ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Instrument ID: P5 Analysis Method: P

Start Date: 09/19/2014 End Date: 09/19/2014

EPA Sample NO.	D/F	Time	Analytes																									
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN		
CCB63	1.0	1800	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	1805																										
ZZZZZZ	1.0	1809																										
ZZZZZZ	1.0	1813																										
ZZZZZZ	1.0	1817																										
ZZZZZZ	1.0	1821																										
ZZZZZZ	1.0	1825																										
ZZZZZZ	1.0	1829																										
ZZZZZZ	1.0	1833																										
ZZZZZZ	1.0	1837																										
ZZZZZZ	1.0	1841																										
ZZZZZZ	1.0	1845																										
ZZZZZZ	10	1849																										
ZZZZZZ	10	1853																										
ZZZZZZ	10	1857																										
MC0AJ9	1.0	1901	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AK0	1.0	1905	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AK1	1.0	1910	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AK1D	1.0	1914	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AK1S	1.0	1918		X	X	X	X	X		X	X	X		X		X		X		X	X		X	X	X			
MC0AK1L	5.0	1922	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCV64	1.0	1926	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB64	1.0	1930	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AK2	1.0	1934	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AK3	1.0	1938	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AK4	1.0	1942	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AK5	1.0	1946	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AK6	1.0	1950	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AK7	1.0	1954	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AK8	1.0	1958	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AK9	1.0	2002	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AL0	1.0	2006	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AL1	1.0	2010	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
MC0AL2	1.0	2015	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
ZZZZZZ	1.0	2019																										
ZZZZZZ	1.0	2023																										
ZZZZZZ	1.0	2027																										

US EPA-CLP

13-IN

ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No SDG No.: MC0AJ3

Instrument ID: P5 Analysis Method: P

Start Date: 09/19/2014 End Date: 09/19/2014

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ZZZZZZ	1.0	2031																											
ZZZZZZ	1.0	2035																											
ZZZZZZ	1.0	2039																											
ZZZZZZ	1.0	2043																											
ZZZZZZ	1.0	2047																											
ZZZZZZ	1.0	2051																											
CCV65	1.0	2055	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			
CCB65	1.0	2059	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X			

US EPA-CLP

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ANALYSIS RUN LOG

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No _____ SDG No.: MC0AJ3

Instrument ID: P5 Analysis Method: P

Start Date: 09/22/2014 End Date: 09/22/2014

EPA Sample NO.	D/F	Time	Analytes																										
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
S0	1.0	1641								X																			
S	1.0	1645								X																			
S	1.0	1649								X																			
S	1.0	1653								X																			
S	1.0	1657								X																			
S	1.0	1701								X																			
S	1.0	1705																											
ICV55	1.0	1729								X																			
ICB55	1.0	1733								X																			
ICSA55	1.0	1737	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
ICSAB55	1.0	1741	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X				
CCV67	1.0	1745								X																			
CCB67	1.0	1749								X																			
ZZZZZZ	1.0	1753																											
ZZZZZZ	1.0	1757																											
ZZZZZZ	1.0	1801																											
ZZZZZZ	1.0	1804																											
ZZZZZZ	10	1808																											
ZZZZZZ	10	1812																											
ZZZZZZ	10	1816																											
ZZZZZZ	10	1820																											
ZZZZZZ	10	1824																											
ZZZZZZ	1.0	1828																											
ZZZZZZ	1.0	1832																											
MC0AK1A	1.0	1836								X																			
ZZZZZZ	1.0	1840																											
ZZZZZZ	1.0	1844																											
ZZZZZZ	1.0	1848																											
ZZZZZZ	1.0	1852																											
ZZZZZZ	1.0	1856																											
ZZZZZZ	1.0	1900																											
ZZZZZZ	1.0	1904																											
ZZZZZZ	1.0	1908																											
ZZZZZZ	5.0	1912																											
CCV68	1.0	1916								X																			
CCB68	1.0	1920								X																			

US EPA-CLP

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INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AJ3

Instrument ID: P5 **Start Date:** 09/18/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	0.00	0.040	0	200	173	13	38750	37382	4
Antimony	0.00	0.0100	0	60.0	54	11	1250	1135	9
Arsenic	0.00	0.00000	0	10.0	7.0	30	1250	1142	9
Barium	0.00	-0.0100	0	200	201	-1	2500	2533	-1
Beryllium	0.00	0.00000	0	5.00	4.4	13	125	126	-1
Cadmium	0.00	0.00000	0	5.00	4.8	5	625	624	0
Calcium	0.00	-0.63	0	5000	5096	-2	62500	65929	-5
Chromium	0.00	0.00000	0	10.0	10	-1	3875	4050	-5
Cobalt	0.00	0.00000	0	50.0	46	7	625	613	2
Copper	0.00	0.00000	0	25.0	27	-9	3750	3744	0
Iron	0.00	-0.020	0	100	103	-3	37500	39952	-7
Lead	0.00	0.00000	0	10.0	9.6	4	6250	6159	1
Magnesium	0.00	0.080	0	5000	4906	2	62500	62643	0
Manganese	0.00	0.00000	0	15.0	16	-8	3750	3947	-5
Nickel	0.00	0.00000	0	40.0	38	5	625	618	1
Potassium	0.00	0.32	0	5000	4836	3	37500	36490	3
Selenium	0.00	0.0100	0	35.0	33	7	1250	1154	8
Silver	0.00	0.00000	0	10.0	9.3	7	313	293	6
Sodium	0.00	0.85	0	5000	4709	6	37500	36196	3
Thallium	0.00	0.00000	0	25.0	25	2	1250	1276	-2
Vanadium	0.00	0.00000	0	50.0	47	5	625	637	-2
Zinc	0.00	0.00000	0	60.0	61	-2	3750	3663	2

Control Limits ± 30

US EPA-CLP

16-IN

INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AJ3

Instrument ID: P5 **Start Date:** 09/19/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	0.00	0.030	0	200	175	13	38750	38354	1
Antimony	0.00	0.0100	0	60.0	54	10	1250	1158	7
Arsenic	0.00	0.00000	0	10.0	8.2	18	1250	1173	6
Barium	0.00	0.00000	0	200	198	1	2500	2526	-1
Beryllium	0.00	0.00000	0	5.00	5.2	-3	125	128	-2
Cadmium	0.00	0.00000	0	5.00	4.8	4	625	630	-1
Calcium	0.00	-0.71	0	5000	5065	-1	62500	66625	-7
Chromium	0.00	0.00000	0	10.0	11	-5	3875	4144	-7
Cobalt	0.00	0.00000	0	50.0	46	7	625	617	1
Copper	0.00	0.00000	0	25.0	24	5	3750	3791	-1
Iron	0.00	-0.020	0	100	103	-3	37500	40403	-8
Lead	0.00	0.00000	0	10.0	8.5	15	6250	6194	1
Magnesium	0.00	-0.0100	0	5000	4911	2	62500	63290	-1
Manganese	0.00	0.00000	0	15.0	15	-2	3750	3957	-6
Nickel	0.00	0.00000	0	40.0	38	4	625	621	1
Potassium	0.00	0.38	0	5000	4738	5	37500	36929	2
Selenium	0.00	0.0100	0	35.0	32	10	1250	1184	5
Silver	0.00	0.00000	0	10.0	9.1	9	313	298	5
Sodium	0.00	0.56	0	5000	4826	3	37500	36647	2
Thallium	0.00	0.00000	0	25.0	26	-3	1250	1281	-3
Vanadium	0.00	0.00000	0	50.0	50	-1	625	644	-3
Zinc	0.00	0.00000	0	60.0	58	4	3750	3677	2

Control Limits ± 30

US EPA-CLP

16-IN

INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AJ3

Instrument ID: P5 **Start Date:** 09/22/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Chromium	0.00	0.00000	0	10.0	9.1	9	3875	3834	1

Control Limits ± 30

US EPA-CLP

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INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AJ3

Instrument ID: P5 **Start Date:** 09/18/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	77500	75857	2	155000	152750	1	310000	308340	1
Antimony	2500	2377	5	5000	4879	2	10000	10366	-4
Arsenic	2500	2394	4	5000	4892	2	10000	10326	-3
Barium	5000	5108	-2	10000	9911	1	20000	19947	0
Beryllium	250	253	-1	500	503	-1	1000	994	1
Cadmium	1250	1283	-3	2500	2531	-1	5000	4937	1
Calcium	125000	131180	-5	250000	256530	-3	500000	496200	1
Chromium	7750	8163	-5	15500	15808	-2	31000	30103	3
Cobalt	1250	1260	-1	2500	2510	0	5000	4996	0
Copper	7500	7538	-1	15000	14910	1	30000	30058	0
Iron	75000	79337	-6	150000	154260	-3	300000	298680	0
Lead	12500	12619	-1	25000	25105	0	50000	49868	0
Magnesium	125000	125940	-1	250000	249630	0	500000	493720	1
Manganese	7500	7785	-4	15000	15101	-1	30000	29416	2
Nickel	1250	1271	-2	2500	2517	-1	5000	4973	1
Potassium	75000	74495	1	150000	148900	1	300000	302780	-1
Selenium	2500	2427	3	5000	4911	2	10000	10263	-3
Silver	625	603	3	1250	1221	2	2500	2572	-3
Sodium	75000	72620	3	150000	144280	4	300000	290350	3
Thallium	2500	2581	-3	5000	5036	-1	10000	9858	1
Vanadium	1250	1281	-3	2500	2513	-1	5000	4946	1
Zinc	7500	7438	1	15000	14732	2	30000	30415	-1

US EPA-CLP

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INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AJ3

Instrument ID: P5 **Start Date:** 09/19/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	77500	76536	1	155000	155290	0	310000	311980	-1
Antimony	2500	2421	3	5000	4886	2	10000	10291	-3
Arsenic	2500	2431	3	5000	4900	2	10000	10249	-2
Barium	5000	5027	-1	10000	9957	0	20000	19992	0
Beryllium	250	253	-1	500	503	-1	1000	991	1
Cadmium	1250	1293	-3	2500	2523	-1	5000	4930	1
Calcium	125000	131170	-5	250000	260100	-4	500000	498770	0
Chromium	7750	8181	-6	15500	15906	-3	31000	29893	4
Cobalt	1250	1274	-2	2500	2505	0	5000	4983	0
Copper	7500	7508	0	15000	15024	0	30000	29930	0
Iron	75000	79104	-5	150000	155090	-3	300000	299360	0
Lead	12500	12732	-2	25000	25111	0	50000	49715	1
Magnesium	125000	126210	-1	250000	251820	-1	500000	494370	1
Manganese	7500	7757	-3	15000	15191	-1	30000	29344	2
Nickel	1250	1279	-2	2500	2506	0	5000	4970	1
Potassium	75000	74033	1	150000	149770	0	300000	302030	-1
Selenium	2500	2450	2	5000	4911	2	10000	10212	-2
Silver	625	605	3	1250	1238	1	2500	2548	-2
Sodium	75000	73282	2	150000	146340	2	300000	292600	2
Thallium	2500	2602	-4	5000	5035	-1	10000	9832	2
Vanadium	1250	1276	-2	2500	2525	-1	5000	4930	1
Zinc	7500	7437	1	15000	15157	-1	30000	29981	0

US EPA-CLP

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INITIAL CALIBRATION

Lab Name: Chemtech Contract: EPW09038

Lab Code: CHEM Case No.: 44664 Mod. Ref. No.: SDG No.: MC0AJ3

Instrument ID: P5 Start Date: 09/22/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Chromium	7750	7716	0	15500	15634	-1	31000	30940	0

Control Limits ± 30

US EPA-CLP

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INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AJ3

Instrument ID: P5 **Start Date:** 09/18/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	800000	806930	-1			0			0
Antimony			0			0			0
Arsenic			0			0			0
Barium			0			0			0
Beryllium			0			0			0
Cadmium			0			0			0
Calcium	800000	787560	2			0			0
Chromium			0			0			0
Cobalt			0			0			0
Copper			0			0			0
Iron	800000	790270	1			0			0
Lead			0			0			0
Magnesium	800000	805670	-1			0			0
Manganese			0			0			0
Nickel			0			0			0
Potassium			0			0			0
Selenium			0			0			0
Silver			0			0			0
Sodium	800000	819340	-2			0			0
Thallium			0			0			0
Vanadium			0			0			0
Zinc			0			0			0

Control Limits ± 30

US EPA-CLP

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INITIAL CALIBRATION

Lab Name: Chemtech **Contract:** EPW09038

Lab Code: CHEM **Case No.:** 44664 **Mod. Ref. No.:** **SDG No.:** MC0AJ3

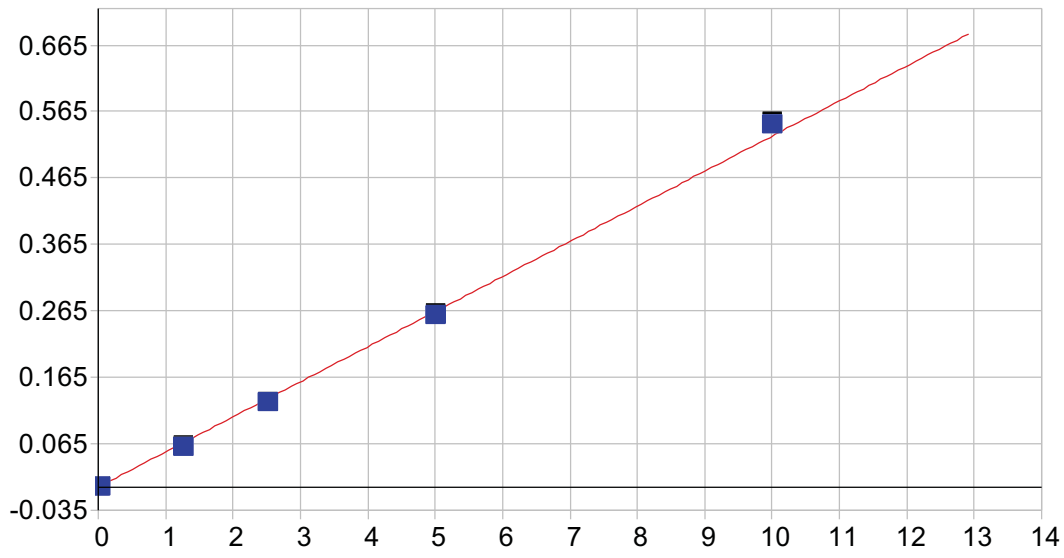
Instrument ID: P5 **Start Date:** 09/19/2014

Concentration Units: ug/L

Analyte	True	Found	%D	True	Found	%D	True	Found	%D
Aluminum	800000	799040	0			0			0
Antimony			0			0			0
Arsenic			0			0			0
Barium			0			0			0
Beryllium			0			0			0
Cadmium			0			0			0
Calcium	800000	780760	2			0			0
Chromium			0			0			0
Cobalt			0			0			0
Copper			0			0			0
Iron	800000	788540	1			0			0
Lead			0			0			0
Magnesium	800000	801900	0			0			0
Manganese			0			0			0
Nickel			0			0			0
Potassium			0			0			0
Selenium			0			0			0
Silver			0			0			0
Sodium	800000	813800	-2			0			0
Thallium			0			0			0
Vanadium			0			0			0
Zinc			0			0			0

Control Limits ± 30

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



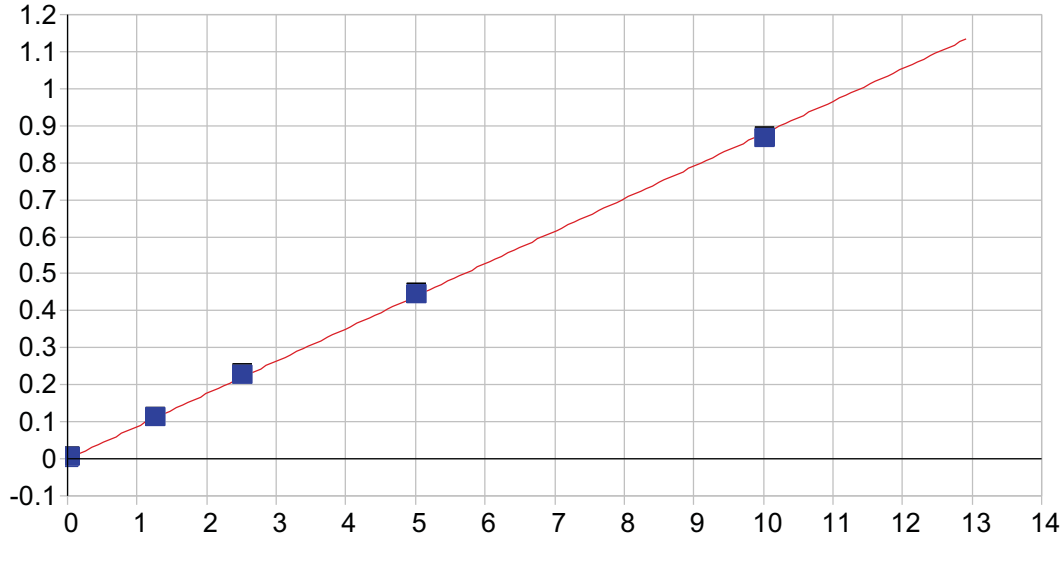
As 189.042 {479}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000061	Re-Slope:	1.000000
A1 (Gain):	0.052809	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999257	Status:	OK.
Std Error of Est:	0.000034		
Predicted MDL:	0.001746		
Predicted MQL:	0.005820		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00006	.000	1
S1	.01000	.00702	-.003	-29.8	.00031	.000	1
S2	1.2500	1.1413	-.109	-8.70	.06010	.000	1
S3	2.5000	2.3938	-.106	-4.25	.12614	.001	1
S4	5.0000	4.8920	-.108	-2.16	.25785	.002	1
S5	10.000	10.326	.326	3.26	.54438	.002	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



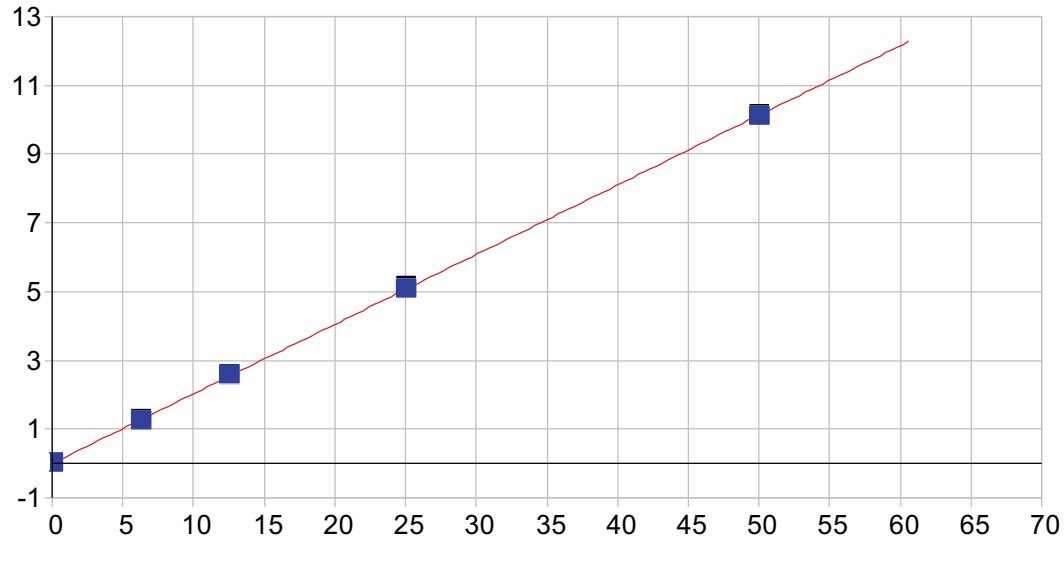
Tl 190.856 {477}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000111	Re-Slope:	1.000000
A1 (Gain):	0.087799	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999854	Status:	OK.
Std Error of Est:	0.000040		
Predicted MDL:	0.001160		
Predicted MQL:	0.003867		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00011	.000	1
S1	.02500	.02460	.000	-1.61	.00205	.000	1
S2	1.2500	1.2761	.026	2.08	.11186	.001	1
S3	2.5000	2.5809	.081	3.24	.22636	.003	1
S4	5.0000	5.0361	.036	.723	.44180	.004	1
S5	10.000	9.8573	-.143	-1.43	.86484	.003	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



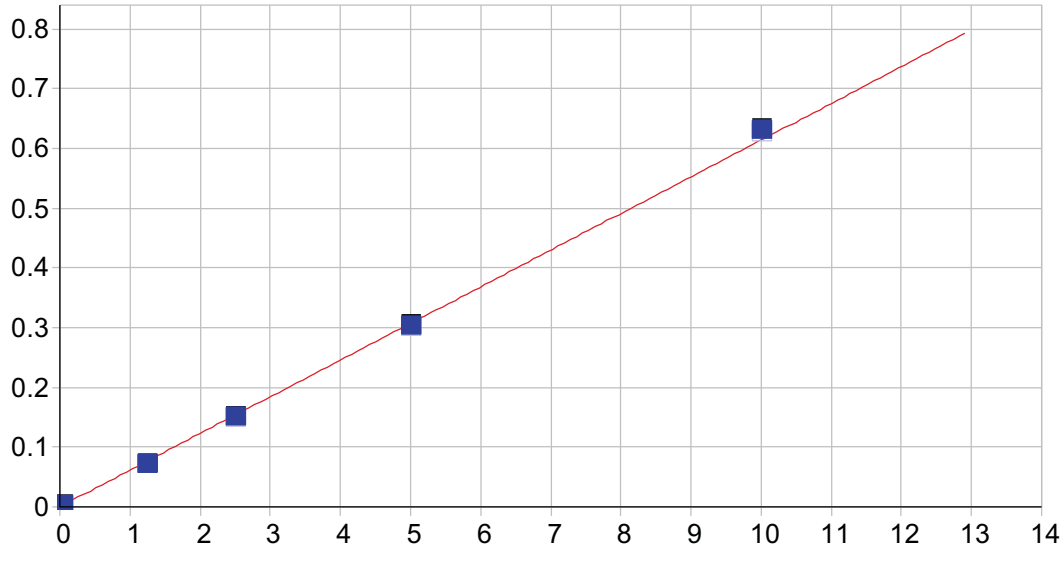
Pb 220.353 {453}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000159	Re-Slope:	1.000000
A1 (Gain):	0.202581	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999983	Status:	OK.
Std Error of Est:	0.000045		
Predicted MDL:	0.001132		
Predicted MQL:	0.003774		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00016	.000	1
S1	.01000	.00955	.000	-4.45	.00176	.000	1
S2	6.2500	6.1587	-.091	-1.46	1.2471	.006	1
S3	12.500	12.619	.119	.952	2.5554	.029	1
S4	25.000	25.105	.105	.421	5.0840	.040	1
S5	50.000	49.868	-.132	-.265	10.099	.027	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



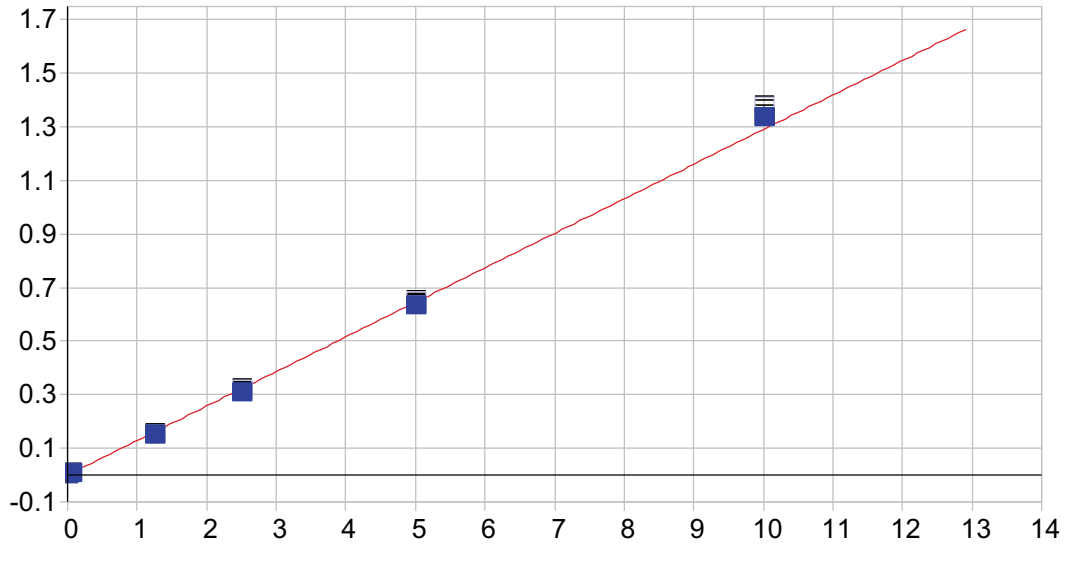
Se 196.090 {472}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000135	Re-Slope:	1.000000
A1 (Gain):	0.061391	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999506	Status:	OK.
Std Error of Est:	0.000060		
Predicted MDL:	0.002103		
Predicted MQL:	0.007009		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00014	.000	1
S1	.03500	.03250	-.003	-7.15	.00213	.000	1
S2	1.2500	1.1537	-.096	-7.70	.07047	.000	1
S3	2.5000	2.4264	-.074	-2.94	.14811	.001	1
S4	5.0000	4.9094	-.091	-1.81	.29956	.003	1
S5	10.000	10.263	.263	2.63	.62626	.002	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

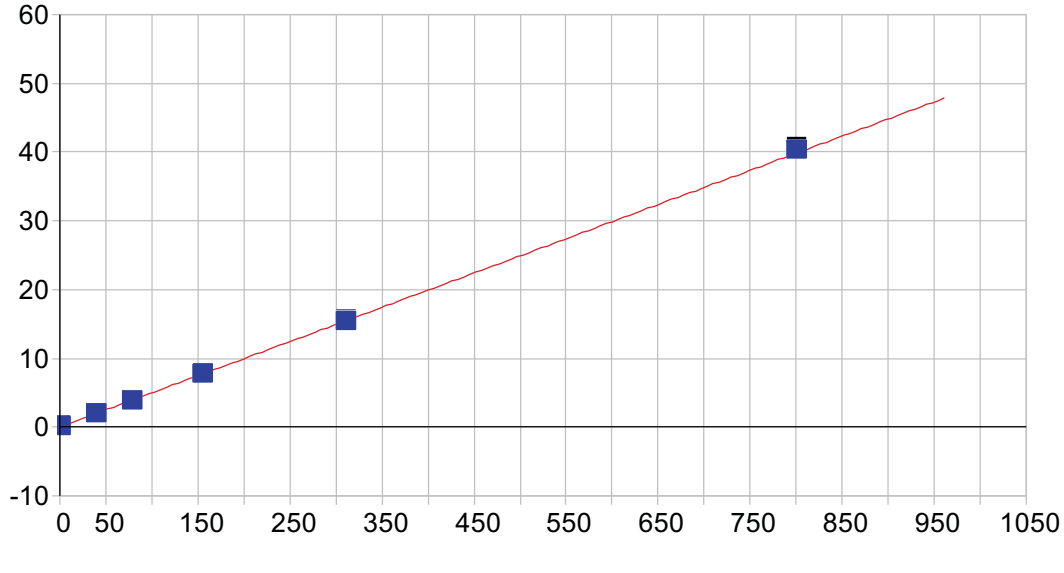


Sb 206.833 {463}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000021		Re-Slope:	1.000000		
A1 (Gain):	0.129012		Y-int:	0.000000		
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.999187		Status:	OK.		
Std Error of Est:	0.000220					
Predicted MDL:	0.001224					
Predicted MQL:	0.004080					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00002	.000	1
S1	.06000	.05361	-.006	-10.6	.00694	.000	1
S2	1.2500	1.1363	-.114	-9.10	.15086	.000	1
S3	2.5000	2.3808	-.119	-4.77	.31565	.003	1
S4	5.0000	4.8820	-.118	-2.36	.64683	.005	1
S5	10.000	10.357	.357	3.57	1.3702	.006	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



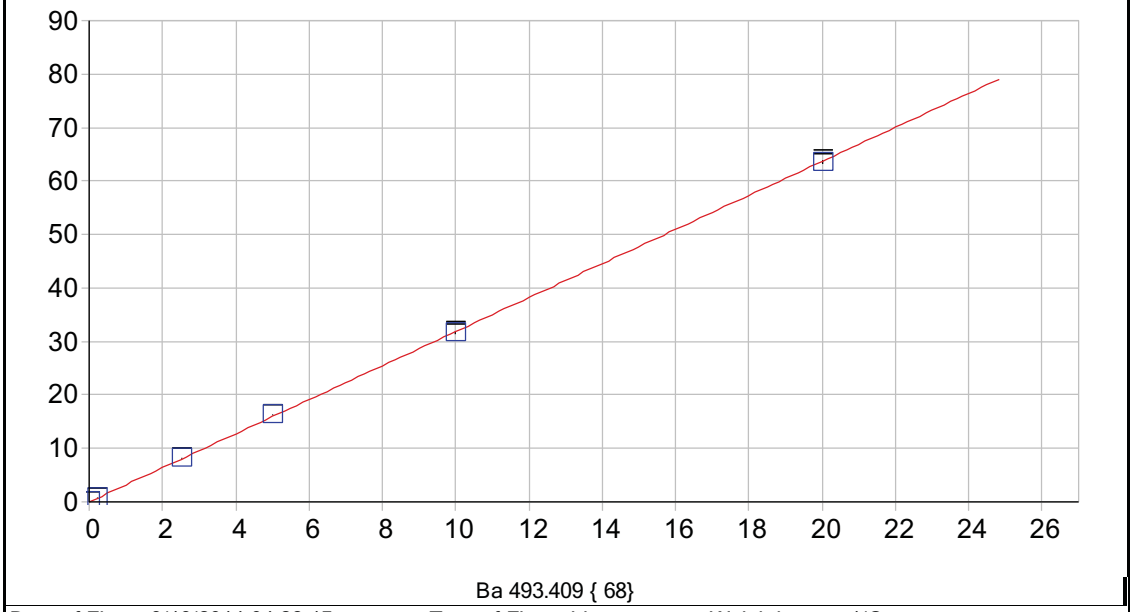
Al 396.152 { 85}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000142	Re-Slope:	1.000000
A1 (Gain):	0.049795	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999933	Status:	OK.
Std Error of Est:	0.000359		
Predicted MDL:	0.008408		
Predicted MQL:	0.028026		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00004	.000	.000	-.00014	.000	1
S1	.20000	.17338	-.027	-13.3	.00944	.000	1
S2	38.750	37.394	-1.36	-3.50	1.8759	.003	1
S3	77.500	75.880	-1.62	-2.09	3.8063	.002	1
S4	155.00	152.77	-2.23	-1.44	7.6633	.016	1
S5	310.00	308.32	-1.68	-.541	15.465	.017	1
S6	800.00	806.93	6.93	.866	40.329	.342	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



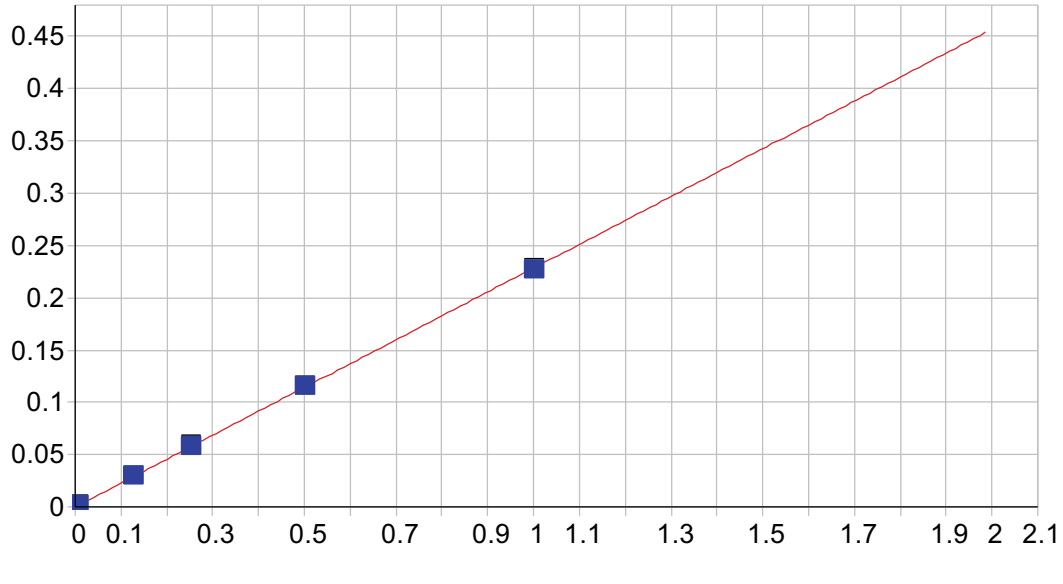
Ba 493.409 { 68}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001613	Re-Slope:	1.000000
A1 (Gain):	3.183268	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999951	Status:	OK.
Std Error of Est:	0.003340		
Predicted MDL:	0.000357		
Predicted MQL:	0.001189		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	.00159	.001	1
S1	.20000	.20108	.001	.541	.64171	.001	1
S2	2.5000	2.5325	.032	1.30	8.0631	.016	1
S3	5.0000	5.1078	.108	2.16	16.261	.040	1
S4	10.000	9.9113	-.089	-.887	31.552	.212	1
S5	20.000	19.947	-.053	-.263	63.500	.293	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



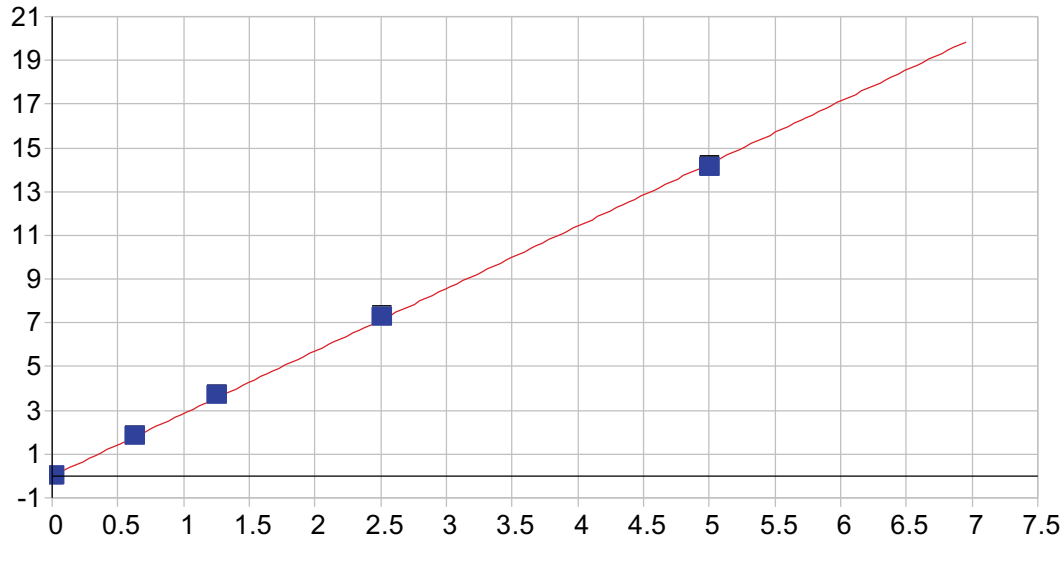
Be 234.861 {144}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000044	Re-Slope:	1.000000
A1 (Gain):	0.228364	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999952	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	0.000400		
Predicted MQL:	0.001335		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00004	.000	1
S1	.00500	.00437	-.001	-12.7	.00104	.000	1
S2	.12500	.12609	.001	.875	.02879	.000	1
S3	.25000	.25278	.003	1.11	.05767	.000	1
S4	.50000	.50312	.003	.625	.11475	.001	1
S5	1.0000	.99364	-.006	-.636	.22657	.000	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



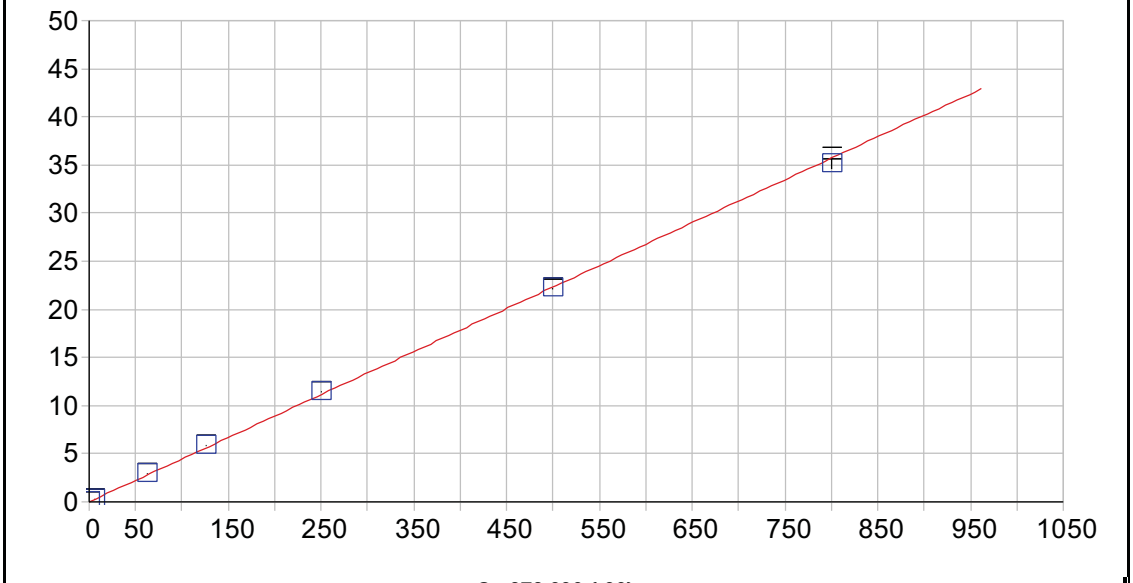
Cd 214.438 {457}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000060	Re-Slope:	1.000000
A1 (Gain):	2.854651	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999891	Status:	OK.
Std Error of Est:	0.000354		
Predicted MDL:	0.000055		
Predicted MQL:	0.000182		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00006	.000	1
S1	.00500	.00475	.000	-5.00	.01363	.000	1
S2	.62500	.62404	-.001	-.154	1.7849	.009	1
S3	1.2500	1.2826	.033	2.61	3.6684	.039	1
S4	2.5000	2.5314	.031	1.25	7.2399	.051	1
S5	5.0000	4.9372	-.063	-1.26	14.121	.040	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



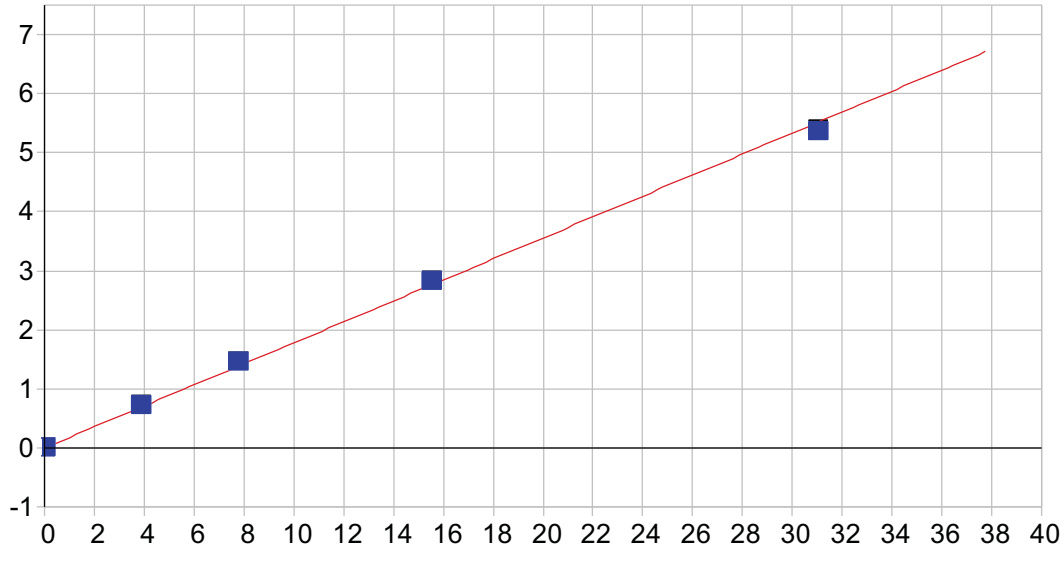
Ca 373.690 { 90}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000964	Re-Slope:	1.000000
A1 (Gain):	0.044621	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999745	Status:	OK.
Std Error of Est:	0.003516		
Predicted MDL:	0.008578		
Predicted MQL:	0.028593		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00063	-.001	.000	.00094	.000	1
S1	5.0000	5.0959	.096	1.92	.22835	.001	1
S2	62.500	65.929	3.43	5.49	2.9428	.001	1
S3	125.00	131.18	6.18	4.94	5.8541	.013	1
S4	250.00	256.53	6.53	2.61	11.448	.052	1
S5	500.00	496.20	-3.80	-.759	22.142	.010	1
S6	800.00	787.56	-12.4	-1.55	35.143	.605	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



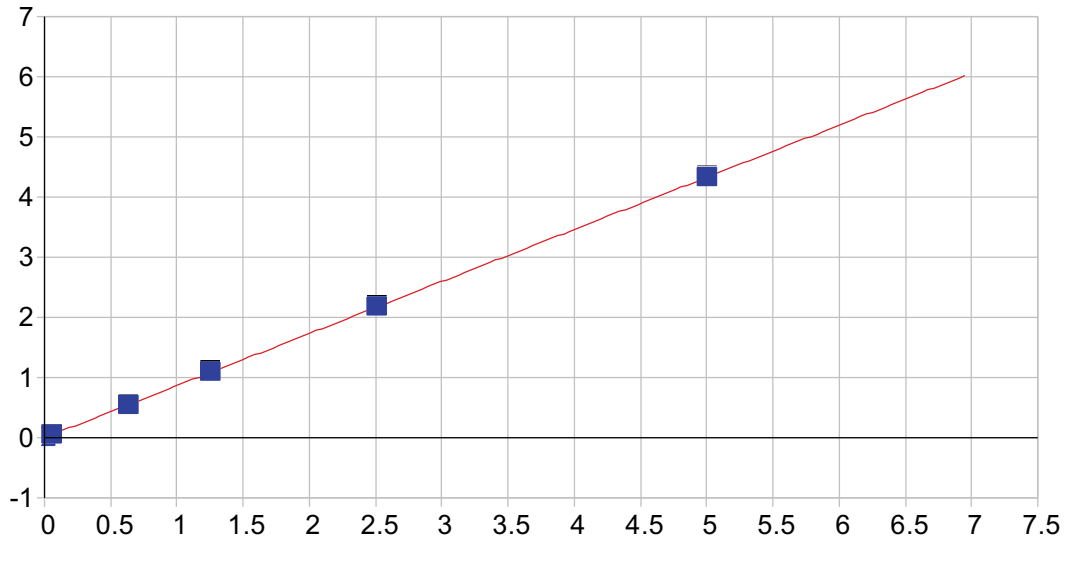
Cr 267.716 {126}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000025	Re-Slope:	1.000000
A1 (Gain):	0.177763	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999467	Status:	OK.
Std Error of Est:	0.000171		
Predicted MDL:	0.000373		
Predicted MQL:	0.001242		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00002	.000	1
S1	.01000	.01009	.000	.927	.00182	.000	1
S2	3.8750	4.0500	.175	4.52	.72015	.001	1
S3	7.7500	8.1633	.413	5.33	1.4515	.003	1
S4	15.500	15.809	.309	1.99	2.8109	.011	1
S5	31.000	30.103	-.897	-2.89	5.3527	.021	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



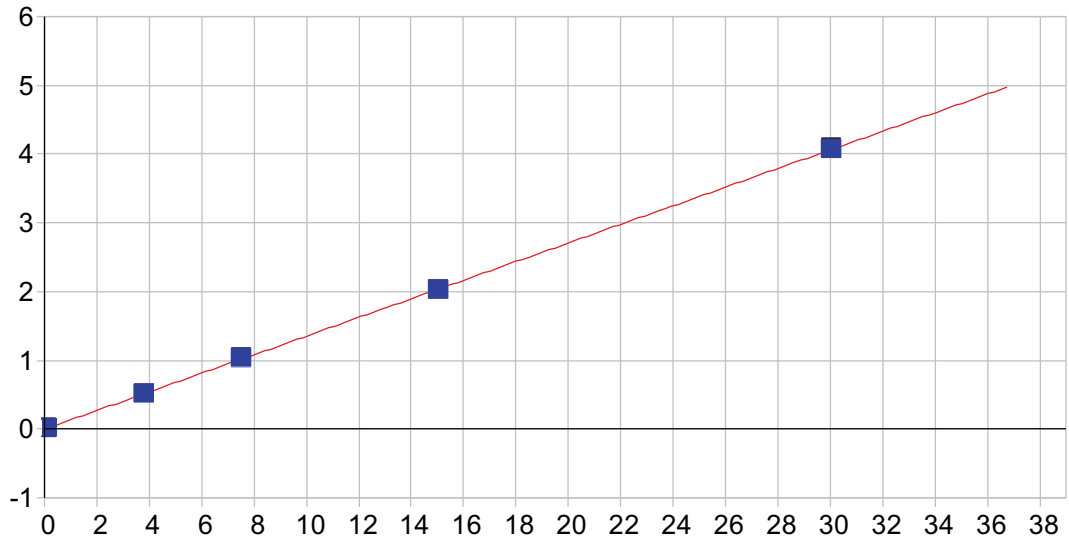
Co 228.616 {448}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000161	Re-Slope:	1.000000
A1 (Gain):	0.865676	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999967	Status:	OK.
Std Error of Est:	0.000187		
Predicted MDL:	0.000182		
Predicted MQL:	0.000607		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00016	.000	1
S1	.05000	.04635	-.004	-7.29	.04012	.000	1
S2	.62500	.61290	-.012	-1.94	.53130	.003	1
S3	1.2500	1.2600	.010	.801	1.0924	.012	1
S4	2.5000	2.5101	.010	.405	2.1763	.018	1
S5	5.0000	4.9956	-.004	-.088	4.3315	.013	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



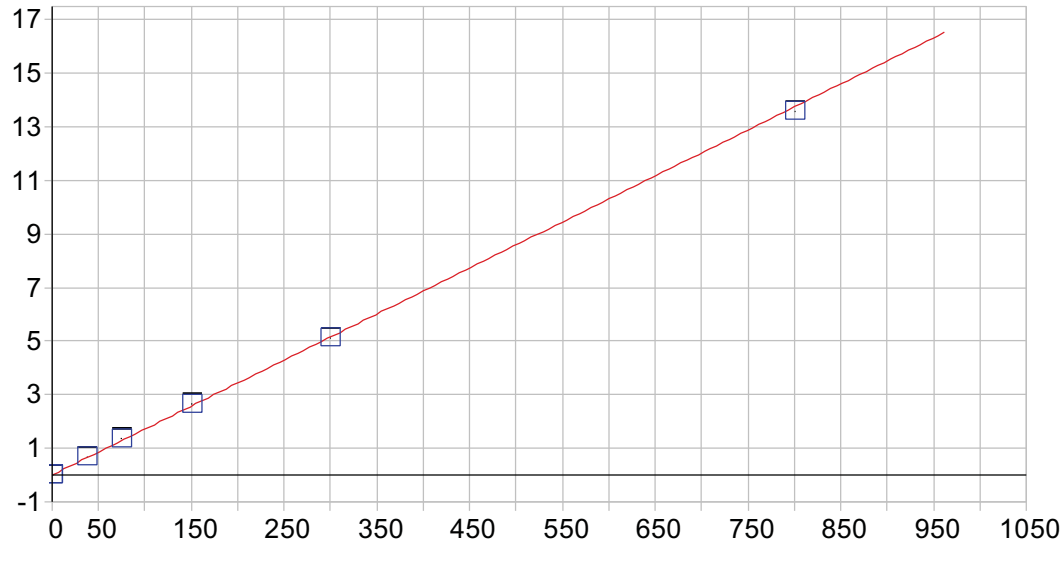
Cu 324.754 {104}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000159	Re-Slope:	1.000000
A1 (Gain):	0.135333	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999991	Status:	OK.
Std Error of Est:	0.000027		
Predicted MDL:	0.001968		
Predicted MQL:	0.006561		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00016	.000	1
S1	.02500	.02727	.002	9.09	.00384	.000	1
S2	3.7500	3.7435	-.007	-.175	.50608	.001	1
S3	7.5000	7.5371	.037	.495	1.0188	.001	1
S4	15.000	14.909	-.091	-.606	2.0151	.002	1
S5	30.000	30.058	.058	.194	4.0625	.007	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



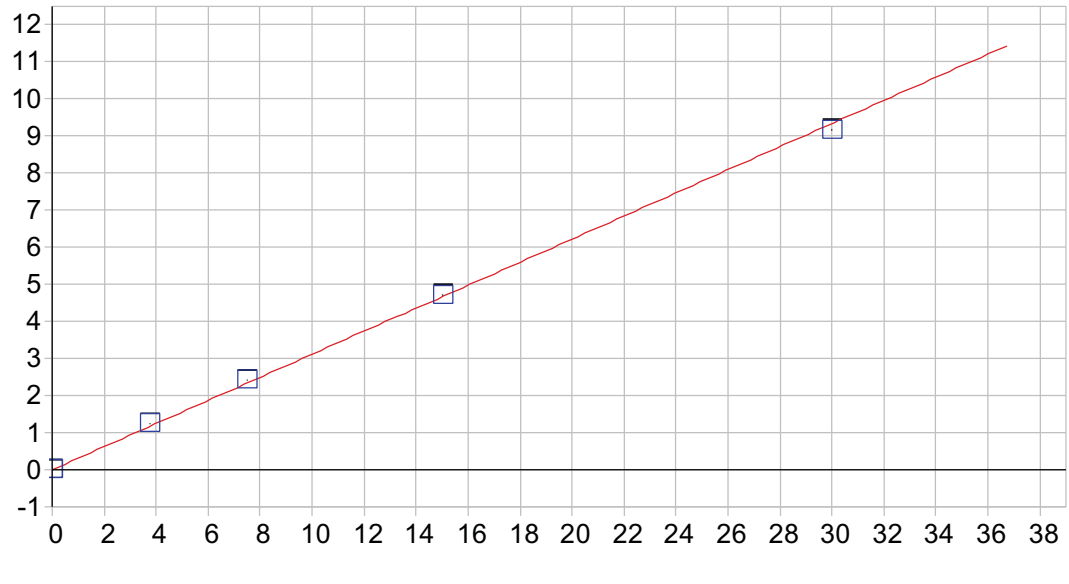
Fe 259.837 {130}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000036	Re-Slope:	1.000000
A1 (Gain):	0.017185	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999759	Status:	OK.
Std Error of Est:	0.000165		
Predicted MDL:	0.007224		
Predicted MQL:	0.024080		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00002	.000	.000	.00004	.000	1
S1	.10000	.10285	.003	2.85	.00180	.000	1
S2	37.500	39.952	2.45	6.54	.68662	.001	1
S3	75.000	79.337	4.34	5.78	1.3635	.004	1
S4	150.00	154.26	4.26	2.84	2.6510	.006	1
S5	300.00	298.68	-1.32	-.440	5.1330	.009	1
S6	800.00	790.27	-9.73	-1.22	13.581	.018	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



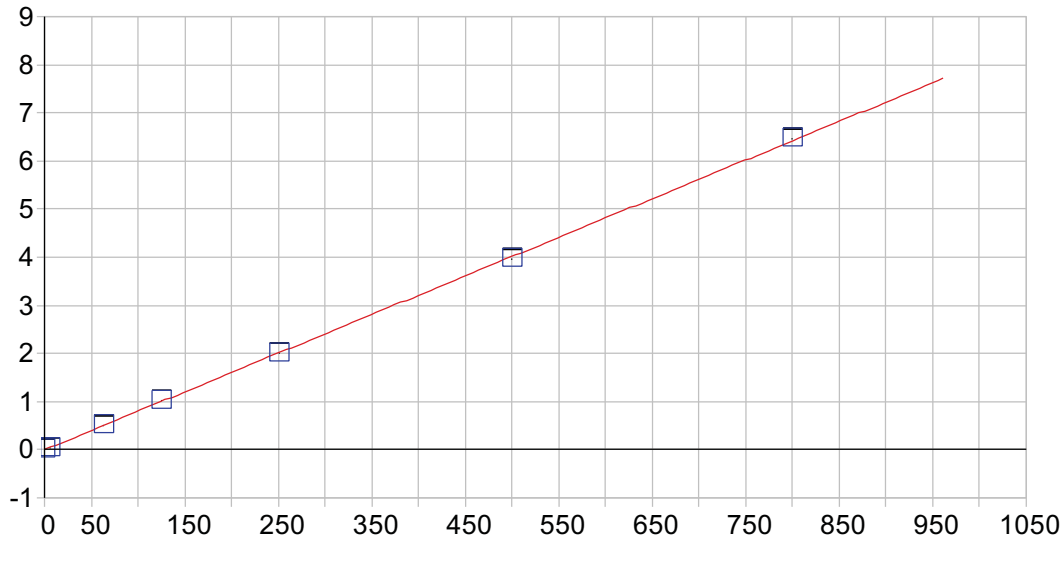
Mn 257.610 {131}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000054	Re-Slope:	1.000000
A1 (Gain):	0.311338	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999704	Status:	OK.
Std Error of Est:	0.000270		
Predicted MDL:	0.000404		
Predicted MQL:	0.001346		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00005	.000	1
S1	.01500	.01617	.001	7.78	.00498	.000	1
S2	3.7500	3.9471	.197	5.25	1.2288	.001	1
S3	7.5000	7.7852	.285	3.80	2.4238	.005	1
S4	15.000	15.101	.101	.672	4.7014	.016	1
S5	30.000	29.416	-.584	-1.95	9.1582	.013	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



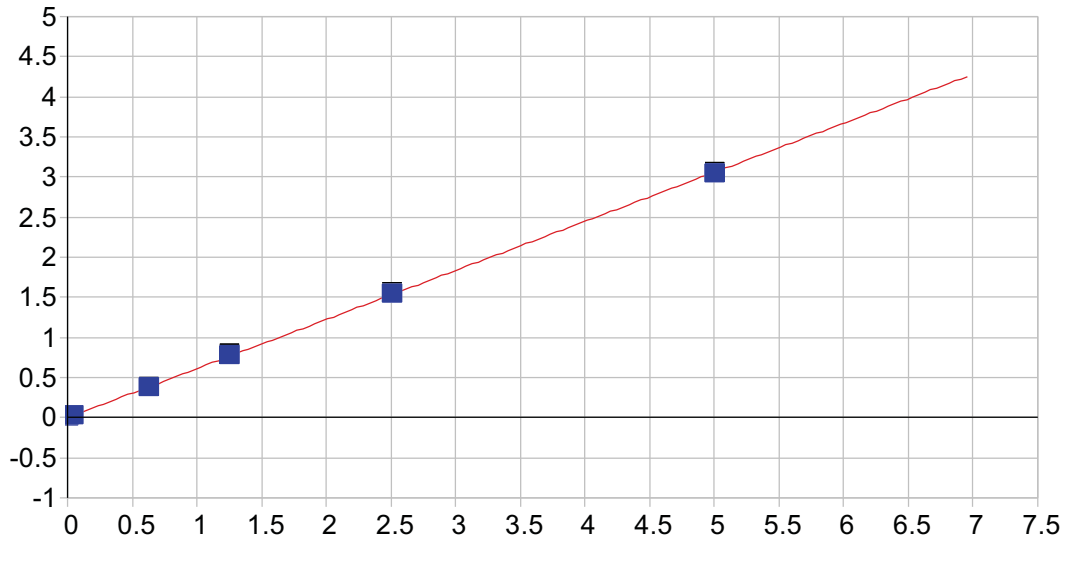
Mg 279.079 {121}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000001	Re-Slope:	1.000000
A1 (Gain):	0.008027	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999963	Status:	OK.
Std Error of Est:	0.000241		
Predicted MDL:	0.020013		
Predicted MQL:	0.066709		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00008	.000	.000	.00000	.000	1
S1	5.0000	4.9060	-.094	-1.88	.03938	.000	1
S2	62.500	62.643	.143	.229	.50280	.002	1
S3	125.00	125.94	.940	.752	1.0109	.002	1
S4	250.00	249.63	-.370	-.148	2.0037	.005	1
S5	500.00	493.72	-6.28	-1.26	3.9628	.007	1
S6	800.00	805.67	5.67	.708	6.4667	.016	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



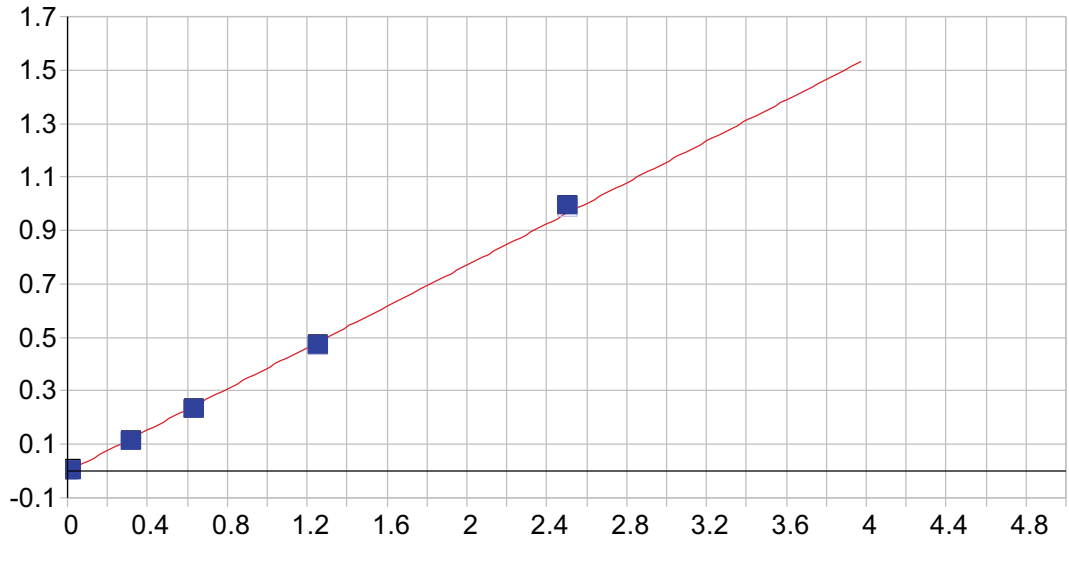
Ni 231.604 {446}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000255	Re-Slope:	1.000000
A1 (Gain):	0.611825	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999958	Status:	OK.
Std Error of Est:	0.000133		
Predicted MDL:	0.000292		
Predicted MQL:	0.000973		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00025	.000	1
S1	.04000	.03796	-.002	-5.09	.02296	.000	1
S2	.62500	.61753	-.007	-1.20	.37745	.002	1
S3	1.2500	1.2706	.021	1.64	.77688	.008	1
S4	2.5000	2.5165	.016	.659	1.5389	.012	1
S5	5.0000	4.9725	-.028	-.551	3.0411	.012	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



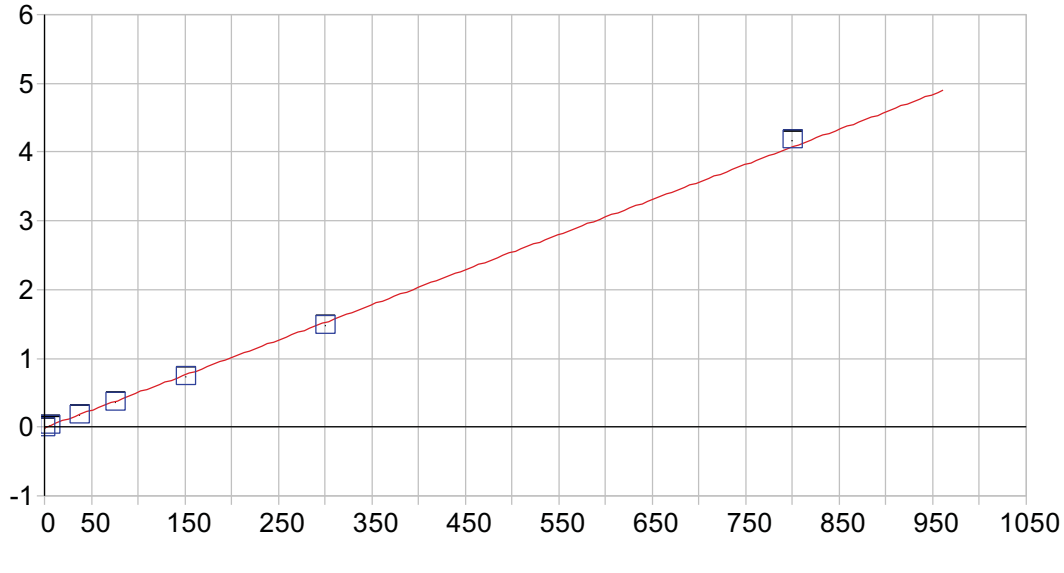
Ag 328.068 {103}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000682	Re-Slope:	1.000000
A1 (Gain):	0.385647	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999476	Status:	OK.
Std Error of Est:	0.000104		
Predicted MDL:	0.000319		
Predicted MQL:	0.001064		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00068	.000	1
S1	.01000	.00928	-.001	-7.17	.00287	.000	1
S2	.31250	.29267	-.020	-6.34	.11110	.000	1
S3	.62500	.60321	-.022	-3.49	.22978	.000	1
S4	1.2500	1.2204	-.030	-2.37	.46563	.001	1
S5	2.5000	2.5719	.072	2.88	.98250	.000	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



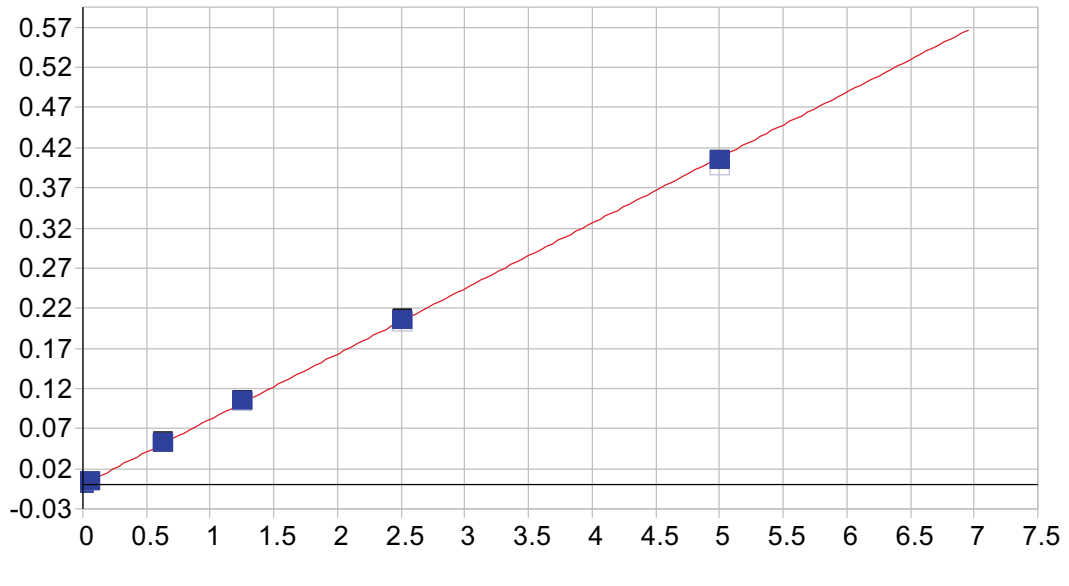
Na 818.326 { 41}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.009168	Re-Slope:	1.000000
A1 (Gain):	0.005106	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999586	Status:	OK.
Std Error of Est:	0.000455		
Predicted MDL:	0.165501		
Predicted MQL:	0.551671		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00085	.001	.000	-.00916	.001	1
S1	5.0000	4.7090	-.291	-5.82	.01488	.001	1
S2	37.500	36.196	-1.30	-3.48	.17565	.001	1
S3	75.000	72.620	-2.38	-3.17	.36164	.000	1
S4	150.00	144.28	-5.72	-3.81	.72754	.002	1
S5	300.00	290.35	-9.65	-3.22	1.4734	.002	1
S6	800.00	819.34	19.3	2.42	4.1745	.009	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

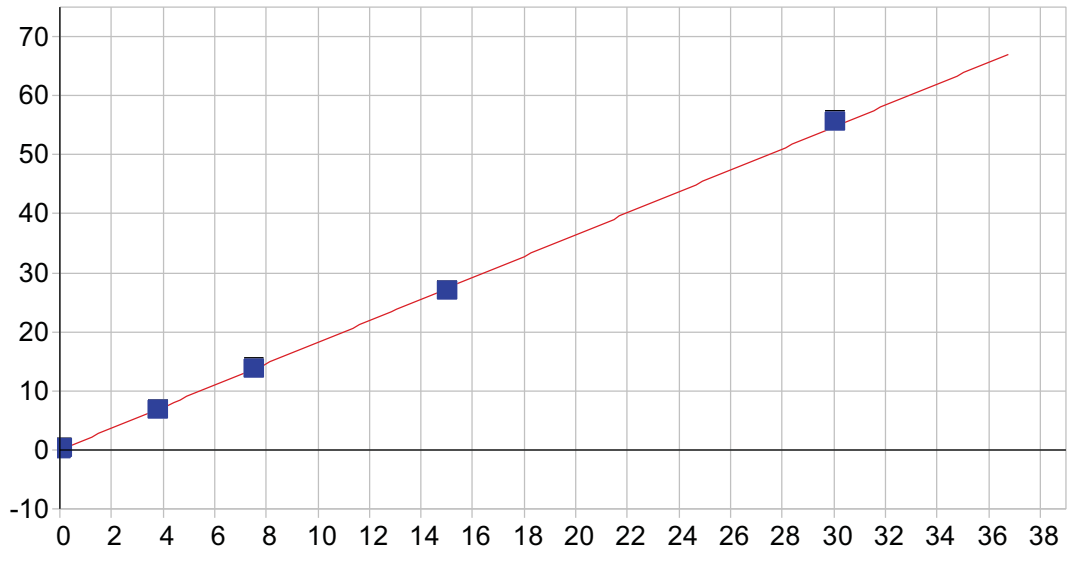


Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000022	Re-Slope:	1.000000
A1 (Gain):	0.081503	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999902	Status:	OK.
Std Error of Est:	0.000030		
Predicted MDL:	0.002257		
Predicted MQL:	0.007525		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00002	.000	1
S1	.05000	.04749	-.003	-5.02	.00389	.000	1
S2	.62500	.63715	.012	1.94	.05094	.000	1
S3	1.2500	1.2811	.031	2.49	.10241	.000	1
S4	2.5000	2.5131	.013	.522	.20078	.000	1
S5	5.0000	4.9462	-.054	-1.08	.39504	.001	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



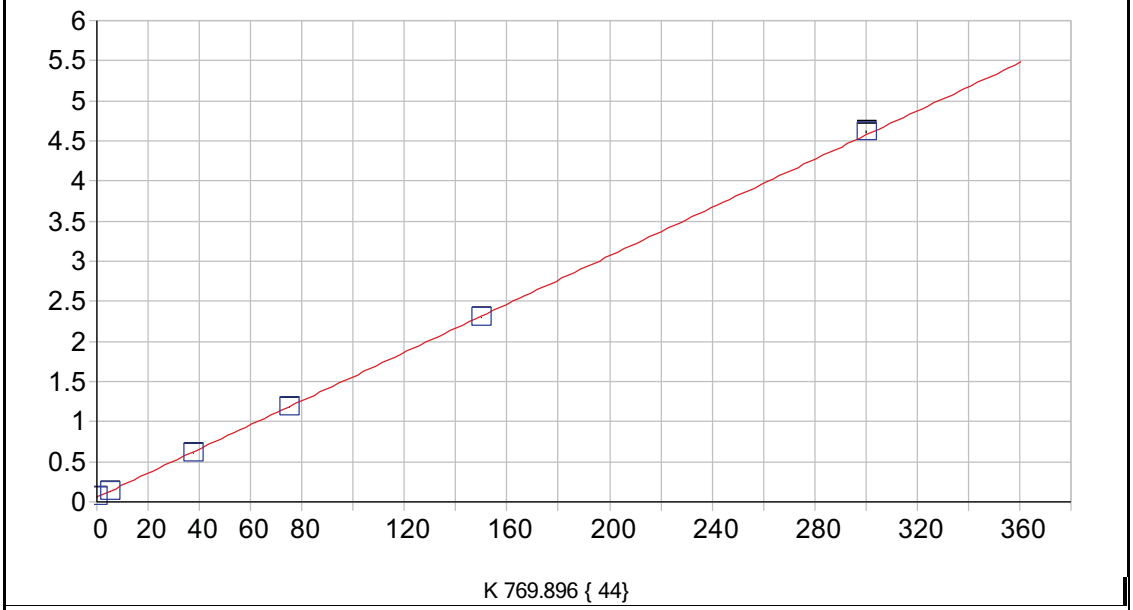
Zn 213.856 {158}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.003978	Re-Slope:	1.000000
A1 (Gain):	1.822594	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999885	Status:	OK.
Std Error of Est:	0.001974		
Predicted MDL:	0.003385		
Predicted MQL:	0.011284		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00398	.002	1
S1	.06000	.06110	.001	1.84	.10775	.003	1
S2	3.7500	3.6630	-.087	-2.32	6.6834	.042	1
S3	7.5000	7.4385	-.062	-.820	13.576	.170	1
S4	15.000	14.733	-.267	-1.78	26.892	.063	1
S5	30.000	30.415	.415	1.38	55.519	.268	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



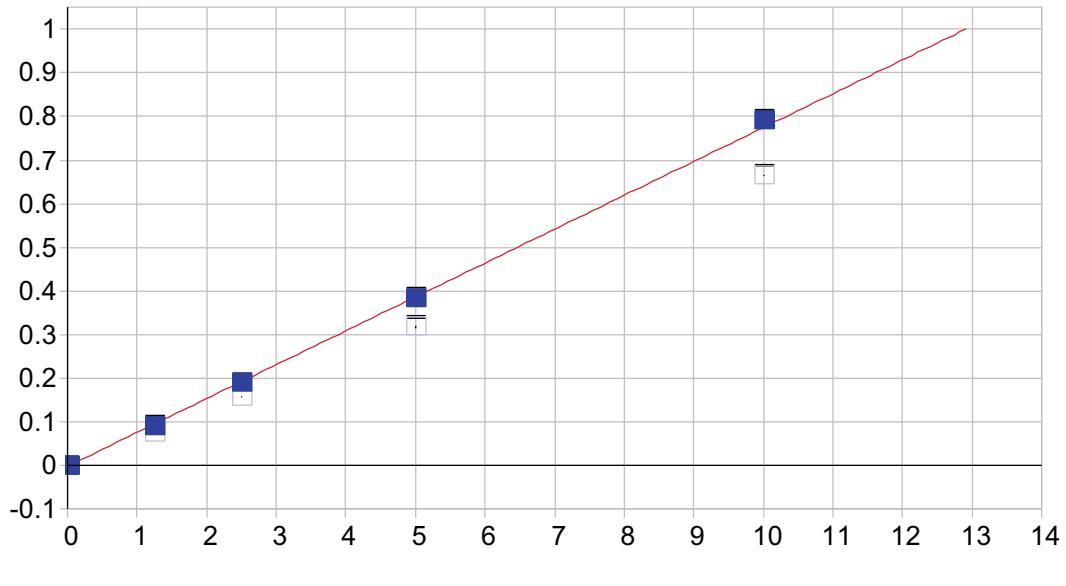
K 769.896 { 44}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.058149	Re-Slope:	1.000000
A1 (Gain):	0.015045	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999938	Status:	OK.
Std Error of Est:	0.000344		
Predicted MDL:	0.051851		
Predicted MQL:	0.172837		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00032	.000	.000	.05815	.001	1
S1	5.0000	4.8363	-.164	-3.27	.13091	.001	1
S2	37.500	36.490	-1.01	-2.69	.60712	.001	1
S3	75.000	74.495	-.505	-.673	1.1789	.002	1
S4	150.00	148.90	-1.10	-.735	2.2983	.003	1
S5	300.00	302.78	2.78	.927	4.6134	.011	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



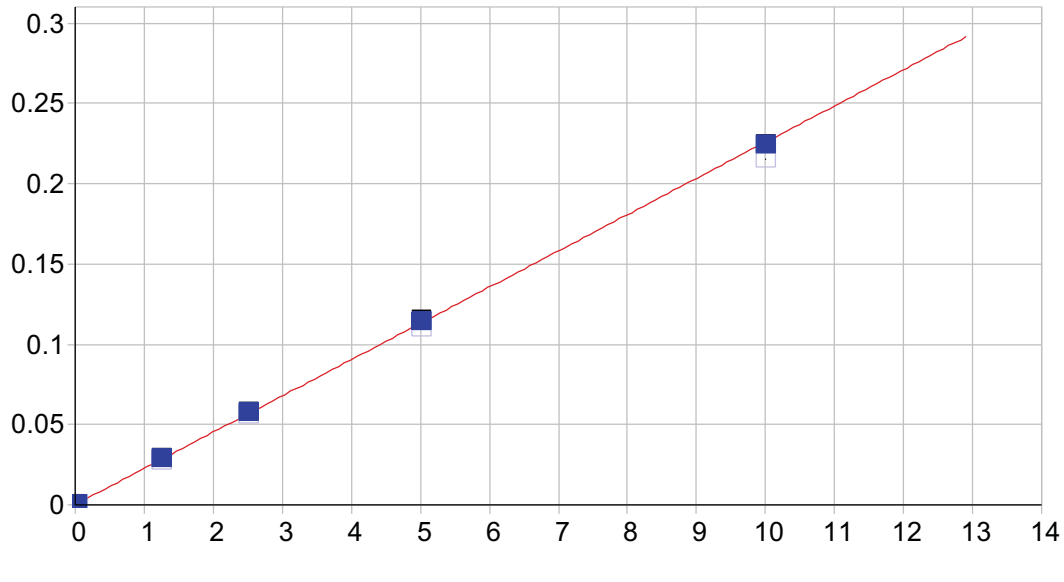
P 177.495 {490}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.002290	Re-Slope:	1.000000
A1 (Gain):	0.077679	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999179	Status:	OK.
Std Error of Est:	0.000054		
Predicted MDL:	0.001308		
Predicted MQL:	0.004360		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	-.00229	.000	1
S1	.01500	.00243	-.013	-83.8	-.00220	.000	1
S2	1.2500	1.1773	-.073	-5.82	.07337	.000	1
S3	2.5000	2.4413	-.059	-2.35	.15576	.002	1
S4	5.0000	4.9316	-.068	-1.37	.31762	.003	1
S5	10.000	10.214	.214	2.14	.66475	.002	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



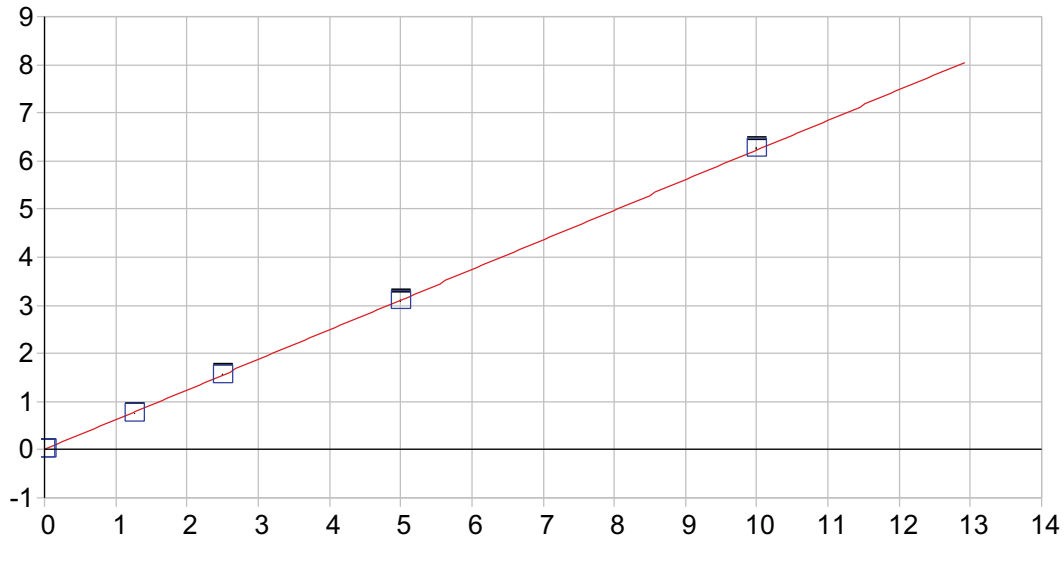
B 249.678 {135}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000136	Re-Slope:	1.000000
A1 (Gain):	0.022568	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999938	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	0.005241		
Predicted MQL:	0.017471		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00014	.000	1
S1	.01000	.00974	.000	-2.61	.00035	.000	1
S2	1.2500	1.2577	.008	.613	.02748	.000	1
S3	2.5000	2.5455	.046	1.82	.05550	.000	1
S4	5.0000	5.0422	.042	.844	.10976	.001	1
S5	10.000	9.9049	-.095	-.951	.21533	.000	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



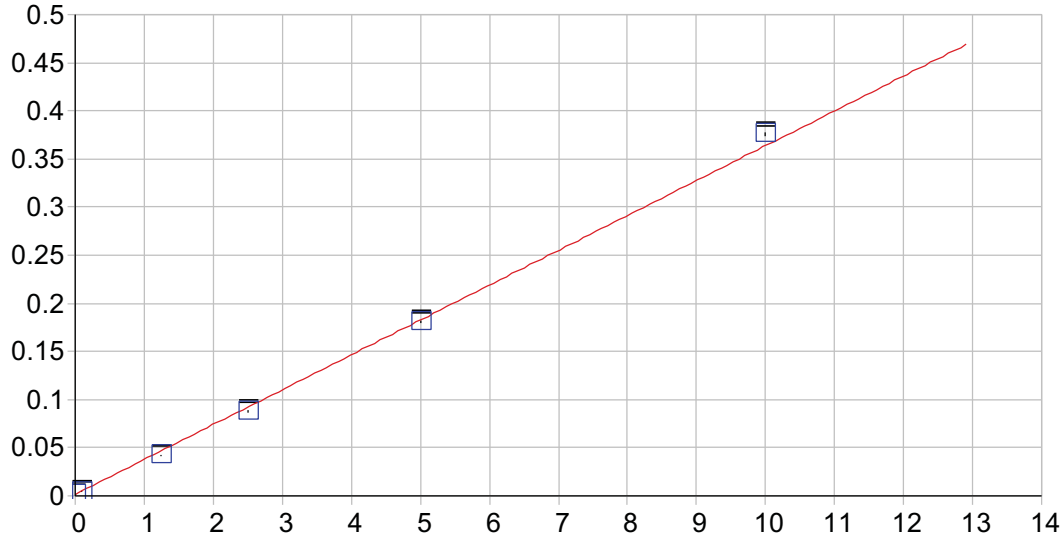
Mo 202.030 {467}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000118	Re-Slope:	1.000000
A1 (Gain):	0.622822	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999966	Status:	OK.
Std Error of Est:	0.000086		
Predicted MDL:	0.000229		
Predicted MQL:	0.000763		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00012	.000	1
S1	.01000	.00960	.000	-3.98	.00586	.000	1
S2	1.2500	1.2197	-.030	-2.43	.75953	.002	1
S3	2.5000	2.5072	.007	.287	1.5614	.013	1
S4	5.0000	4.9687	-.031	-.626	3.0945	.025	1
S5	10.000	10.055	.055	.548	6.2623	.024	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



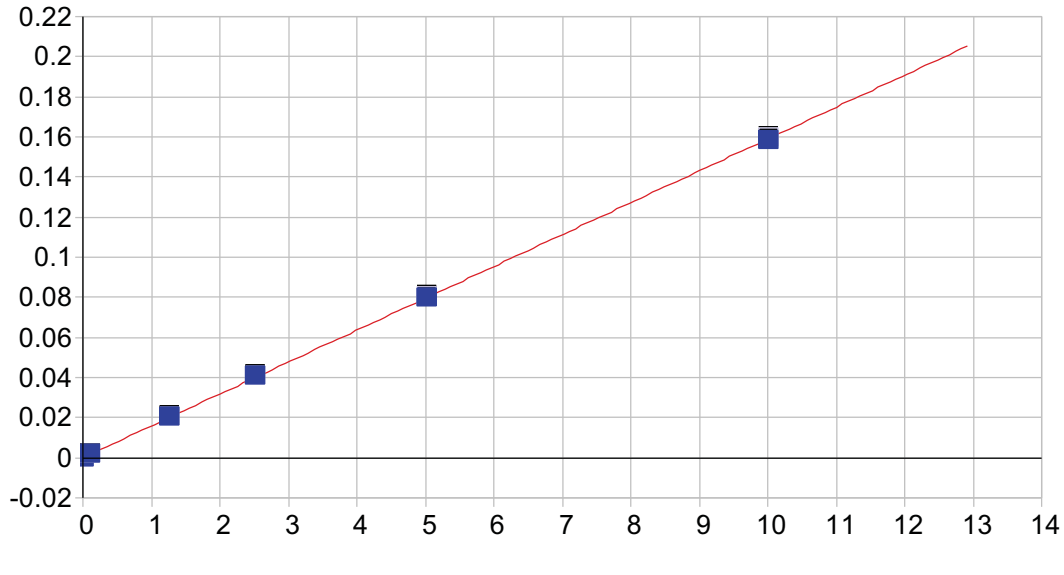
S 182.034 {485}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001670	Re-Slope:	1.000000
A1 (Gain):	0.036204	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999025	Status:	OK.
Std Error of Est:	0.000085		
Predicted MDL:	0.002360		
Predicted MQL:	0.007865		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00003	.000	.000	.00167	.000	1
S1	.10000	.08173	-.018	-18.3	.00463	.000	1
S2	1.2500	1.1111	-.139	-11.1	.04189	.000	1
S3	2.5000	2.3811	-.119	-4.76	.08787	.001	1
S4	5.0000	4.9363	-.064	-1.27	.18039	.001	1
S5	10.000	10.340	.340	3.40	.37602	.002	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



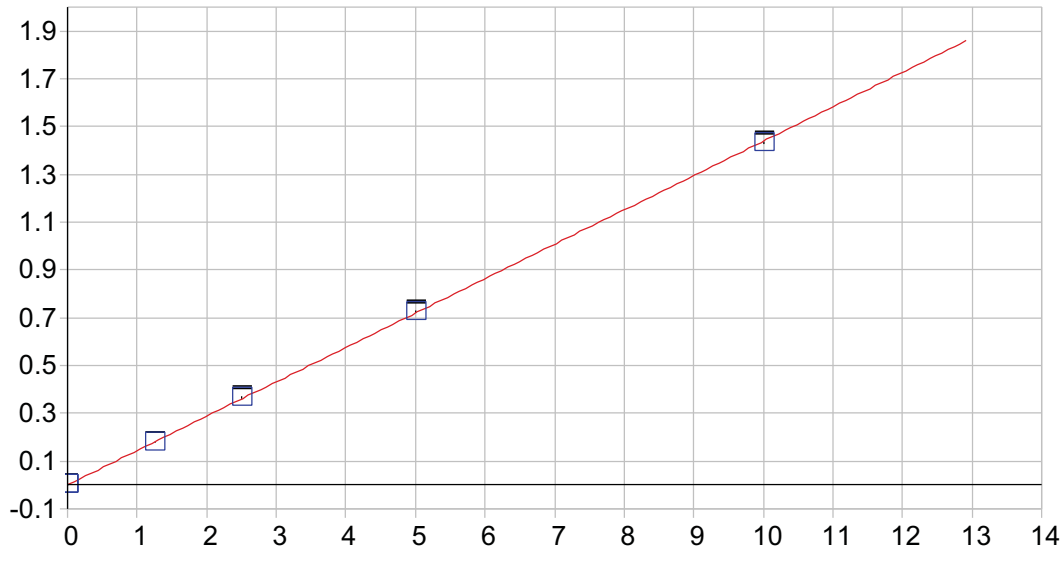
Si 251.611 {134}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000040	Re-Slope:	1.000000
A1 (Gain):	0.015890	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999949	Status:	OK.
Std Error of Est:	0.000009		
Predicted MDL:	0.007221		
Predicted MQL:	0.024070		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00004	.000	1
S1	.10000	.09629	-.004	-3.71	.00157	.000	1
S2	1.2500	1.2730	.023	1.84	.02047	.000	1
S3	2.5000	2.5465	.046	1.86	.04091	.000	1
S4	5.0000	5.0068	.007	.135	.08041	.000	1
S5	10.000	9.9274	-.073	-.726	.15940	.001	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



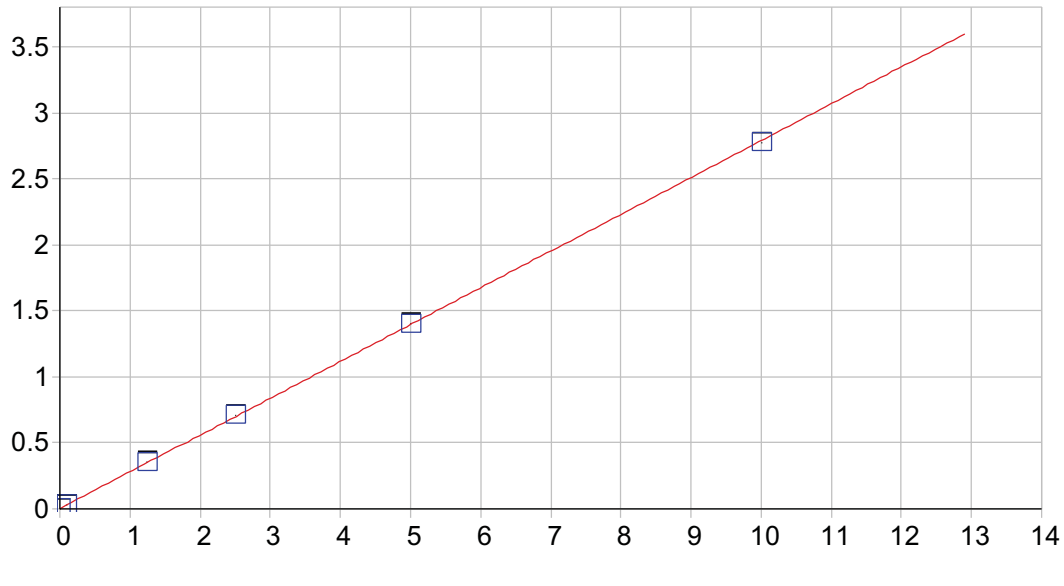
Sn 189.989 {478}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000027	Re-Slope:	1.000000
A1 (Gain):	0.143901	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999940	Status:	OK.
Std Error of Est:	0.000022		
Predicted MDL:	0.000608		
Predicted MQL:	0.002027		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00003	.000	1
S1	.00700	.00568	-.001	-18.8	.00079	.000	1
S2	1.2500	1.2283	-.022	-1.73	.17673	.001	1
S3	2.5000	2.5468	.047	1.87	.36646	.004	1
S4	5.0000	5.0410	.041	.821	.72539	.005	1
S5	10.000	9.9352	-.065	-.648	1.4297	.005	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



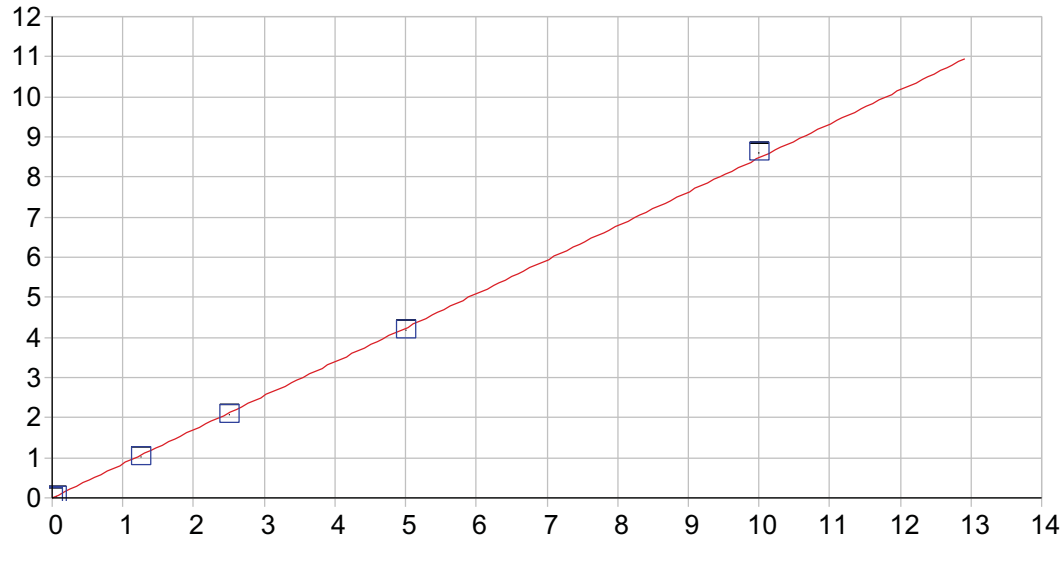
Ti 336.121 {100}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001668	Re-Slope:	1.000000
A1 (Gain):	0.278697	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999968	Status:	OK.
Std Error of Est:	0.000119		
Predicted MDL:	0.000987		
Predicted MQL:	0.003290		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00167	.000	1
S1	.10000	.09696	-.003	-3.04	.02869	.000	1
S2	1.2500	1.2613	.011	.907	.35320	.001	1
S3	2.5000	2.5368	.037	1.47	.70868	.002	1
S4	5.0000	5.0189	.019	.378	1.4004	.002	1
S5	10.000	9.9360	-.064	-.640	2.7708	.001	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



Li 670.784 { 50}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000968	Re-Slope:	1.000000
A1 (Gain):	0.847388	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999837	Status:	OK.
Std Error of Est:	0.000574		
Predicted MDL:	0.001083		
Predicted MQL:	0.003611		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00097	.001	1
S5	10.000	10.161	.161	1.61	8.6115	.015	1
S4	5.0000	4.9305	-.069	-1.39	4.1790	.009	1
S3	2.5000	2.4563	-.044	-1.75	2.0824	.005	1
S2	1.2500	1.2047	-.045	-3.63	1.0218	.002	1
S1	.05000	.04721	-.003	-5.59	.04097	.000	1

Reviewed By:BIN
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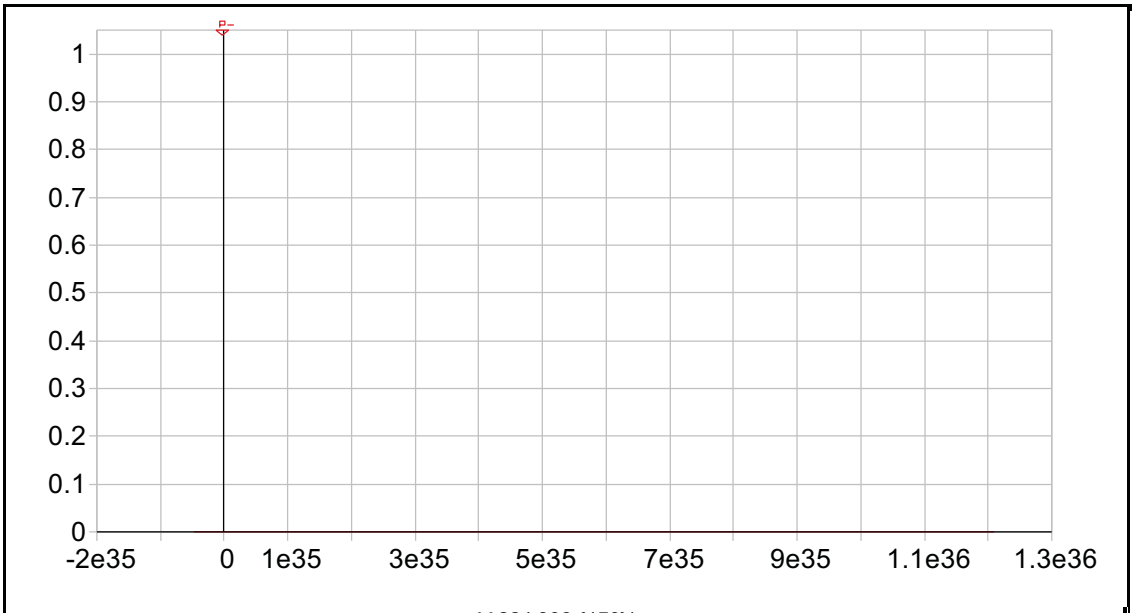
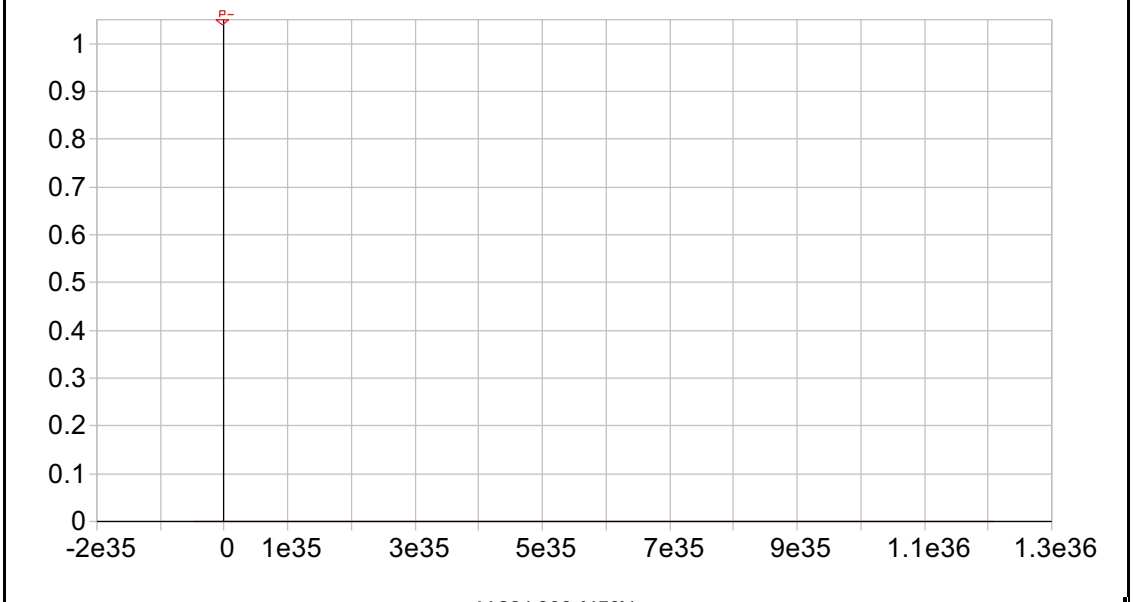


Y 224.306 {150}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000			Status:	Warning	Zero Gain
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



Y 224.306 {450}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	

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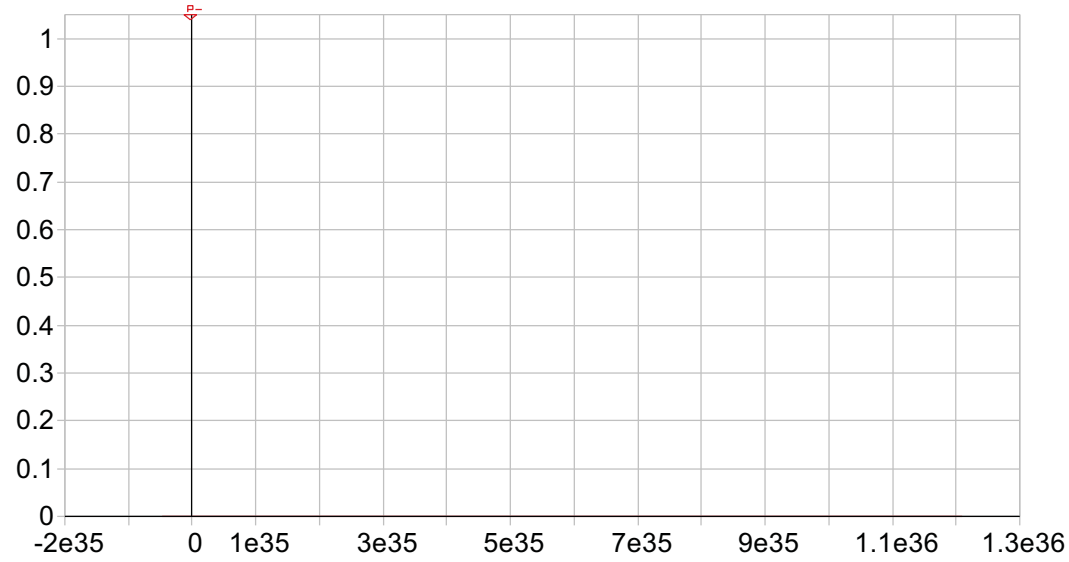
Inst Id :P5

A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

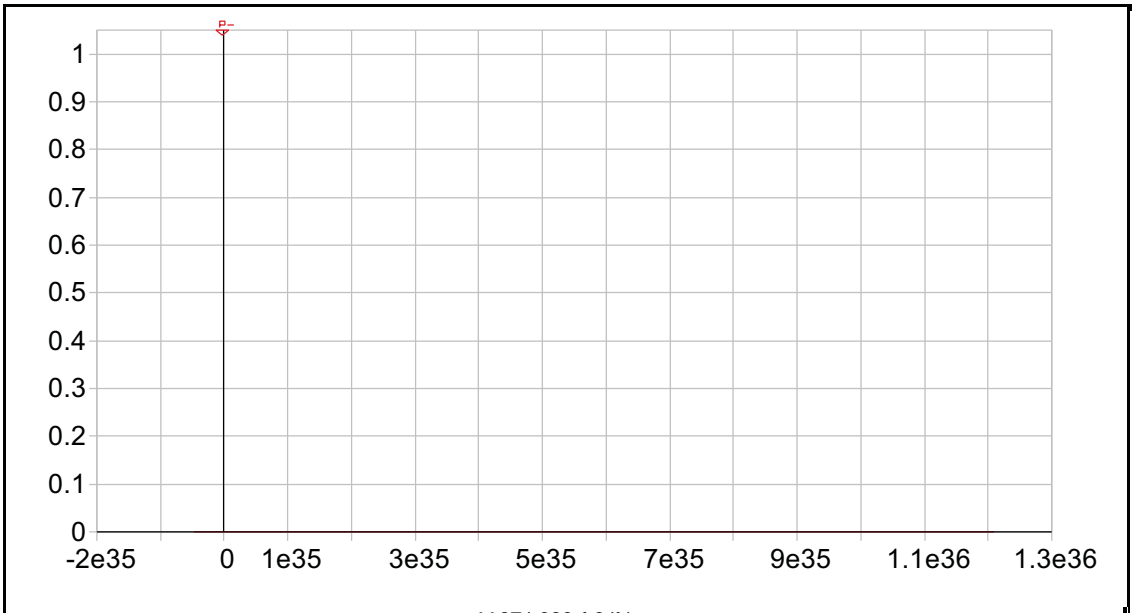


Y 360.073 { 94}*

Date of Fit:	<not fit>		Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):		0.000000		Re-Slope:	1.000000	
A1 (Gain):		0.000000		Y-int:	0.000000	
A2 (Curvature):		0.000000				
n (Exponent):		1.000000				
Correlation:		0.000000		Status:	Warning	Zero Gain
Std Error of Est:		0.000000				
Predicted MDL:		n/a				
Predicted MQL:		n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

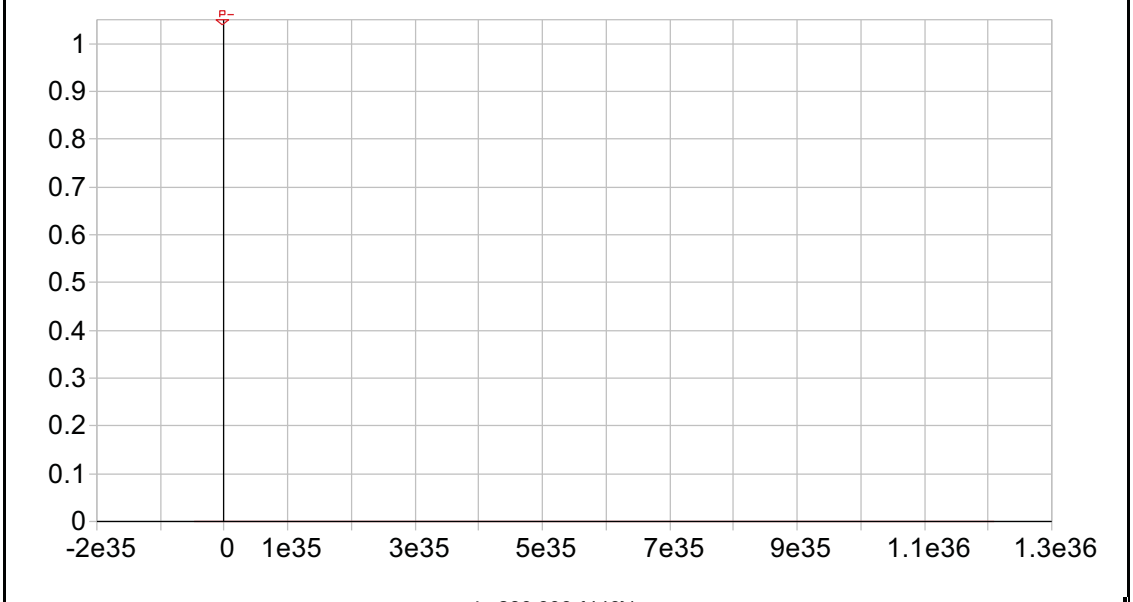
Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5



Y 371.030 { 91}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000			Status:	Warning	Zero Gain
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



ln 230.606 {446}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	

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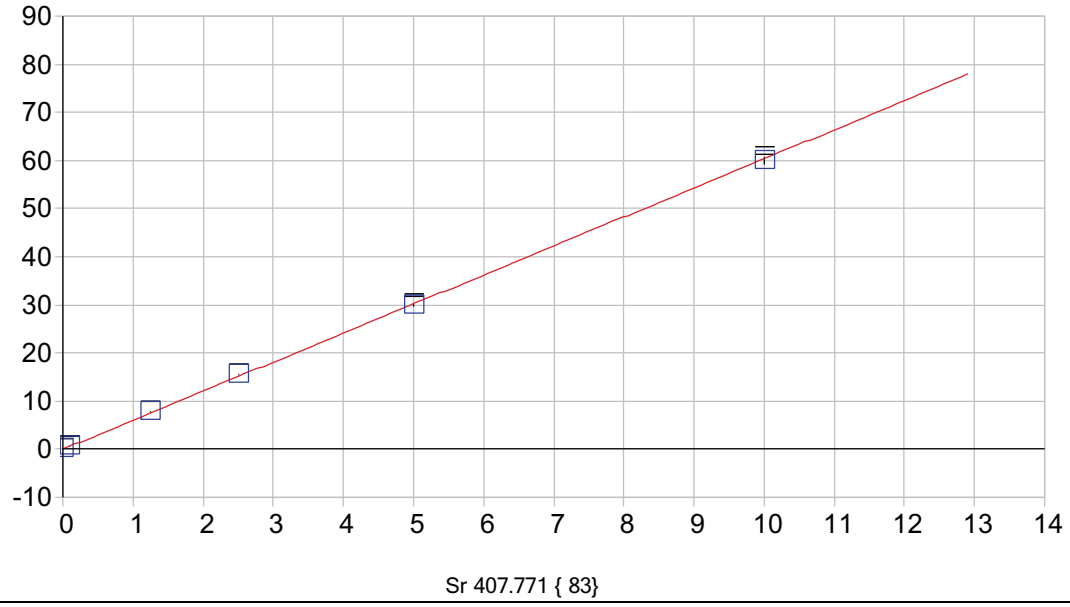
A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



Sr 407.771 { 83}

Date of Fit:	9/19/2014 04:28:15	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001563	Re-Slope:	1.000000
A1 (Gain):	6.034744	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999888	Status:	OK.
Std Error of Est:	0.004805		
Predicted MDL:	0.000066		
Predicted MQL:	0.000221		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	-.00161	.000	1
S1	.10000	.10329	.003	3.29	.62177	.001	1
S2	1.2500	1.2797	.030	2.37	7.7210	.017	1
S3	2.5000	2.5798	.080	3.19	15.567	.035	1
S4	5.0000	4.9531	-.047	-.938	29.889	.174	1
S5	10.000	9.9342	-.066	-.658	59.949	.706	1

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S0 Acquired: 9/18/2014 17:13:24 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00006	-.00011	-.00016	.00014	.00002	-.00014	.00159	.00004
Stddev	.00007	.00008	.00010	.00009	.00017	.00024	.00069	.00004
%RSD	107.61	69.541	62.955	63.699	746.32	169.75	43.424	87.092
#1	-.00007	-.00017	-.00014	.00021	-.00013	-.00040	.00144	.00008
#2	.00001	-.00002	-.00007	.00004	.00021	.00006	.00099	.00005
#3	-.00012	-.00014	-.00027	.00016	.00000	-.00007	.00235	.00000

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00006	.00094	.00002	-.00016	.00016	.00004	-.00005	.00000
Stddev	.00007	.00019	.00007	.00010	.00023	.00014	.00006	.0001
%RSD	114.39	20.827	299.76	64.607	146.81	386.86	101.07	45666.
#1	-.00002	.00071	-.00005	-.00026	.00020	.00011	-.00004	-.00014
#2	.00008	.00102	.00002	-.00005	.00037	-.00012	-.00011	-.00003
#3	.00012	.00108	.00010	-.00016	-.00009	.00012	.00000	.00017

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00025	-.00068	-.00916	.00002	-.00398	.05815	-.00229	.00014
Stddev	.00022	.00005	.00086	.00004	.00167	.00064	.00002	.00001
%RSD	85.927	6.6220	9.4105	160.78	41.956	1.1022	.98092	7.9375
#1	-.00025	-.00064	-.00900	-.00002	-.00530	.05812	-.00231	.00014
#2	-.00047	-.00068	-.00840	.00005	-.00453	.05881	-.00227	.00014
#3	-.00004	-.00073	-.01010	.00004	-.00210	.05753	-.00229	.00012

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00012	.00167	.00004	-.00003	.00167	.00097	-.00161
Stddev	.00010	.00002	.00009	.00002	.00014	.00060	.00008
%RSD	84.375	1.4762	230.73	86.471	8.6550	61.717	5.2246
#1	-.00009	.00166	.00014	-.00002	.00158	.00050	-.00159
#2	-.00004	.00170	-.00004	-.00005	.00183	.00165	-.00170
#3	-.00023	.00165	.00002	-.00001	.00159	.00077	-.00153

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S0 Acquired: 9/18/2014 17:13:24 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	142.32	5505.2	66188.	15091.	6219.9
Stddev	.77	6.6	276.	32.	4.1
%RSD	.54420	.12071	.41727	.20910	.06666
#1	141.55	5512.8	65917.	15059.	6224.3
#2	143.10	5500.8	66176.	15092.	6216.1
#3	142.32	5501.9	66469.	15122.	6219.4

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S1 Acquired: 9/18/2014 17:17:28 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00031	.00205	.00176	.00213	.00694	.00944	.64171	.00104
Stddev	.00001	.00000	.00010	.00003	.00014	.00041	.00108	.00008
%RSD	2.5494	.22735	5.8546	1.5476	2.0362	4.3220	.16761	7.5384
#1	.00032	.00204	.00187	.00212	.00704	.00908	.64133	.00113
#2	.00030	.00205	.00167	.00210	.00701	.00988	.64087	.00098
#3	.00031	.00205	.00175	.00216	.00678	.00935	.64292	.00102

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01363	.22835	.00182	.04012	.00384	.00180	.00498	.03938
Stddev	.00019	.00135	.00006	.00002	.00025	.00009	.00012	.00008
%RSD	1.4026	.59269	3.4294	.04149	6.6390	5.2150	2.3956	.21029
#1	.01344	.22679	.00186	.04011	.00401	.00170	.00507	.03929
#2	.01363	.22919	.00185	.04010	.00355	.00188	.00503	.03939
#3	.01382	.22907	.00175	.04013	.00396	.00183	.00484	.03945

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02296	.00287	.01488	.00389	.10775	.13091	.00220	.00035
Stddev	.00013	.00003	.00050	.00011	.00252	.00066	.00009	.00004
%RSD	.55968	1.1816	3.3643	2.7689	2.3375	.50050	4.0846	11.786
#1	.02311	.00284	.01538	.00400	.10531	.13017	-.00217	.00035
#2	.02287	.00290	.01487	.00388	.11034	.13141	-.00213	.00031
#3	.02291	.00287	.01438	.00379	.10759	.13114	-.00230	.00040

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00586	.00463	.00157	.00079	.02869	.04097	.62177
Stddev	.00006	.00008	.00006	.00001	.00028	.00035	.00088
%RSD	1.0204	1.6652	3.6402	1.8404	.97306	.85445	.14207
#1	.00579	.00460	.00151	.00080	.02892	.04059	.62078
#2	.00590	.00457	.00160	.00079	.02877	.04129	.62249
#3	.00589	.00472	.00161	.00078	.02838	.04103	.62203

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S1 Acquired: 9/18/2014 17:17:28 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	142.38	5476.8	66392.	15235.	6112.8
Stddev	1.65	9.7	160.	91.	4.4
%RSD	1.1595	.17718	.24089	.59915	.07176
#1	140.61	5477.9	66400.	15320.	6108.0
#2	143.87	5485.9	66547.	15248.	6114.1
#3	142.67	5466.6	66228.	15139.	6116.5

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S2 Acquired: 9/18/2014 17:21:33 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.06010	.11186	1.2471	.07047	.15086	1.8759	8.0631	.02879	1.7849
Stddev	.00023	.00065	.0057	.00030	.00038	.0028	.0159	.00016	.0089
%RSD	.38549	.58491	.46045	.42609	.25006	.14864	.19749	.54256	.50113
#1	.05986	.11141	1.2424	.07019	.15100	1.8787	8.0811	.02887	1.7777
#2	.06033	.11156	1.2454	.07044	.15043	1.8731	8.0509	.02861	1.7821
#3	.06012	.11261	1.2535	.07079	.15115	1.8759	8.0573	.02889	1.7949

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.9428	.72015	.53130	.50608	.68662	1.2288	.50280	.37745	.11110
Stddev	.0012	.00093	.00267	.00119	.00068	.0005	.00156	.00186	.00013
%RSD	.04026	.12846	.50308	.23531	.09956	.04347	.30944	.49224	.11963
#1	2.9434	.72121	.52915	.50745	.68686	1.2294	.50141	.37539	.11119
#2	2.9414	.71950	.53045	.50545	.68585	1.2284	.50448	.37796	.11095
#3	2.9435	.71974	.53429	.50534	.68716	1.2286	.50253	.37900	.11117

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.17565	.05094	6.6834	.60712	.07337	.02748	.75953	.04189	.02047
Stddev	.00082	.00035	.0415	.00066	.00031	.00013	.00170	.00010	.00015
%RSD	.46728	.68153	.62176	.10903	.42930	.47389	.22317	.24077	.71740
#1	.17653	.05100	6.7164	.60668	.07315	.02752	.75789	.04178	.02049
#2	.17552	.05056	6.6367	.60788	.07322	.02758	.75941	.04195	.02061
#3	.17491	.05125	6.6971	.60680	.07373	.02733	.76128	.04195	.02032

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.17673	.35320	1.0218	7.7210
Stddev	.00069	.00101	.0020	.0174
%RSD	.39322	.28506	.19600	.22477
#1	.17616	.35309	1.0238	7.7407
#2	.17654	.35225	1.0218	7.7079
#3	.17751	.35425	1.0198	7.7145

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S2 Acquired: 9/18/2014 17:21:33 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	139.64	5222.8	64384.	15079.	5459.9
Stddev	1.25	9.6	138.	60.	19.4
%RSD	.89613	.18465	.21392	.39752	.35486
#1	139.86	5226.3	64246.	15147.	5469.7
#2	140.76	5230.3	64522.	15056.	5472.3
#3	138.29	5212.0	64383.	15035.	5437.6

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S3 Acquired: 9/18/2014 17:25:25 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.12614	.22636	2.5554	.14811	.31565	3.8063	16.261	.05767	3.6684
Stddev	.00114	.00254	.0290	.00112	.00297	.0021	.040	.00046	.0387
%RSD	.90082	1.1238	1.1352	.75613	.94076	.05596	.24442	.80524	1.0539
#1	.12500	.22354	2.5232	.14684	.31223	3.8044	16.294	.05718	3.6260
#2	.12614	.22706	2.5632	.14857	.31722	3.8086	16.272	.05775	3.6777
#3	.12728	.22848	2.5796	.14894	.31751	3.8060	16.217	.05810	3.7016

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5.8541	1.4515	1.0924	1.0188	1.3635	2.4238	1.0109	.77688	.22978
Stddev	.0130	.0028	.0117	.0010	.0044	.0048	.0017	.00773	.00016
%RSD	.22242	.19070	1.0720	.10137	.32201	.19970	.17074	.99469	.07058
#1	5.8593	1.4503	1.0791	1.0194	1.3627	2.4218	1.0096	.76804	.22996
#2	5.8638	1.4496	1.0968	1.0194	1.3595	2.4293	1.0102	.78026	.22973
#3	5.8393	1.4547	1.1012	1.0176	1.3682	2.4203	1.0128	.78234	.22964

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.36164	.10241	13.576	1.1789	.15576	.05550	1.5614	.08787	.04091
Stddev	.00013	.00016	.170	.0019	.00175	.00000	.0134	.00091	.00011
%RSD	.03606	.16031	1.2488	.16287	1.1206	.00277	.85652	1.0336	.26872
#1	.36153	.10228	13.765	1.1811	.15383	.05550	1.5464	.08687	.04085
#2	.36179	.10259	13.439	1.1781	.15623	.05550	1.5657	.08812	.04084
#3	.36161	.10235	13.523	1.1775	.15722	.05550	1.5721	.08864	.04103

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.36646	.70868	2.0824	15.567
Stddev	.00361	.00206	.0052	.035
%RSD	.98637	.29080	.24807	.22212
#1	.36240	.70974	2.0875	15.591
#2	.36762	.70630	2.0825	15.582
#3	.36935	.70998	2.0772	15.527

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S3 Acquired: 9/18/2014 17:25:25 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	135.63	4940.1	61980.	15092.	5087.4
Stddev	1.55	37.8	76.	18.	43.2
%RSD	1.1453	.76585	.12271	.11881	.85002
#1	133.95	4983.0	62057.	15102.	5135.7
#2	137.02	4925.6	61905.	15071.	5074.4
#3	135.92	4911.6	61978.	15102.	5052.2

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S4 Acquired: 9/18/2014 17:29:14 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.25785	.44180	5.0840	.29956	.64683	7.6633	31.552	.11475	7.2399
Stddev	.00210	.00376	.0398	.00263	.00469	.0159	.212	.00052	.0509
%RSD	.81269	.85192	.78227	.87709	.72577	.20817	.67158	.45167	.70243
#1	.26021	.44589	5.1270	.30241	.65149	7.6817	31.793	.11534	7.2941
#2	.25621	.43848	5.0485	.29724	.64210	7.6543	31.395	.11447	7.1933
#3	.25714	.44103	5.0765	.29904	.64689	7.6539	31.468	.11443	7.2324

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	11.448	2.8109	2.1763	2.0151	2.6510	4.7014	2.0037	1.5389	.46563
Stddev	.052	.0110	.0176	.0024	.0064	.0157	.0052	.0119	.00128
%RSD	.45637	.39135	.81053	.11906	.24136	.33359	.26121	.77556	.27434
#1	11.504	2.8196	2.1954	2.0179	2.6584	4.7187	2.0094	1.5522	.46674
#2	11.437	2.7985	2.1606	2.0138	2.6476	4.6974	2.0024	1.5290	.46424
#3	11.402	2.8146	2.1730	2.0136	2.6470	4.6881	1.9992	1.5357	.46592

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.72754	.20078	26.892	2.2983	.31762	.10976	3.0945	.18039	.08041
Stddev	.00204	.00044	.063	.0028	.00261	.00073	.0252	.00136	.00013
%RSD	.27989	.21999	.23575	.12204	.82074	.66612	.81316	.75654	.16007
#1	.72973	.20129	26.871	2.3011	.32041	.11043	3.1224	.18186	.08046
#2	.72571	.20045	26.964	2.2955	.31525	.10987	3.0734	.17917	.08050
#3	.72716	.20061	26.842	2.2981	.31720	.10898	3.0877	.18013	.08026

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.72539	1.4004	4.1790	29.889
Stddev	.00544	.0016	.0093	.174
%RSD	.74965	.11649	.22309	.58341
#1	.73154	1.4018	4.1898	30.056
#2	.72123	1.3986	4.1730	29.709
#3	.72339	1.4008	4.1743	29.903

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S4 Acquired: 9/18/2014 17:29:14 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	132.85	4727.2	60971.	15224.	4798.7
Stddev	.49	35.8	193.	68.	38.2
%RSD	.36610	.75702	.31594	.44616	.79594
#1	133.28	4687.6	60749.	15162.	4756.8
#2	132.32	4757.3	61093.	15213.	4831.7
#3	132.95	4736.6	61072.	15297.	4807.6

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S5 Acquired: 9/18/2014 17:33:17 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.54438	.86484	10.099	.62626	1.3702	15.465	63.500	.22657	14.121
Stddev	.00248	.00274	.027	.00244	.0059	.017	.293	.00040	.040
%RSD	.45526	.31687	.26287	.38954	.43235	.11170	.46219	.17479	.28571
#1	.54397	.86471	10.083	.62673	1.3685	15.467	63.164	.22692	14.107
#2	.54214	.86216	10.083	.62362	1.3653	15.447	63.706	.22614	14.091
#3	.54704	.86764	10.129	.62844	1.3767	15.481	63.629	.22664	14.167

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	22.142	5.3527	4.3315	4.0625	5.1330	9.1582	3.9628	3.0411	.98250
Stddev	.010	.0209	.0134	.0074	.0094	.0127	.0069	.0123	.00043
%RSD	.04595	.39080	.30865	.18323	.18382	.13892	.17289	.40301	.04344
#1	22.146	5.3663	4.3274	4.0656	5.1342	9.1481	3.9683	3.0371	.98204
#2	22.149	5.3286	4.3206	4.0540	5.1230	9.1539	3.9551	3.0314	.98257
#3	22.130	5.3632	4.3464	4.0679	5.1417	9.1725	3.9650	3.0549	.98288

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.4734	.39504	55.519	4.6134	.66475	.21533	6.2623	.37602	.15940
Stddev	.0021	.00102	.268	.0113	.00225	.00014	.0236	.00168	.00066
%RSD	.14186	.25855	.48211	.24466	.33774	.06462	.37669	.44760	.41636
#1	1.4754	.39591	55.313	4.6221	.66494	.21535	6.2568	.37605	.15936
#2	1.4712	.39528	55.423	4.6006	.66241	.21518	6.2418	.37431	.15877
#3	1.4736	.39392	55.822	4.6173	.66689	.21546	6.2881	.37768	.16009

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.4297	2.7708	8.6115	59.949
Stddev	.0052	.0012	.0148	.706
%RSD	.36236	.04295	.17171	1.1779
#1	1.4297	2.7712	8.6135	59.988
#2	1.4245	2.7694	8.5959	59.223
#3	1.4348	2.7717	8.6253	60.634

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S5 Acquired: 9/18/2014 17:33:17 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	121.55	4313.4	57640.	15122.	4395.0
Stddev	.80	12.9	99.	47.	10.3
%RSD	.66008	.29861	.17253	.31111	.23485
#1	121.75	4316.8	57664.	15080.	4397.6
#2	122.23	4324.2	57726.	15173.	4403.7
#3	120.66	4299.2	57531.	15113.	4383.6

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: S6 Acquired: 9/18/2014 17:37:39 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	Al3961	Ca3736	Fe2598	Mg2790	Na8183
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	40.329	35.143	13.581	6.4667	4.1745
Stddev	.342	.605	.018	.0163	.0088
%RSD	.84813	1.7225	.13350	.25131	.21130
#1	40.155	34.941	13.561	6.4540	4.1646
#2	40.723	35.823	13.596	6.4850	4.1814
#3	40.110	34.664	13.587	6.4611	4.1776

Int. Std.	Y_3710
Units	Cts/S
Avg	14544.
Stddev	107.
%RSD	.73835
#1	14577.
#2	14424.
#3	14631.

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICV53 Acquired: 9/18/2014 17:51:17 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICV53 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9204544	1.074298	.9854163	.9374955	.9071957	2.426085
Stddev	.0022064	.002434	.0021363	.0023211	.0044977	.014391
%RSD	.2397037	.2265573	.2167934	.2475839	.4957771	.5931844
#1	.9185552	1.071495	.9831875	.9349690	.9032304	2.433414
#2	.9199333	1.075516	.9856151	.9379843	.9062739	2.435336
#3	.9228747	1.075882	.9874462	.9395333	.9120829	2.409504

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5212796	.4897728	.4866552	10.42193	.5339626	.4860670
Stddev	.0018976	.0023084	.0007002	.03039	.0011520	.0014238
%RSD	.3640302	.4713291	.1438763	.2915906	.2157535	.2929231
#1	.5231306	.4871104	.4861266	10.45317	.5341835	.4849104
#2	.5213695	.4912160	.4863897	10.42015	.5349882	.4856335
#3	.5193386	.4909919	.4874494	10.39247	.5327161	.4876572

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5091990	5.452368	.5306062	6.017593	.4961890	.4891329
Stddev	.0020103	.031767	.0016176	.017932	.0014925	.0010626
%RSD	.3947975	.5826300	.3048605	.2979906	.3007864	.2172347
#1	.5113607	5.483478	.5322280	6.009800	.4946089	.4884535
#2	.5073856	5.453645	.5289928	6.038103	.4963833	.4885879
#3	.5088506	5.419982	.5305979	6.004876	.4975748	.4903574

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.748826	.5186455	.9793906	9.365287	F .9125015	F 1.058198
Stddev	.160936	.0018945	.0113435	.041696	.0033622	.006863
%RSD	1.650822	.3652747	1.158216	.4452168	.3684631	.6485390
#1	9.865795	.5203976	.9924768	9.358128	.9105692	1.050495
#2	9.815398	.5166352	.9733341	9.327634	.9105515	1.060439
#3	9.565286	.5189038	.9723608	9.410099	.9163839	1.063661

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICV53 Acquired: 9/18/2014 17:51:17 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICV53 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 1.067448	.9547281	1.082340	F 1.032234	1.083085	1.022321
Stddev	.002511	.0032872	.004137	.000740	.003976	.002753
%RSD	.2352232	.3443110	.3822642	.0717355	.3670738	.2692690
#1	1.065351	.9513583	1.081463	1.031657	1.087049	1.022823
#2	1.066763	.9548999	1.086845	1.031976	1.083109	1.024788
#3	1.070230	.9579260	1.078711	1.033069	1.079098	1.019351

Elem	Sr4077
Units	ppm
Avg	.0129598
Stddev	.0000522
%RSD	.4027724
#1	.0129032
#2	.0130061
#3	.0129700

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	143.8671	5434.784	66825.59	15811.83	5994.687
Stddev	1.8400	10.549	215.05	12.23	7.964
%RSD	1.278972	.1941034	.3218080	.0773670	.1328494
#1	141.7698	5434.007	66597.17	15820.42	5992.336
#2	145.2103	5445.701	67024.14	15797.82	6003.562
#3	144.6211	5424.645	66855.47	15817.24	5988.164

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICB53 Acquired: 9/18/2014 17:55:23 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICB53 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001399	.0001035	-.000452	.0004527	.0014785	-.009151	-.000004
Stddev	.000222	.0006035	.000543	.0018424	.0017643	.006235	.000195
%RSD	15.87990	582.9240	119.9903	406.9450	119.3303	68.13770	4843.244
#1	-.001502	-.000579	-.000772	.0015604	.0027231	-.003452	-.000212
#2	-.001551	.000324	.000174	.0014718	.0022530	-.015811	.000026
#3	-.001144	.000565	-.000759	-.001674	-.000541	-.008190	.000175

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000206	-.000026	.0034436	.0000834	-.000013	.0021810	.0046669
Stddev	.000215	.000022	.0074230	.0001679	.000176	.0018503	.0103874
%RSD	104.0976	82.78451	215.5594	201.2313	1364.550	84.83317	222.5753
#1	.000038	-.000050	.0017257	-.000010	.000184	.0020029	-.004759
#2	-.000293	-.000020	-.002970	.000277	-.000066	.0041139	.015804
#3	-.000364	-.000008	.011575	-.000017	-.000157	.0004263	.002956

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002097	-.009339	.0000693	-.000126	.0632071	.0001128	.0031942
Stddev	.0003375	.015300	.0001594	.000104	.0217874	.0021934	.0020579
%RSD	160.9853	163.8313	229.9197	82.87120	34.46985	1943.926	64.42550
#1	.0002524	.007929	-.000032	-.000237	.0392715	-.002330	.0049192
#2	-.000147	-.014740	-.000013	-.000109	.0818835	.000756	.0037468
#3	.000524	-.021206	.000253	-.000031	.0684663	.001913	.0009164

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0093102	.0008217	.0057885	.0002650	-.005102	.0023486	-.000188
Stddev	.0128480	.0004001	.0018725	.0000983	.001606	.0052513	.000408
%RSD	137.9997	48.68733	32.34838	37.09687	31.48624	223.5917	217.1292
#1	-.004609	.0006519	.0037266	.0003573	-.003619	-.003584	-.000656
#2	.020715	.0012787	.0062560	.0002760	-.006808	.006402	.000004
#3	.011825	.0005345	.0073830	.0001617	-.004878	.004228	.000089

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICB53 Acquired: 9/18/2014 17:55:23 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICB53 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0005977	.0015999	.000004
Stddev	.0004741	.0005321	.000047
%RSD	79.32745	33.25907	1215.936
#1	.0011138	.0019500	-.000053
#2	.0004978	.0018620	.000001
#3	.0001815	.0009876	.000041

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	138.5558	5417.637	66190.24	15235.87	6208.088
Stddev	2.8824	16.348	196.17	76.46	14.826
%RSD	2.080315	.3017555	.2963673	.5018180	.2388146
#1	135.2979	5415.639	66340.48	15156.69	6214.677
#2	139.5945	5434.891	66261.93	15241.63	6218.477
#3	140.7748	5402.379	65968.31	15309.28	6191.109

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICSA53 Acquired: 9/18/2014 17:59:29 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSA53 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0021022	-.000885	-.000502	.0160675	.0041279	241.0439
Stddev	.0006356	.002372	.001611	.0023974	.0017332	.3620
%RSD	30.23527	268.1863	321.0253	14.92076	41.98789	.1501610
#1	.0023540	.001302	.001333	.0167035	.0041738	241.1307
#2	.0013793	-.000549	-.001683	.0134162	.0058377	241.3546
#3	.0025733	-.003407	-.001155	.0180828	.0023722	240.6465

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0070561	.0007651	.0012969	249.0700	.0607751	.0001121
Stddev	.0001277	.0002789	.0000892	.6444	.0005223	.0000954
%RSD	1.810549	36.44985	6.876557	.2587369	.8593705	85.11420
#1	.0069971	.0010038	.0012627	249.4116	.0603634	.0001974
#2	.0072027	.0008330	.0012299	249.4717	.0613626	.0001299
#3	.0069685	.0004586	.0013981	248.3267	.0605993	.0000090

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0039651	102.0846	.0143156	257.3802	.0012249	-.002415
Stddev	.0022311	.0663	.0006621	.3728	.0003272	.000136
%RSD	56.26885	.0649418	4.625297	.1448248	26.71204	5.625184
#1	.0051288	102.0805	.0136493	257.2129	.0014907	-.002275
#2	.0013927	102.1528	.0149735	257.8073	.0013246	-.002547
#3	.0053738	102.0204	.0143240	257.1205	.0008595	-.002423

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1557446	.0007922	.0222255	-.474950	.0075049	F .1072211
Stddev	.1024526	.0026793	.0044411	.045255	.0006642	.0024839
%RSD	65.78248	338.2268	19.98199	9.528459	8.850782	2.316576
#1	.2087859	.0033364	.0221388	-.423512	.0077657	.1044727
#2	.2208018	.0010446	.0178284	-.508648	.0067499	.1078851
#3	.0376460	-.002004	.0267094	-.492690	.0079992	.1093054

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICSA53 Acquired: 9/18/2014 17:59:29 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSA53 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0149792	-.012286	.0416848	F .0247335	.0203212	.0036848
Stddev	.0002707	.001474	.0047941	.0008237	.0001379	.0008182
%RSD	1.807137	11.99763	11.50076	3.330132	.6788653	22.20445
#1	.0146753	-.011877	.0381459	.0249979	.0201732	.0027970
#2	.0150681	-.013921	.0397678	.0253925	.0204463	.0038488
#3	.0151943	-.011059	.0471408	.0238101	.0203440	.0044085

Elem	Sr4077
Units	ppm
Avg	.1063259
Stddev	.0000777
%RSD	.0730971
#1	.1063160
#2	.1064081
#3	.1062536

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	136.5291	5039.949	60858.39	15170.62	5078.677
Stddev	1.6836	6.284	140.66	26.92	4.828
%RSD	1.233167	.1246744	.2311187	.1774547	.0950595
#1	138.4731	5041.042	60807.19	15187.58	5084.087
#2	135.5392	5033.191	60750.51	15139.57	5074.806
#3	135.5750	5045.615	61017.47	15184.70	5077.139

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICSAB53 Acquired: 9/18/2014 18:03:32 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSAB53 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0948667	.0985095	.0467902	.0648429	.5624789	242.5220
Stddev	.0014822	.0017128	.0001496	.0031522	.0020073	.1996
%RSD	1.562404	1.738728	.3197738	4.861291	.3568706	.0822938
#1	.0932923	.0975137	.0469593	.0646633	.5637612	242.5282
#2	.0950724	.1004873	.0467361	.0617844	.5601656	242.3195
#3	.0962352	.0975275	.0466751	.0680811	.5635100	242.7185

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5309794	.5113440	1.023441	251.0647	.5938740	.5033566
Stddev	.0008740	.0013469	.000442	.3701	.0006058	.0007708
%RSD	.1646037	.2634088	.0432313	.1473934	.1020019	.1531326
#1	.5312590	.5126222	1.023074	251.4821	.5945215	.5042183
#2	.5316794	.5099375	1.023932	250.7766	.5933211	.5027328
#3	.5299998	.5114723	1.023318	250.9355	.5937793	.5031187

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5128251	102.7755	.5380280	259.3920	1.011366	.1999690
Stddev	.0033295	.3588	.0011788	1.0456	.001373	.0009258
%RSD	.6492411	.3490919	.2190928	.4030897	.1357420	.4629661
#1	.5156643	103.0161	.5391780	260.2587	1.011878	.2010347
#2	.5136504	102.3631	.5368224	258.2307	1.009811	.1993631
#3	.5091606	102.9473	.5380836	259.6866	1.012409	.1995093

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0570442	.5101502	.9816454	-.957482	.0347339	F .0833822
Stddev	.1308459	.0050120	.0186633	.065321	.0011114	.0082695
%RSD	229.3765	.9824521	1.901226	6.822182	3.199901	9.917593
#1	-.047561	.5152305	1.001909	-.958300	.0356855	.0790270
#2	.203761	.5052095	.965161	-1.02239	.0335123	.0929191
#3	.014932	.5100105	.977866	-.89176	.0350038	.0782006

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: ICSAB53 Acquired: 9/18/2014 18:03:32 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSAB53 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003629	-.007295	.0300415	-.000970	-.001885	.0027509
Stddev	.0003858	.005367	.0022193	.000694	.000718	.0006418
%RSD	106.2916	73.56638	7.387378	71.59089	38.09551	23.33020
#1	.0006351	-.006195	.0275012	-.001756	-.002678	.0022090
#2	-.000079	-.013127	.0310194	-.000713	-.001278	.0034597
#3	.000532	-.002564	.0316039	-.000441	-.001698	.0025841

Elem	Sr4077
Units	ppm
Avg	.1069857
Stddev	.0001339
%RSD	.1251622
#1	.1071403
#2	.1069079
#3	.1069088

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	136.0655	5041.454	60991.26	15020.91	5068.012
Stddev	1.2788	6.570	247.31	82.81	6.582
%RSD	.9398169	.1303215	.4054899	.5512880	.1298797
#1	135.5145	5038.604	60737.40	14959.19	5065.450
#2	137.5274	5048.968	61004.90	15115.02	5075.490
#3	135.1547	5036.790	61231.46	14988.52	5063.096

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV54 Acquired: 9/18/2014 18:07:27 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV54 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.151468	5.167494	26.31432	5.120370	5.117529	398.3400	10.63150
Stddev	.060323	.062577	.30563	.068522	.063508	4.8365	.05096
%RSD	1.170986	1.210973	1.161469	1.338222	1.240989	1.214151	.4793563
#1	5.144130	5.133640	26.17035	5.101841	5.098870	392.7721	10.68567
#2	5.095149	5.129136	26.10727	5.063019	5.065441	400.7497	10.62432
#3	5.215124	5.239704	26.66535	5.196252	5.188276	401.4982	10.58450

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5229463	2.650883	420.6832	16.59377	2.632285	15.95353	405.2386
Stddev	.0030629	.033955	.2519	.11393	.030313	.04419	.6973
%RSD	.5857076	1.280900	.0598699	.6865987	1.151592	.2770183	.1720827
#1	.5250623	2.638179	420.3937	16.52762	2.617972	15.92149	404.6862
#2	.5194340	2.625111	420.8521	16.52836	2.611778	16.00395	405.0075
#3	.5243427	2.689358	420.8037	16.72532	2.667104	15.93515	406.0222

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.75501	408.5733	2.609474	1.356071	396.8241	2.615950	15.55068
Stddev	.01424	.8434	.033072	.007684	1.1941	.011707	.43610
%RSD	.0903806	.2064147	1.267370	.5666205	.3009160	.4475076	2.804410
#1	15.74065	408.6431	2.595348	1.352182	395.4604	2.609246	15.48745
#2	15.75526	407.6972	2.585811	1.351110	397.6825	2.609138	15.14964
#3	15.76912	409.3795	2.647263	1.364922	397.3293	2.629468	16.01494

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	161.0842	5.180364	5.349623	5.050643	5.299885	5.266038	5.240777
Stddev	.3810	.056407	.012287	.071150	.068045	.015846	.065330
%RSD	.2365109	1.088860	.2296853	1.408725	1.283895	.3009157	1.246563
#1	160.9319	5.160643	5.344180	5.034150	5.253867	5.252899	5.218605
#2	161.5177	5.136465	5.340997	4.989188	5.267741	5.283636	5.189419
#3	160.8028	5.243984	5.363692	5.128590	5.378047	5.261580	5.314307

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV54 Acquired: 9/18/2014 18:07:27 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV54 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.164763	5.377559	5.380808
Stddev	.011337	.019057	.014125
%RSD	.2195108	.3543879	.2624998
#1	5.152185	5.363982	5.365501
#2	5.167908	5.399345	5.383585
#3	5.174196	5.369351	5.393338

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	122.7830	4492.014	56061.45	14321.40	4419.422
Stddev	2.7530	48.788	308.97	10.77	43.628
%RSD	2.242158	1.086112	.5511352	.0752227	.9871837
#1	123.1250	4501.222	56203.89	14317.28	4438.077
#2	125.3490	4535.542	56273.51	14313.30	4450.622
#3	119.8750	4439.278	55706.95	14333.63	4369.569

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB54 Acquired: 9/18/2014 18:11:37 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB54 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001632	.0019857	-.000521	.0016669	.0006245	.0067697	.0000750
Stddev	.000346	.0006164	.000058	.0012301	.0011110	.0050470	.0003643
%RSD	21.21324	31.04457	11.15210	73.79778	177.8932	74.55347	485.4707
#1	-.002030	.0019428	-.000587	.0026069	.0004549	.0113728	.0003082
#2	-.001407	.0026224	-.000475	.0021190	.0018107	.0075634	.0002618
#3	-.001458	.0013918	-.000502	.0002747	-.000392	.0013728	-.000345

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000779	.0000174	.0018065	.0000754	.0000914	.0021786	.0069012
Stddev	.000383	.0000094	.0059189	.0000935	.0000406	.0014218	.0019702
%RSD	49.20630	54.14275	327.6445	124.0096	44.44065	65.26539	28.54825
#1	-.001188	.0000234	.0010563	.0000645	.0001325	.0005651	.0059182
#2	-.000722	.0000065	.0080648	-.000012	.0000905	.0027224	.0091695
#3	-.000427	.0000223	-.003702	.000174	.0000513	.0032482	.0056159

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002834	.0015297	.0000110	-.000129	-.138065	.0001860	.0025102
Stddev	.0002106	.0095684	.0003248	.000060	.037243	.0010798	.0018946
%RSD	74.33335	625.5190	2963.097	46.70929	26.97484	580.4924	75.47863
#1	.0004779	.0075140	-.000023	-.000118	-.102501	-.001053	.0037478
#2	.0000596	-.009506	.000352	-.000075	-.176785	.000684	.0003290
#3	.0003126	.006581	-.000295	-.000194	-.134908	.000927	.0034537

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2985893	.0011841	.0096271	.0006688	-.003744	.0051474	.0001449
Stddev	.0727521	.0005196	.0034095	.0000788	.001224	.0029573	.0005343
%RSD	24.36527	43.88390	35.41568	11.77669	32.69870	57.45264	368.6132
#1	.3459070	.0011118	.0120478	.0007588	-.005118	.0045981	-.000301
#2	.3350441	.0017360	.0057279	.0006126	-.003344	.0083409	.000737
#3	.2148169	.0007043	.0111057	.0006350	-.002770	.0025033	-.000002

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB54 Acquired: 9/18/2014 18:11:37 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB54 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0006205	.0042886	.0000501
Stddev	.0003799	.0005060	.0000662
%RSD	61.22185	11.79825	131.9733
#1	.0008793	.0039371	.0000822
#2	.0007979	.0048685	.0000941
#3	.0001844	.0040601	-.000026

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	140.1437	5423.075	65516.59	14828.36	6153.693
Stddev	.2617	24.130	43.75	80.16	20.347
%RSD	.1867584	.4449522	.0667705	.5406092	.3306487
#1	140.1470	5399.101	65558.48	14744.13	6134.671
#2	140.4038	5447.358	65471.20	14837.24	6175.147
#3	139.8804	5422.767	65520.09	14903.71	6151.261

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV55 Acquired: 9/18/2014 19:39:26 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV55 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.059463	5.086882	25.84456	5.011574	5.033263	391.8098	10.54161
Stddev	.022078	.016285	.05528	.020362	.026128	2.1555	.12809
%RSD	.4363631	.3201361	.2138749	.4062981	.5191134	.5501457	1.215062
#1	5.040951	5.068155	25.78296	4.999870	5.016843	391.5441	10.62341
#2	5.053539	5.094772	25.86091	4.999765	5.019552	389.7995	10.60742
#3	5.083898	5.097720	25.88982	5.035085	5.063392	394.0859	10.39399

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5138366	2.592406	417.0109	16.22967	2.584713	15.70725	398.2046
Stddev	.0015042	.005559	.5677	.02674	.007110	.00762	1.1752
%RSD	.2927293	.2144249	.1361285	.1647510	.2750984	.0485377	.2951252
#1	.5149623	2.587515	416.3863	16.23121	2.578848	15.71601	399.1439
#2	.5121283	2.591251	417.1512	16.20220	2.582669	15.70215	396.8868
#3	.5144191	2.598451	417.4953	16.25561	2.592621	15.70358	398.5831

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.55192	402.1458	2.557491	1.327707	397.7184	2.586060	15.15463
Stddev	.01800	.9549	.010030	.001595	.8369	.003056	.20499
%RSD	.1157414	.2374391	.3921871	.1201617	.2104233	.1181854	1.352680
#1	15.53658	403.2265	2.549579	1.326022	397.0579	2.588437	14.95639
#2	15.54745	401.4161	2.554122	1.327905	397.4377	2.582613	15.14175
#3	15.57174	401.7948	2.568772	1.329194	398.6595	2.587131	15.36577

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	159.1412	5.111597	5.288277	4.957114	5.224211	5.224487	5.134955
Stddev	.1965	.019180	.012571	.022733	.006296	.019762	.018665
%RSD	.1234949	.3752344	.2377111	.4586010	.1205200	.3782668	.3634941
#1	159.1975	5.103429	5.301187	4.944644	5.230381	5.231169	5.119622
#2	158.9226	5.097853	5.287568	4.943344	5.217796	5.202250	5.129503
#3	159.3034	5.133510	5.276075	4.983353	5.224456	5.240042	5.155739

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV55 Acquired: 9/18/2014 19:39:26 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV55 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.102945	5.340975	5.297128
Stddev	.012037	.012300	.071317
%RSD	.2358750	.2302978	1.346326
#1	5.110883	5.328677	5.369073
#2	5.089096	5.340971	5.295854
#3	5.108857	5.353277	5.226456

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	123.5598	4564.194	57428.87	14492.27	4485.461
Stddev	.9054	22.443	47.10	77.60	14.402
%RSD	.7327793	.4917165	.0820203	.5354732	.3210870
#1	124.5513	4576.644	57459.43	14417.16	4495.768
#2	123.3513	4577.653	57374.63	14487.51	4491.609
#3	122.7768	4538.286	57452.57	14572.14	4469.005

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB55 Acquired: 9/18/2014 19:43:36 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB55 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001170	.0019090	-.000367	.0013984	.0002290	.0220755	.0001576
Stddev	.000906	.0005759	.001171	.0003978	.0004693	.0071363	.0002419
%RSD	77.42890	30.17037	318.7268	28.44453	204.9020	32.32678	153.4452
#1	-.001561	.0012489	.000257	.0018080	.0000842	.0254475	.0000459
#2	-.000134	.0021685	.000359	.0013735	.0007537	.0269011	.0004351
#3	-.001815	.0023095	-.001718	.0010136	-.000151	.0138781	-.000008

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000072	.0000479	.0142407	.0003531	.0001810	.0042606	.0198645
Stddev	.000105	.0000285	.0008096	.0001307	.0001261	.0020465	.0020621
%RSD	144.6944	59.55500	5.684854	37.01612	69.64305	48.03316	10.38064
#1	-.000020	.0000708	.0149616	.0005041	.0002914	.0033729	.0215757
#2	-.000004	.0000160	.0133648	.0002757	.0000437	.0028078	.0204426
#3	-.000193	.0000569	.0143958	.0002796	.0002079	.0066011	.0175750

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005498	.0125346	-.000295	-.000254	-.074751	.0002121	.0038185
Stddev	.0001929	.0102826	.000196	.000166	.035739	.0025729	.0013393
%RSD	35.07678	82.03383	66.32385	65.29023	47.81149	1213.258	35.07472
#1	.0007596	.0085262	-.000107	-.000133	-.112341	.0009557	.0022795
#2	.0003801	.0048599	-.000281	-.000185	-.041206	-.002651	.0047197
#3	.0005099	.0242177	-.000498	-.000442	-.070705	.002331	.0044563

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1220503	.0008987	.0084298	.0011434	-.005024	.0055314	-.000148
Stddev	.0259174	.0003410	.0026654	.0004872	.001703	.0020672	.000095
%RSD	21.23499	37.94446	31.61828	42.61051	33.89433	37.37248	64.31651
#1	.1452358	.0012176	.0065574	.0015001	-.005227	.0061403	-.000251
#2	.1268445	.0009392	.0114814	.0013420	-.006616	.0072258	-.000065
#3	.0940705	.0005392	.0072507	.0005883	-.003229	.0032281	-.000127

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB55 Acquired: 9/18/2014 19:43:36 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB55 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000227	.0046388	.0002195
Stddev	.000695	.0004721	.0000856
%RSD	305.6873	10.17706	38.99094
#1	.000455	.0043739	.0002778
#2	-.000203	.0051838	.0002595
#3	-.000934	.0043586	.0001212

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	139.1548	5542.199	66852.08	15157.50	6268.555
Stddev	1.0896	16.690	140.52	51.61	16.341
%RSD	.7829891	.3011528	.2101952	.3405204	.2606798
#1	138.7697	5523.360	66961.59	15161.17	6249.744
#2	140.3846	5555.141	66693.63	15104.15	6276.679
#3	138.3101	5548.095	66901.01	15207.18	6279.242

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV56 Acquired: 9/18/2014 21:08:31 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV56 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.998763	5.044346	25.87583	4.940378	5.000810	390.8488	10.54516
Stddev	.054605	.045635	.25636	.068062	.059250	4.0005	.12180
%RSD	1.092362	.9046697	.9907457	1.377664	1.184805	1.023552	1.155009
#1	4.961211	5.013398	25.68392	4.888891	4.954871	389.6522	10.41269
#2	4.973676	5.022885	25.77660	4.914700	4.979874	395.3110	10.57047
#3	5.061403	5.096755	26.16698	5.017544	5.067686	387.5830	10.65231

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5013045	2.567559	417.7049	15.94594	2.578696	15.53888	394.6190
Stddev	.0009567	.025344	1.7701	.01212	.028006	.02972	.6272
%RSD	.1908493	.9870805	.4237685	.0760316	1.086068	.1912662	.1589441
#1	.5024073	2.548278	416.8504	15.95458	2.556474	15.54202	395.3006
#2	.5008101	2.558134	419.7401	15.93208	2.569460	15.56691	394.4903
#3	.5006962	2.596265	416.5241	15.95115	2.610154	15.50771	394.0661

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.37085	394.1670	2.530774	1.316067	396.8511	2.556264	14.98884
Stddev	.05567	.8840	.026372	.000810	1.3227	.011580	.09647
%RSD	.3621657	.2242830	1.042060	.0615150	.3332943	.4529861	.6435979
#1	15.36719	394.6905	2.510079	1.316963	396.9725	2.553074	14.95796
#2	15.42825	394.6642	2.521775	1.315388	398.1089	2.569104	14.91159
#3	15.31710	393.1463	2.560468	1.315850	395.4719	2.546614	15.09696

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	156.6272	5.069991	5.145503	4.868078	5.204045	5.168032	5.070650
Stddev	.3941	.045526	.016229	.056788	.062244	.006957	.056364
%RSD	.2516103	.8979497	.3154033	1.166538	1.196069	.1346088	1.111573
#1	157.0407	5.037973	5.142584	4.825537	5.154514	5.160091	5.032321
#2	156.5850	5.049892	5.162993	4.846134	5.183706	5.173052	5.044261
#3	156.2560	5.122107	5.130931	4.932564	5.273914	5.170954	5.135368

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV56 Acquired: 9/18/2014 21:08:31 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV56 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.006317	5.304390	5.292603
Stddev	.014914	.005477	.061212
%RSD	.2978956	.1032454	1.156554
#1	5.019088	5.303830	5.223182
#2	5.009936	5.310125	5.338822
#3	4.989927	5.299214	5.315805

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	121.3387	4579.594	57213.34	14388.42	4462.636
Stddev	.6632	13.442	154.78	67.02	9.658
%RSD	.5465624	.2935174	.2705254	.4658102	.2164204
#1	121.3851	4579.640	57121.73	14399.18	4464.026
#2	121.9774	4593.013	57126.25	14316.67	4471.524
#3	120.6535	4566.130	57392.04	14449.41	4452.359

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB56 Acquired: 9/18/2014 21:12:41 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB56 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001827	.0035751	-.000395	.0002481	.0007198	.0068946	-.000158
Stddev	.000453	.0002484	.000562	.0015050	.0004715	.0012496	.000205
%RSD	24.79269	6.947768	142.2108	606.5064	65.50544	18.12407	130.0331
#1	-.001304	.0035458	.000137	-.000938	.0007779	.0070112	-.000394
#2	-.002077	.0033427	-.000984	.001941	.0011597	.0055908	-.000056
#3	-.002100	.0038369	-.000339	-.000259	.0002220	.0080817	-.000023

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000253	.0000371	.0055951	-.000053	.0000930	.0032433	.0134415
Stddev	.000296	.0000320	.0025999	.000190	.0000591	.0016955	.0058787
%RSD	116.6853	86.26197	46.46798	358.2149	63.57909	52.27575	43.73531
#1	.000054	.0000276	.0061512	-.000199	.0000417	.0018654	.0202295
#2	-.000279	.0000110	.0027621	.000162	.0001577	.0051367	.0100197
#3	-.000535	.0000729	.0078720	-.000122	.0000796	.0027278	.0100753

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005877	.0014750	-.000074	-.000309	.0064395	-.000947	.0029546
Stddev	.0001209	.0097429	.000255	.000181	.0376923	.001700	.0020163
%RSD	20.56208	660.5287	346.6616	58.76256	585.3342	179.5771	68.24228
#1	.0007272	.0063229	-.000332	-.000285	-.033478	.000458	.0012903
#2	.0005226	-.009741	-.000067	-.000141	.041419	-.000461	.0051967
#3	.0005135	.007843	.000179	-.000501	.011377	-.002837	.0023767

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2122429	.0009284	.0055201	.0013551	.0061577	.0076835	.0000783
Stddev	.0409543	.0012657	.0019595	.0002334	.0013176	.0028968	.0000899
%RSD	19.29596	136.3296	35.49816	17.22271	21.39838	37.70156	114.9024
#1	.2266560	.0023741	.0040921	.0015333	.0072724	.0103896	.0001789
#2	.2440422	.0003915	.0047141	.0010909	.0047035	.0080332	.0000502
#3	.1660306	.0000197	.0077541	.0014410	.0064970	.0046277	.0000057

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB56 Acquired: 9/18/2014 21:12:41 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB56 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000600	.0036782	.0000938
Stddev	.000659	.0014109	.0000368
%RSD	109.8920	38.35838	39.25683
#1	-.001262	.0053072	.0000604
#2	.000056	.0028397	.0000876
#3	-.000594	.0028878	.0001333

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	139.3355	5581.733	67630.13	15143.79	6289.683
Stddev	1.2410	7.577	40.93	126.79	8.662
%RSD	.8906863	.1357383	.0605134	.8372125	.1377221
#1	138.0962	5581.748	67588.50	15034.95	6289.884
#2	140.5783	5589.302	67670.31	15113.41	6298.244
#3	139.3320	5574.149	67631.58	15283.00	6280.922

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV57 Acquired: 9/18/2014 22:37:12 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV57 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.968160	4.992872	25.52655	4.914890	4.997003	392.0151	10.58241
Stddev	.022861	.003622	.02320	.033808	.023374	1.7123	.03352
%RSD	.4601469	.0725444	.0908835	.6878684	.4677579	.4368071	.3167903
#1	4.956300	4.994356	25.50259	4.900400	4.985565	390.1920	10.57444
#2	4.953666	4.988743	25.52813	4.890742	4.981551	393.5895	10.61919
#3	4.994514	4.995516	25.54891	4.953528	5.023893	392.2638	10.55358

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4969448	2.521784	419.5705	15.83592	2.550034	15.53375	393.9845
Stddev	.0022959	.005077	1.3000	.02363	.004231	.02645	.8033
%RSD	.4620077	.2013384	.3098446	.1492446	.1659354	.1703037	.2038870
#1	.4963288	2.516649	419.8683	15.81044	2.547724	15.53072	393.8118
#2	.4950198	2.521900	418.1474	15.85713	2.547460	15.50893	393.2816
#3	.4994860	2.526802	420.6958	15.84019	2.554917	15.56158	394.8601

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.35374	391.6336	2.496905	1.314844	403.3605	2.562849	14.99497
Stddev	.03227	.5262	.007071	.001374	.5469	.003345	.34721
%RSD	.2102090	.1343562	.2831709	.1045245	.1355772	.1305115	2.315479
#1	15.36941	391.6724	2.489359	1.315654	402.9141	2.561445	15.21206
#2	15.31662	391.0891	2.497979	1.315622	403.1969	2.560435	15.17832
#3	15.37519	392.1393	2.503377	1.313258	403.9705	2.566667	14.59452

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	156.3486	5.050292	5.105854	4.828741	5.121420	5.135963	4.995859
Stddev	.2124	.028053	.027537	.028415	.028775	.012318	.018615
%RSD	.1358779	.5554756	.5393154	.5884560	.5618531	.2398461	.3726015
#1	156.1902	5.046023	5.085018	4.810345	5.119291	5.140006	4.977252
#2	156.2657	5.024617	5.095471	4.814410	5.093769	5.122131	4.995843
#3	156.5901	5.080234	5.137072	4.861468	5.151200	5.145752	5.014481

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV57 Acquired: 9/18/2014 22:37:12 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV57 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.029746	5.344323	5.312294
Stddev	.001020	.017339	.050632
%RSD	.0202810	.3244291	.9531129
#1	5.028726	5.328118	5.331428
#2	5.029746	5.342242	5.350571
#3	5.030766	5.362608	5.254883

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	121.8837	4561.865	57900.03	14543.64	4454.784
Stddev	3.1190	23.373	63.14	48.80	11.279
%RSD	2.558968	.5123629	.1090438	.3355530	.2531924
#1	119.8395	4574.575	57864.86	14495.51	4461.654
#2	120.3381	4576.128	57862.31	14593.09	4460.931
#3	125.4737	4534.890	57972.92	14542.33	4441.766

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB57 Acquired: 9/18/2014 22:41:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB57 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000724	.0021521	.0002256	.0016193	-.000176	.0085665	-.000959
Stddev	.000963	.0001810	.0008184	.0009249	.000611	.0110575	.000207
%RSD	133.0041	8.410693	362.7153	57.11840	347.1571	129.0795	21.60208
#1	-.001823	.0023344	-.000045	.0024797	-.000142	.0153710	-.000721
#2	-.000030	.0019724	-.000423	.0006412	-.000804	-.004192	-.001058
#3	-.000319	.0021495	.001145	.0017369	.000417	.014521	-.001099

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000202	.0000020	-.000112	-.000036	.0000244	.0020609	.0126464
Stddev	.000562	.0000173	.000747	.000180	.0000415	.0008325	.0047795
%RSD	277.8066	886.5621	668.7109	492.8858	169.8874	40.39382	37.79378
#1	-.000236	.0000129	-.000507	.000114	.0000018	.0011045	.0110418
#2	-.000746	-.000018	.000750	.000012	-.000001	.0026224	.0180217
#3	.000375	.000011	-.000578	-.000235	.000072	.0024559	.0088756

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004379	.0033951	-.000025	-.000127	.1009882	.0011266	.0007749
Stddev	.0003257	.0131856	.000077	.000091	.0944857	.0022298	.0012459
%RSD	74.39301	388.3681	305.3584	71.88966	93.56109	197.9281	160.7750
#1	.0005926	-.011272	.000017	-.000212	.0844789	-.001098	-.000191
#2	.0000636	.007191	-.000114	-.000138	.2026405	.001116	.002181
#3	.0006574	.014266	.000022	-.000031	.0158452	.003362	.000334

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3030087	.0002780	.0052161	.0011993	-.006667	.0088098	-.000173
Stddev	.0451560	.0005237	.0009228	.0002462	.001343	.0040346	.000169
%RSD	14.90253	188.4094	17.69098	20.52602	20.14399	45.79670	97.70441
#1	.3535492	-.000312	.0049624	.0013652	-.008199	.0131684	-.000212
#2	.2888425	.000459	.0062393	.0013163	-.005690	.0080553	.000012
#3	.2666343	.000687	.0044468	.0009165	-.006113	.0052058	-.000318

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB57 Acquired: 9/18/2014 22:41:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB57 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000941	.0035541	.0000918
Stddev	.000447	.0004352	.0000411
%RSD	47.57905	12.24571	44.79745
#1	-.000467	.0031033	.0001123
#2	-.001356	.0035871	.0001187
#3	-.000998	.0039718	.0000445

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	139.2714	5576.036	68014.21	15349.31	6257.962
Stddev	1.4622	15.871	257.83	65.62	13.743
%RSD	1.049857	.2846219	.3790863	.4275326	.2196069
#1	138.4704	5593.333	67771.25	15274.85	6271.621
#2	138.3849	5572.631	67986.66	15374.38	6258.130
#3	140.9590	5562.144	68284.71	15398.70	6244.136

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: PB78987BL Acquired: 9/18/2014 23:37:21 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: PBS01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002949	-.000338	-.000330	.0026024	.0000814	-.002997	-.000590
Stddev	.000892	.000199	.001277	.0007026	.0001321	.003430	.000339
%RSD	30.23415	58.81289	387.3566	26.99839	162.2355	114.4592	57.39602
#1	-.002322	-.000323	.000943	.0027152	.0000340	-.004647	-.000970
#2	-.003970	-.000147	-.001611	.0018503	.0002307	-.005290	-.000479
#3	-.002556	-.000544	-.000321	.0032419	-.000020	.000946	-.000321

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000409	.0000229	.0016083	-.000343	-.000058	.0016942	.0095072
Stddev	.000308	.0000194	.0060675	.000134	.000126	.0012584	.0014900
%RSD	75.41053	84.71330	377.2664	39.14795	218.1405	74.27515	15.67235
#1	-.000063	.0000051	.0085576	-.000305	.000088	.0023175	.0078368
#2	-.000511	.0000435	-.002637	-.000233	-.000141	.0025192	.0106993
#3	-.000654	.0000200	-.001096	-.000493	-.000120	.0002458	.0099855

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002949	-.013714	.0001259	-.000076	.0319116	-.000841	.0020546
Stddev	.0000560	.006840	.0001364	.000157	.0636442	.000781	.0012638
%RSD	18.98114	49.87337	108.3131	206.5734	199.4392	92.79331	61.51237
#1	.0003004	-.008529	.0000453	-.000157	-.034451	-.001626	.0028827
#2	.0003479	-.021466	.0002833	-.000176	.037751	-.000065	.0005999
#3	.0002363	-.011147	.0000491	.000105	.092435	-.000833	.0026811

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1403737	-.000210	-.006227	.0001314	-.005150	.0064547	-.000303
Stddev	.0345409	.000260	.000343	.0000616	.000645	.0016463	.000146
%RSD	24.60636	124.0682	5.516153	46.91047	12.52441	25.50561	48.04504
#1	.1105228	-.000510	-.006559	.0001328	-.005207	.0070285	-.000291
#2	.1323915	-.000067	-.006247	.0001922	-.005765	.0077373	-.000455
#3	.1782069	-.000052	-.005873	.0000690	-.004479	.0045983	-.000164

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: PB78987BL Acquired: 9/18/2014 23:37:21 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: PBS01 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000438	-.000164	-.000003
Stddev	.000588	.000718	.000044
%RSD	134.2231	438.1158	1630.515
#1	-.000902	-.000627	.000034
#2	.000223	.000663	.000010
#3	-.000636	-.000527	-.000052

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	137.5906	5594.430	67492.97	15146.44	6272.467
Stddev	1.0260	13.706	216.54	35.60	14.334
%RSD	.7456956	.2449937	.3208394	.2350644	.2285245
#1	136.8476	5578.776	67730.54	15118.53	6255.946
#2	138.7612	5604.275	67306.64	15134.27	6281.600
#3	137.1628	5600.240	67441.74	15186.54	6279.855

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: PB78987BS Acquired: 9/18/2014 23:41:28 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: LCS01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0150645	.0505244	.0191613	.0639016	.1096240	.3546083
Stddev	.0003163	.0001782	.0010026	.0002999	.0010010	.0060425
%RSD	2.099476	.3526983	5.232345	.4692903	.9131339	1.703981
#1	.0153649	.0503188	.0195587	.0639562	.1101313	.3513583
#2	.0147345	.0506331	.0180209	.0635782	.1084709	.3508864
#3	.0150941	.0506215	.0199042	.0641705	.1102698	.3615802

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4256268	.0096098	.0097149	10.60966	.0202490	.0962882
Stddev	.0007761	.0001066	.0000758	.07853	.0005722	.0003920
%RSD	.1823495	1.109560	.7799098	.7401933	2.826095	.4071282
#1	.4252549	.0096516	.0096277	10.59324	.0206601	.0958565
#2	.4251066	.0096892	.0097522	10.54063	.0195954	.0963861
#3	.4265189	.0094886	.0097648	10.69510	.0204914	.0966220

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0525289	.2050483	.0320928	9.727564	.0774781	.0189725
Stddev	.0008304	.0038912	.0006283	.050111	.0004805	.0002581
%RSD	1.580770	1.897702	1.957682	.5151461	.6201648	1.360377
#1	.0516428	.2008922	.0313995	9.703944	.0770197	.0192344
#2	.0526548	.2086050	.0322545	9.693628	.0779780	.0189648
#3	.0532891	.2056477	.0326244	9.785120	.0774365	.0187183

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.03821	.1027971	.1136906	9.740769	F .0034272	F .0138807
Stddev	.05625	.0019474	.0007737	.071373	.0007893	.0054244
%RSD	.5603525	1.894417	.6805225	.7327212	23.03049	39.07864
#1	9.97561	.1012722	.1145709	9.712561	.0026853	.0093435
#2	10.05449	.1021282	.1131189	9.687811	.0042567	.0198889
#3	10.08451	.1049907	.1133819	9.821935	.0033397	.0124097

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: PB78987BS Acquired: 9/18/2014 23:41:28 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: LCS01 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0190212	.1672875	.1995198	F .0124111	.1978113	.0996943
Stddev	.0001977	.0009804	.0030307	.0008737	.0005807	.0004614
%RSD	1.039335	.5860266	1.519007	7.039662	.2935564	.4628502
#1	.0188793	.1679008	.1970548	.0118919	.1983093	.0994423
#2	.0189374	.1661569	.1986010	.0134198	.1979512	.0994137
#3	.0192470	.1678049	.2029036	.0119215	.1971735	.1002268

Elem	Sr4077
Units	ppm
Avg	.2169919
Stddev	.0005154
%RSD	.2375054
#1	.2168556
#2	.2165583
#3	.2175617

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	139.9566	5542.768	67019.61	15313.13	6040.069
Stddev	.6411	21.235	78.94	117.28	20.815
%RSD	.4580480	.3831052	.1177805	.7658680	.3446140
#1	140.5658	5557.571	66928.50	15337.24	6049.717
#2	140.0160	5552.294	67062.94	15416.47	6054.310
#3	139.2878	5518.438	67067.39	15185.67	6016.181

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-01 Acquired: 9/18/2014 23:45:33 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AJ3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0285029	-.005013	.2529732	.0240996	.0065515	70.87789	.6240118
Stddev	.0010536	.001044	.0007088	.0006128	.0013109	.15364	.0005639
%RSD	3.696304	20.83193	.2801811	2.542651	20.00935	.2167696	.0903627
#1	.0273249	-.005410	.2523503	.0247737	.0050922	70.71533	.6235427
#2	.0288286	-.005801	.2528249	.0239485	.0069329	70.89765	.6246374
#3	.0293551	-.003829	.2537444	.0235764	.0076294	71.02070	.6238553

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0034780	.0027198	15.29438	.1228591	.0424556	.3276322	125.2024
Stddev	.0002249	.0000852	.01196	.0008651	.0005057	.0018531	.1994
%RSD	6.466086	3.131481	.0782308	.7041413	1.191081	.5656093	.1592600
#1	.0035305	.0027651	15.28971	.1238463	.0418847	.3259759	125.1097
#2	.0032316	.0027727	15.30798	.1222336	.0428473	.3272870	125.0662
#3	.0036721	.0026215	15.28546	.1224972	.0426347	.3296336	125.4312

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.036575	9.146598	.0796263	-.001599	.7551446	.1992264	5.241352
Stddev	.001423	.053332	.0006639	.000085	.0844938	.0014459	.014443
%RSD	.1372757	.5830805	.8338106	5.341276	11.18909	.7257420	.2755622
#1	1.036279	9.106481	.0789686	-.001673	.6691901	.1993780	5.226522
#2	1.038123	9.126193	.0796140	-.001505	.8380977	.1977107	5.242159
#3	1.035324	9.207120	.0802963	-.001620	.7581460	.2005905	5.255375

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.116691	2.259652	.1108762	.0071888	3.563066	6.464668	.0145025
Stddev	.048120	.005005	.0013005	.0002035	.016014	.010887	.0000897
%RSD	.7867022	.2214770	1.172931	2.830382	.4494461	.1684083	.6183380
#1	6.151121	2.256190	.1117613	.0070572	3.545335	6.453177	.0144987
#2	6.061707	2.257376	.1114844	.0074231	3.567388	6.474829	.0144149
#3	6.137244	2.265390	.1093831	.0070860	3.576476	6.465997	.0145941

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-01 Acquired: 9/18/2014 23:45:33 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AJ3 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.093490	.0928389	.0963724
Stddev	.001174	.0003837	.0000773
%RSD	.1074000	.4132747	.0802356
#1	1.093202	.0926045	.0963540
#2	1.092486	.0932817	.0964573
#3	1.094781	.0926305	.0963059

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	144.1094	5717.378	68595.61	16236.55	5909.396
Stddev	1.0246	22.389	359.75	91.73	16.144
%RSD	.7109612	.3916035	.5244468	.5649320	.2731948
#1	144.9391	5729.684	68361.52	16323.22	5925.466
#2	144.4250	5730.915	69009.84	16245.95	5909.544
#3	142.9642	5691.535	68415.47	16140.49	5893.179

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-02 Acquired: 9/18/2014 23:49:30 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AJ4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0811590	-.007990	.2564778	.0344744	.0075767	61.69196	.6539565
Stddev	.0025130	.000579	.0009360	.0005916	.0011126	.05466	.0008383
%RSD	3.096368	7.245773	.3649548	1.716088	14.68438	.0886073	.1281947
#1	.0840582	-.007417	.2575521	.0342141	.0068982	61.67024	.6531018
#2	.0798156	-.008574	.2560437	.0340576	.0069712	61.65150	.6547775
#3	.0796033	-.007979	.2558377	.0351515	.0088607	61.75415	.6539903

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0077173	.0049043	18.01586	.1166256	.0699849	.1516134	201.9281
Stddev	.0002609	.0000310	.01584	.0010476	.0003384	.0011902	.2397
%RSD	3.380714	.6317073	.0879145	.8982518	.4835878	.7850091	.1187115
#1	.0077929	.0049359	18.03412	.1177993	.0697941	.1526847	202.1951
#2	.0079320	.0049032	18.00588	.1162923	.0697848	.1518232	201.8579
#3	.0074269	.0048739	18.00757	.1157853	.0703756	.1503323	201.7314

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9184833	7.139068	.0711457	-.002297	.9753647	.2420993	2.759712
Stddev	.0011998	.015202	.0002221	.000145	.0682723	.0025869	.015377
%RSD	.1306280	.2129423	.3122098	6.311832	6.999670	1.068540	.5571894
#1	.9185732	7.151557	.0712391	-.002297	1.050630	.2393800	2.768807
#2	.9172411	7.122141	.0708921	-.002442	.917423	.2445296	2.741958
#3	.9196356	7.143507	.0713059	-.002152	.958041	.2423885	2.768370

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.710892	3.904199	.1598654	.0109021	5.485283	5.529172	.0163099
Stddev	.037418	.002054	.0060251	.0002413	.005627	.015448	.0006739
%RSD	1.380271	.0526052	3.768879	2.213659	.1025896	.2793896	4.131778
#1	2.713909	3.903557	.1569025	.0107655	5.482710	5.531380	.0168142
#2	2.672057	3.906497	.1558955	.0111808	5.491736	5.512738	.0155445
#3	2.746710	3.902543	.1667983	.0107602	5.481401	5.543397	.0165710

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-02 Acquired: 9/18/2014 23:49:30 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AJ4 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.9105449	.0624262	.0936585
Stddev	.0034128	.0003076	.0001960
%RSD	.3748111	.4927037	.2092891
#1	.9084808	.0624603	.0935999
#2	.9144842	.0627154	.0934985
#3	.9086698	.0621030	.0938771

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	155.8468	6118.265	75316.52	17489.80	5897.378
Stddev	.9081	7.733	133.88	37.45	11.695
%RSD	.5826759	.1263979	.1777590	.2141452	.1983149
#1	154.8913	6109.589	75173.69	17447.32	5883.882
#2	156.6986	6120.772	75336.71	17518.07	5904.536
#3	155.9505	6124.434	75439.16	17504.02	5903.717

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-03 Acquired: 9/18/2014 23:53:28 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AJ5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0356277	-.005997	.3521201	.0178728	.0023915	78.24239	.3130897
Stddev	.0011194	.000617	.0015142	.0018284	.0013780	.07467	.0014277
%RSD	3.142084	10.28331	.4300259	10.23000	57.62071	.0954293	.4560083
#1	.0365222	-.006456	.3504997	.0194786	.0039823	78.29272	.3141315
#2	.0343723	-.006239	.3523616	.0158828	.0016295	78.27784	.3136752
#3	.0359885	-.005296	.3534991	.0182569	.0015628	78.15660	.3114622

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0044941	.0016234	4.515391	.1122937	.0189761	.0912541	85.16099
Stddev	.0004669	.0000513	.024622	.0011448	.0004212	.0010163	.09937
%RSD	10.38846	3.158976	.5452935	1.019453	2.219774	1.113719	.1166795
#1	.0041069	.0016792	4.542554	.1131786	.0194303	.0921785	85.19803
#2	.0050126	.0015784	4.509080	.1127016	.0185983	.0914179	85.04843
#3	.0043629	.0016124	4.494538	.1110008	.0188998	.0901658	85.23652

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2091348	5.364939	.0628433	-.001343	.9109578	.2044349	.2207636
Stddev	.0014120	.067364	.0004506	.000104	.1298688	.0006924	.0059904
%RSD	.6751568	1.255642	.7170736	7.712206	14.25629	.3386739	2.713470
#1	.2105476	5.442635	.0629111	-.001425	.8837262	.2041668	.2226812
#2	.2091332	5.329315	.0623625	-.001378	.7968641	.2052212	.2255603
#3	.2077236	5.322866	.0632561	-.001227	1.052283	.2039167	.2140492

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.215491	2.422455	.0786274	.0088774	4.298551	5.290186	.0122437
Stddev	.052874	.008622	.0038981	.0000595	.005806	.011473	.0005499
%RSD	2.386549	.3559346	4.957625	.6705576	.1350796	.2168741	4.491310
#1	2.263492	2.422613	.0752360	.0088124	4.301388	5.286716	.0125375
#2	2.224165	2.413755	.0777602	.0088905	4.291871	5.280849	.0125844
#3	2.158817	2.430997	.0828860	.0089292	4.302394	5.302993	.0116093

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-03 Acquired: 9/18/2014 23:53:28 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AJ5 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.6059452	.0568448	.0512590
Stddev	.0026028	.0011326	.0002122
%RSD	.4295524	1.992364	.4139762
#1	.6067019	.0566585	.0511056
#2	.6030479	.0580589	.0515012
#3	.6080859	.0558169	.0511703

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	156.0521	6219.169	75324.59	17307.38	5995.602
Stddev	.8676	13.834	761.72	122.18	8.540
%RSD	.5559948	.2224458	1.011252	.7059637	.1424306
#1	155.3750	6212.015	74778.41	17166.30	5993.847
#2	155.7512	6235.116	75000.62	17376.82	6004.882
#3	157.0302	6210.377	76194.74	17379.02	5988.075

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-04 Acquired: 9/18/2014 23:57:28 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AJ7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0099908	-.001825	.0727788	.0058365	.0009160	9.609146	.1525981
Stddev	.0018779	.000393	.0007189	.0017690	.0005621	.015620	.0004504
%RSD	18.79665	21.54410	.9877526	30.30874	61.36868	.1625533	.2951523
#1	.0098238	-.001374	.0732809	.0047720	.0015650	9.608635	.1528871
#2	.0119466	-.002100	.0731002	.0078785	.0005944	9.625015	.1528281
#3	.0082019	-.001999	.0719553	.0048590	.0005885	9.593788	.1520792

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0026462	.0010972	3.088242	.0226165	.0428293	.0218902	25.35615
Stddev	.0001586	.0000392	.024406	.0002041	.0001517	.0015727	.01830
%RSD	5.992975	3.576603	.3017453	.9022626	.3542255	7.184519	.0721637
#1	.0027964	.0011322	8.110098	.0225829	.0429931	.0213571	25.33578
#2	.0024804	.0010548	8.092721	.0224314	.0426935	.0206533	25.37118
#3	.0026619	.0011047	8.061906	.0228353	.0428014	.0236602	25.36150

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3340647	1.424993	.0149068	-.000398	.2010728	.0426848	.1255545
Stddev	.0009618	.012345	.0000813	.000309	.1652376	.0005886	.0062716
%RSD	.2878933	.8662869	.5453877	77.50391	82.17800	1.378979	4.995116
#1	.3343726	1.424696	.0149636	-.000473	.3445990	.0423275	.1208633
#2	.3329868	1.412800	.0148137	-.000059	.0204352	.0423628	.1326779
#3	.3348349	1.437484	.0149431	-.000663	.2381843	.0433642	.1231222

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.63841	.5362342	.0228132	.0037674	2.412978	3.528294	.0075744
Stddev	.02540	.0023954	.0023938	.0001951	.009295	.025593	.0001658
%RSD	1.550036	.4467067	10.49299	5.178840	.3852204	.7253775	2.189523
#1	-1.65195	.5383465	.0222096	.0035502	2.423704	3.543636	.0074485
#2	-1.65417	.5336316	.0254511	.0039278	2.407272	3.498748	.0075125
#3	-1.60912	.5367245	.0207790	.0038243	2.407958	3.542497	.0077624

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-04 Acquired: 9/18/2014 23:57:28 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AJ7 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2548087	.0091087	.0340222
Stddev	.0013846	.0003633	.0000954
%RSD	.5433859	3.988807	.2804582
#1	.2533301	.0090403	.0341274
#2	.2550214	.0095013	.0339980
#3	.2560747	.0087844	.0339412

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	145.6988	5873.277	71680.26	16223.53	6260.101
Stddev	2.0843	31.718	216.09	36.70	32.118
%RSD	1.430571	.5400321	.3014683	.2262170	.5130510
#1	147.0250	5838.515	71493.16	16190.23	6223.070
#2	143.2963	5900.643	71630.82	16217.48	6280.366
#3	146.7750	5880.673	71916.78	16262.87	6276.867

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-05 Acquired: 9/19/2014 00:01:29 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AJ8 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0954606	-.002870	.1563697	.0117565	.0040840	26.56014	.3906350
Stddev	.0007938	.001056	.0018615	.0018622	.0004392	.01619	.0006301
%RSD	.8315911	36.80264	1.190424	15.84015	10.75410	.0609478	.1613090
#1	.0945783	-.003448	.1542271	.0128743	.0035769	26.57396	.3903879
#2	.0961170	-.003512	.1575898	.0127883	.0043464	26.56413	.3901659
#3	.0956865	-.001651	.1572921	.0096067	.0043286	26.54233	.3913512

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0039800	.0016907	14.29690	.0676023	.0283395	.0667178	67.31900
Stddev	.0001322	.0000129	.03462	.0001874	.0003363	.0011069	.18271
%RSD	3.322817	.7622182	.2421807	.2772106	1.186790	1.659134	.2714047
#1	.0039279	.0017050	14.28262	.0674228	.0280832	.0679080	67.19917
#2	.0038818	.0016871	14.27171	.0677967	.0282150	.0657192	67.52929
#3	.0041304	.0016800	14.33638	.0675873	.0287203	.0665262	67.22854

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.28123	1.789676	.0356427	-.000265	.3675196	.0861715	.2134315
Stddev	.00766	.029650	.0002542	.000211	.2033947	.0003391	.0060493
%RSD	.0678935	1.656722	.7132808	79.61917	55.34254	.3935288	2.834311
#1	11.27244	1.763476	.0354962	-.000508	.5998381	.0864749	.2203263
#2	11.28477	1.821862	.0354956	-.000124	.2215195	.0858054	.2090143
#3	11.28648	1.783690	.0359363	-.000164	.2812012	.0862343	.2109538

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.477385	1.308407	.0570210	.0023559	2.917874	5.235777	.0073228
Stddev	.031545	.004267	.0006427	.0001187	.009151	.030007	.0002392
%RSD	6.607848	.3260970	1.127084	5.037797	.3136262	.5731179	3.266895
#1	-.513800	1.304622	.0577627	.0023576	2.911451	5.213458	.0070590
#2	-.458451	1.307568	.0566282	.0022364	2.913819	5.223984	.0073838
#3	-.459904	1.313031	.0566722	.0024737	2.928352	5.269889	.0075257

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-05 Acquired: 9/19/2014 00:01:29 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AJ8 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.4322308	.0218077	.0884170
Stddev	.0011127	.0004951	.0001501
%RSD	.2574418	2.270234	.1698071
#1	.4309552	.0223785	.0884163
#2	.4327350	.0214950	.0882673
#3	.4330022	.0215496	.0885675

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	148.8329	5856.536	71175.66	16359.00	6027.902
Stddev	1.8424	10.792	103.98	41.79	10.034
%RSD	1.237923	.1842733	.1460850	.2554824	.1664652
#1	146.8377	5859.024	71113.57	16407.22	6023.443
#2	150.4699	5865.867	71295.70	16333.16	6039.393
#3	149.1911	5844.717	71117.72	16336.63	6020.870

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV58 Acquired: 9/19/2014 00:05:29 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV58 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.943108	5.018864	25.84684	4.849716	4.970442	393.0317	10.74439
Stddev	.051136	.064429	.35090	.049352	.060020	3.4297	.09669
%RSD	1.034493	1.283742	1.357620	1.017625	1.207541	.8726308	.8999434
#1	4.919352	4.976074	25.59637	4.812596	4.927903	394.9634	10.72659
#2	5.001801	5.092964	26.24790	4.905722	5.039095	395.0600	10.84874
#3	4.908171	4.987552	25.69624	4.830830	4.944326	389.0718	10.65783

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4897630	2.520821	424.5614	15.71590	2.567549	15.56441	390.3042
Stddev	.0027372	.031635	1.9798	.04840	.030388	.02925	1.5606
%RSD	.5588858	1.254937	.4663114	.3079928	1.183526	.1879442	.3998454
#1	.4919291	2.500110	425.4136	15.68431	2.547022	15.58092	391.2545
#2	.4906733	2.557235	425.9723	15.77163	2.602457	15.58168	391.1550
#3	.4866866	2.505117	422.2982	15.69177	2.553166	15.53064	388.5031

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.38912	388.7807	2.492818	1.317506	404.9627	2.551219	15.07674
Stddev	.06565	1.8843	.030200	.003137	1.5224	.010140	.25489
%RSD	.4266263	.4846667	1.211480	.2381180	.3759463	.3974609	1.690603
#1	15.41053	390.1256	2.472148	1.315800	405.1619	2.551947	15.34558
#2	15.44140	389.5894	2.527476	1.321127	406.3758	2.560976	15.04604
#3	15.31544	386.6271	2.478829	1.315593	403.3505	2.540735	14.83859

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	156.6188	5.071192	5.053344	4.763379	5.123507	5.154977	4.985325
Stddev	.3846	.047321	.030486	.050415	.063115	.030030	.064594
%RSD	.2455509	.9331372	.6032828	1.058395	1.231877	.5825400	1.295685
#1	156.9546	5.038562	5.053643	4.725505	5.077228	5.175962	4.940379
#2	156.7026	5.125464	5.083680	4.820603	5.195403	5.168392	5.059347
#3	156.1992	5.049550	5.022710	4.744029	5.097888	5.120578	4.956249

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV58 Acquired: 9/19/2014 00:05:29 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV58 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.966190	5.378402	5.350672
Stddev	.017576	.003324	.026800
%RSD	.3539035	.0617973	.5008799
#1	4.981375	5.375687	5.320628
#2	4.970257	5.382109	5.372119
#3	4.946937	5.377411	5.359268

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	119.7025	4589.322	57807.35	14438.01	4432.913
Stddev	2.5204	41.218	258.89	106.05	44.647
%RSD	2.105512	.8981191	.4478446	.7344980	1.007178
#1	116.8799	4623.577	57898.75	14332.38	4469.186
#2	120.5000	4543.579	57515.16	14437.17	4383.050
#3	121.7276	4600.810	58008.14	14544.46	4446.502

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB58 Acquired: 9/19/2014 00:09:40 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB58 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001608	.0015821	-.000176	-.000316	-.000027	.0077727	-.000463
Stddev	.000481	.0012143	.000213	.000199	.000584	.0031025	.000194
%RSD	29.89117	76.75135	120.9698	63.13700	2143.252	39.91559	42.02569
#1	-.001072	.0002321	-.000050	-.000425	-.000696	.0051740	-.000376
#2	-.001999	.0019291	-.000422	-.000436	.000385	.0112076	-.000685
#3	-.001755	.0025852	-.000056	-.000086	.000228	.0069365	-.000326

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000023	.0000319	.0076946	.0001082	-.000015	.0031550	.0096472
Stddev	.000177	.0000067	.0060324	.0003000	.000097	.0006688	.0050676
%RSD	784.1753	20.95039	78.39806	277.3903	657.4491	21.19662	52.52861
#1	.000175	.0000268	.0123525	.0003065	-.000110	.0024044	.0151279
#2	-.000079	.0000295	.0098508	.0002550	-.000018	.0033735	.0051316
#3	-.000164	.0000395	.0008804	-.000237	.000084	.0036872	.0086822

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005952	-.008586	.0001397	-.000160	.0953588	-.000846	.0016198
Stddev	.0003601	.011239	.0002151	.000054	.0690797	.002147	.0018549
%RSD	60.49627	130.9059	154.0258	33.96547	72.44182	253.8807	114.5118
#1	.0007021	.003744	-.000054	-.000221	.1120360	-.002491	.0034326
#2	.0008897	-.011243	.000371	-.000142	.1545733	.001583	-.000275
#3	.0001938	-.018258	.000102	-.000118	.0194673	-.001629	.001702

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2636133	.0000859	.0033770	.0016069	-.007673	.0086820	-.000179
Stddev	.0827666	.0003888	.0033014	.0002749	.002294	.0052082	.000373
%RSD	31.39696	452.5707	97.76229	17.10872	29.89276	59.98820	207.8452
#1	.1730253	.0003191	.0021146	.0019244	-.008194	.0051637	.000040
#2	.3352828	-.000363	.0008930	.0014488	-.005164	.0146650	-.000609
#3	.2825318	.000302	.0071234	.0014476	-.009662	.0062173	.000032

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB58 Acquired: 9/19/2014 00:09:40 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB58 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0000745	.0038595	.0000946
Stddev	.0002366	.0002594	.0000537
%RSD	317.3301	6.721578	56.76529
#1	-.000140	.0038708	.0001374
#2	.000036	.0041131	.0001121
#3	.000328	.0035947	.0000344

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	141.5932	5648.847	68531.61	15393.78	6321.751
Stddev	1.7865	16.468	56.59	56.51	16.702
%RSD	1.261681	.2915219	.0825729	.3670746	.2641976
#1	142.1872	5646.658	68472.68	15443.62	6318.775
#2	139.5854	5666.300	68536.63	15332.39	6339.740
#3	143.0070	5633.584	68585.52	15405.32	6306.737

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-06 Acquired: 9/19/2014 00:13:48 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AJ9 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0117519	-.001320	.1819386	.0090138	.0003675	11.97503	.1910225
Stddev	.0017016	.000425	.0007744	.0004558	.0012448	.04193	.0002132
%RSD	14.47934	32.20555	.4256361	5.056433	338.7637	.3501748	.1116081
#1	.0099346	-.001495	.1810447	.0089293	.0016813	12.01567	.1908345
#2	.0133074	-.001630	.1823651	.0086061	.0002156	11.93191	.1909788
#3	.0120138	-.000836	.1824060	.0095058	-.000794	11.97750	.1912542

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0023166	.0007115	4.761925	.0214007	.0122875	.0163087	16.81852
Stddev	.0001174	.0000044	.011175	.0003519	.0000632	.0009681	.04284
%RSD	5.065472	.6197805	.2346695	1.644428	.5144631	5.935942	.2547067
#1	.0021959	.0007071	4.773992	.0214193	.0122194	.0160563	16.86754
#2	.0023237	.0007114	4.759849	.0210398	.0122988	.0173780	16.78824
#3	.0024303	.0007159	4.751934	.0217429	.0123442	.0154919	16.79980

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4967806	.6691100	.0092452	-.000433	.3671522	.0264803	.0605060
Stddev	.0003528	.0107318	.0001649	.000167	.0189332	.0005775	.0046923
%RSD	.0710254	1.603888	1.783670	38.56988	5.156785	2.180974	7.755130
#1	.4964317	.6653799	.0091873	-.000535	.3699357	.0261220	.0572869
#2	.4967728	.6607409	.0094312	-.000240	.3469814	.0271465	.0658900
#3	.4971373	.6812090	.0091170	-.000525	.3845397	.0261722	.0583412

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.60535	.9017614	.0185143	.0028276	3.863357	3.987465	.0079291
Stddev	.02103	.0048863	.0063280	.0002055	.013218	.021238	.0002972
%RSD	1.309776	.5418585	34.17870	7.267787	.3421338	.5326287	3.747790
#1	-1.58141	.8980050	.0180759	.0027996	3.848186	4.011240	.0078974
#2	-1.61385	.8999938	.0250501	.0030457	3.869493	3.970369	.0076491
#3	-1.62080	.9072856	.0124170	.0026375	3.872392	3.980786	.0082409

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-06 Acquired: 9/19/2014 00:13:48 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AJ9 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2643104	.0065691	.0318135
Stddev	.0004208	.0007085	.0000272
%RSD	.1591923	10.78526	.0855247
#1	.2644882	.0060224	.0317823
#2	.2646131	.0073696	.0318261
#3	.2638299	.0063155	.0318322

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	151.3818	6133.258	74716.34	17036.26	6160.299
Stddev	1.2644	11.599	123.47	50.23	14.032
%RSD	.8352535	.1891176	.1652533	.2948379	.2277861
#1	150.2890	6131.851	74700.92	16993.72	6174.097
#2	152.7667	6145.497	74601.31	17091.67	6160.756
#3	151.0896	6122.427	74846.80	17023.39	6146.043

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-07 Acquired: 9/19/2014 00:17:51 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0050982	-.003140	.0374021	.0067131	-.000032	8.805498	.1175268
Stddev	.0003535	.000812	.0004457	.0015507	.000047	.021390	.0007901
%RSD	6.933261	25.84796	1.191718	23.09905	148.8285	.2429212	.6722658
#1	.0051833	-.002776	.0372707	.0061883	.000017	8.812951	.1184053
#2	.0047100	-.004071	.0370369	.0054930	-.000036	8.822165	.1168743
#3	.0054014	-.002575	.0378988	.0084581	-.000077	8.781378	.1173009

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0022362	.0008877	9.912902	.0179726	.0105657	.0150055	23.60576
Stddev	.0000655	.0000200	.013033	.0002424	.0000606	.0023537	.04216
%RSD	2.926890	2.258952	.1314799	1.348815	.5732067	15.68554	.1786171
#1	.0021899	.0008944	9.925972	.0177161	.0105863	.0161835	23.59013
#2	.0023111	.0009036	9.912829	.0180040	.0106132	.0122954	23.57365
#3	.0022075	.0008652	9.899905	.0181978	.0104975	.0165376	23.65351

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5512585	.4406691	.0093446	-.000240	.0722152	.0415208	.0783256
Stddev	.0007819	.0220750	.0003201	.000148	.1161466	.0036623	.0039056
%RSD	.1418363	5.009423	3.425876	61.48596	160.8339	8.820343	4.986419
#1	.5510287	.4175974	.0089989	-.000179	.1988365	.0402611	.0813323
#2	.5521295	.4615900	.0094041	-.000408	-.029375	.0386546	.0739113
#3	.5506172	.4428199	.0096309	-.000133	.047184	.0456466	.0797333

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-2.54347	.4464147	.0244736	.0021541	1.758496	2.889182	.0067391
Stddev	.01963	.0025636	.0011633	.0002844	.004175	.007568	.0004351
%RSD	.7717906	.5742685	4.753414	13.20188	.2373968	.2619539	6.456549
#1	-2.52084	.4448715	.0236624	.0024814	1.759056	2.892190	.0063530
#2	-2.55588	.4449987	.0239519	.0020141	1.754070	2.880572	.0066536
#3	-2.55371	.4493740	.0258064	.0019669	1.762363	2.894784	.0072106

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-07 Acquired: 9/19/2014 00:17:51 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK0 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1430383	.0042842	.0343934
Stddev	.0009707	.0012608	.0000226
%RSD	.6786023	29.42912	.0657385
#1	.1441391	.0030127	.0343805
#2	.1423051	.0043061	.0344195
#3	.1426708	.0055340	.0343802

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	148.1221	5859.697	72029.01	16171.26	6251.463
Stddev	1.2430	9.779	85.40	72.94	9.225
%RSD	.8392056	.1668884	.1185607	.4510704	.1475729
#1	148.5356	5855.618	71962.05	16113.64	6252.010
#2	149.1057	5870.855	72125.18	16253.27	6260.402
#3	146.7250	5852.617	71999.80	16146.85	6241.975

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-08 Acquired: 9/19/2014 00:21:56 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0037995	-.001693	.0304038	.0047186	-.000460	6.139984	.0690681
Stddev	.0000965	.000416	.0011220	.0021044	.000856	.006497	.0004727
%RSD	2.539185	24.58988	3.690340	44.59690	185.8448	.1058118	.6844108
#1	.0037168	-.002100	.0305876	.0024615	.000372	6.133661	.0687709
#2	.0039055	-.001268	.0314225	.0050678	-.000416	6.139650	.0696132
#3	.0037763	-.001712	.0292012	.0066265	-.001337	6.146642	.0688202

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009028	.0003733	2.873057	.0183078	.0070872	.0086211	16.50552
Stddev	.0003988	.0000153	.007176	.0003566	.0000674	.0010486	.03243
%RSD	44.17145	4.087298	.2497617	1.947932	.9513733	12.16341	.1964556
#1	.0010124	.0003640	2.871028	.0180350	.0070638	.0084901	16.50059
#2	.0004607	.0003649	2.867115	.0187114	.0070345	.0076442	16.47583
#3	.0012353	.0003909	2.881029	.0181772	.0071632	.0097291	16.54012

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2714285	.3052725	.0062760	-.000069	.1896135	.0302810	.0599638
Stddev	.0007786	.0212280	.0001373	.000072	.1182487	.0006740	.0054538
%RSD	.2868566	6.953772	2.188383	104.4201	62.36298	2.225811	9.095190
#1	.2706800	.3173627	.0061708	-.000087	.0960115	.0310120	.0633095
#2	.2713715	.3176936	.0062258	.000010	.3225060	.0296842	.0629116
#3	.2722341	.2807614	.0064314	-.000131	.1503231	.0301468	.0536705

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-2.18527	.3045042	.0150413	.0014791	.4714179	2.862213	.0062408
Stddev	.03848	.0023984	.0009911	.0000435	.0051282	.003278	.0001374
%RSD	1.760878	.7876443	6.588882	2.939281	1.087818	.1145112	2.201165
#1	-2.14096	.3023761	.0156321	.0015291	.4707693	2.865410	.0063878
#2	-2.20460	.3071031	.0155947	.0014581	.4666448	2.862368	.0061157
#3	-2.21026	.3040334	.0138972	.0014501	.4768394	2.858861	.0062188

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-08 Acquired: 9/19/2014 00:21:56 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2663929	.0038315	.0143581
Stddev	.0024021	.0006997	.0000999
%RSD	.9017046	18.26170	.6953970
#1	.2685424	.0038429	.0142744
#2	.2638000	.0045254	.0144686
#3	.2668361	.0031262	.0143313

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	141.1310	5805.991	70065.83	15749.18	6327.480
Stddev	1.5686	8.269	461.62	36.64	12.519
%RSD	1.111435	.1424197	.6588444	.2326705	.1978579
#1	139.3214	5811.150	69600.68	15775.45	6336.451
#2	142.1021	5810.371	70072.96	15707.32	6332.813
#3	141.9694	5796.454	70523.85	15764.77	6313.178

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-09 Acquired: 9/19/2014 00:26:01 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0031788	-.001737	.0300876	.0055214	.0009465	6.251760	.0697701
Stddev	.0008902	.000704	.0006320	.0016231	.0002814	.028018	.0002469
%RSD	28.00576	40.51670	2.100436	29.39662	29.73373	.4481677	.3539210
#1	.0030312	-.001537	.0294720	.0063762	.0012655	6.227943	.0694852
#2	.0041336	-.001154	.0307347	.0036495	.0007337	6.282631	.0699021
#3	.0023716	-.002518	.0300563	.0065384	.0008402	6.244705	.0699229

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0010381	.0003662	2.930652	.0183607	.0070989	.0095409	16.62015
Stddev	.0004088	.0000196	.012005	.0001740	.0001365	.0013271	.06081
%RSD	39.37962	5.357185	.4096448	.9477050	1.922331	13.90966	.3658826
#1	.0013813	.0003882	2.917657	.0181790	.0070637	.0085174	16.56869
#2	.0011473	.0003507	2.941329	.0185258	.0069835	.0090649	16.68726
#3	.0005858	.0003595	2.932969	.0183772	.0072496	.0110404	16.60451

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2764557	.3020986	.0061782	.0000097	.0614526	.0312335	.0529479
Stddev	.0009603	.0055685	.0001491	.0001828	.0430381	.0011410	.0043783
%RSD	.3473581	1.843268	2.413734	1886.192	70.03453	3.653196	8.269127
#1	.2754340	.3034861	.0061678	-.000104	.0154753	.0305038	.0479402
#2	.2773397	.2959676	.0063322	.000220	.1007765	.0306483	.0560533
#3	.2765933	.3068422	.0060345	-.000088	.0681061	.0325484	.0548501

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-2.11101	.3032500	.0141228	.0014123	.4816528	2.900372	.0065371
Stddev	.04621	.0014038	.0017289	.0000605	.0056431	.024598	.0001998
%RSD	2.188990	.4629103	12.24194	4.286027	1.171618	.8481069	3.055940
#1	-2.14853	.3016388	.0157304	.0013468	.4767614	2.873770	.0067656
#2	-2.12510	.3039028	.0143440	.0014661	.4803701	2.922295	.0064506
#3	-2.05939	.3042086	.0122939	.0014241	.4878268	2.905050	.0063952

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-09 Acquired: 9/19/2014 00:26:01 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1D Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2680309	.0039733	.0145816
Stddev	.0013193	.0008578	.0000744
%RSD	.4922119	21.58927	.5102945
#1	.2695164	.0049444	.0145769
#2	.2669958	.0033187	.0146583
#3	.2675804	.0036567	.0145097

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	143.3435	5797.769	70303.14	15684.15	6289.872
Stddev	1.4564	8.280	178.58	58.24	19.114
%RSD	1.016039	.1428212	.2540201	.3713259	.3038896
#1	144.9850	5802.444	70163.20	15687.58	6296.207
#2	142.2062	5802.655	70241.95	15624.28	6305.014
#3	142.8393	5788.209	70504.28	15740.61	6268.394

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-10 Acquired: 9/19/2014 00:30:04 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0796020	.1042046	.0735178	.0961757	.1960429	9.495055	5.292109
Stddev	.0013216	.0006655	.0002983	.0015875	.0014800	.015160	.014337
%RSD	1.660298	.6386789	.4056983	1.650616	.7549240	.1596602	.2709140
#1	.0806680	.1035209	.0738416	.0975724	.1966291	9.504439	5.294561
#2	.0800146	.1048503	.0734576	.0944492	.1943596	9.503160	5.305062
#3	.0781232	.1042426	.0732542	.0965056	.1971399	9.477565	5.276705

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1137575	.1065540	2.111865	.5106237	1.129818	.6202454	13.41434
Stddev	.0005166	.0002660	.006586	.0003320	.002604	.0007735	.02567
%RSD	.4541095	.2496703	.3118482	.0650254	.2304942	.1247131	.1913402
#1	.1131616	.1065056	2.108753	.5102457	1.128759	.6201530	13.40018
#2	.1140786	.1063155	2.119430	.5107570	1.127909	.6195222	13.39887
#3	.1140324	.1068409	2.107411	.5108683	1.132784	.6210609	13.44397

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.522595	.2658111	1.102555	.1082891	.2520827	1.277305	1.155139
Stddev	.001883	.0076841	.000730	.0002484	.0479293	.003809	.017300
%RSD	.1236928	2.890802	.0662002	.2293797	19.01333	.2981704	1.497656
#1	1.523216	.2739976	1.103127	.1080806	.1967738	1.279626	1.139798
#2	1.524089	.2587546	1.101733	.1085639	.2780302	1.279378	1.151730
#3	1.520479	.2646813	1.102806	.1082227	.2814441	1.272909	1.173890

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.85234	.2414669	.0110470	.0012330	.2954204	2.845913	.0074690
Stddev	.06967	.0011688	.0023485	.0000704	.0028729	.005378	.0005010
%RSD	3.761089	.4840439	21.25920	5.709278	.9724649	.1889806	6.707252
#1	-1.79480	.2411991	.0136645	.0012297	.2952422	2.850400	.0069609
#2	-1.92980	.2404551	.0103526	.0013049	.2926407	2.847388	.0074836
#3	-1.83242	.2427463	.0091240	.0011643	.2983782	2.839951	.0079626

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-10 Acquired: 9/19/2014 00:30:04 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1S Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2645186	.0030071	.0115141
Stddev	.0004600	.0003177	.0000621
%RSD	.1739136	10.56517	.5392968
#1	.2647693	.0032591	.0115013
#2	.2647988	.0031119	.0115815
#3	.2639877	.0026502	.0114593

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	141.7559	5727.552	69547.55	15376.77	6187.905
Stddev	2.6251	21.306	189.28	38.43	18.231
%RSD	1.851826	.3719963	.2721585	.2499040	.2946181
#1	144.1866	5703.492	69765.81	15379.09	6173.335
#2	142.1089	5744.034	69448.38	15413.98	6208.349
#3	138.9722	5735.129	69428.46	15337.23	6182.031

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-08LX5 Acquired: 9/19/2014 00:34:03 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000429	-.000450	.0077487	.0007757	-.000538	1.339560	.0154848
Stddev	.002473	.000356	.0005171	.0017608	.000427	.006043	.0003341
%RSD	577.0169	79.06465	6.673202	226.9860	79.37167	.4511255	2.157610
#1	.002131	-.000085	.0073234	.0000675	-.000544	1.341950	.0155836
#2	-.000612	-.000795	.0083243	.0027804	-.000962	1.344042	.0157583
#3	-.002805	-.000470	.0075984	-.000521	-.000108	1.332687	.0151124

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001110	.0001871	.6285079	.0044709	.0019003	.0053138	3.390900
Stddev	.0000630	.0000608	.0063882	.0003462	.0001015	.0010434	.010317
%RSD	56.79204	32.49255	1.016412	7.742963	5.338707	19.63648	.3042445
#1	.0001427	.0002531	.6333535	.0043313	.0019926	.0051807	3.399757
#2	.0000384	.0001333	.6212685	.0048651	.0017917	.0043433	3.393370
#3	.0001518	.0001751	.6309017	.0042164	.0019168	.0064174	3.379572

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0580446	.0668366	.0017174	.0002703	-.033262	.0072465	.0127319
Stddev	.0003160	.0087138	.0000593	.0001755	.195907	.0003050	.0030975
%RSD	.5443786	13.03744	3.455526	64.90932	588.9748	4.208607	24.32854
#1	.0578306	.0766972	.0016506	.0004639	-.189106	.0075678	.0127313
#2	.0578957	.0636405	.0017377	.0002254	-.097341	.0072107	.0096347
#3	.0584075	.0601722	.0017640	.0001217	.186660	.0069610	.0158297

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.393829	.0627057	.0008967	.0004040	.0931791	.6635486	.0011567
Stddev	.035056	.0017578	.0064583	.0000226	.0002981	.0088623	.0004648
%RSD	8.901383	2.803272	720.2458	5.599907	.3199218	1.335590	40.18173
#1	-.355321	.0642618	.0070059	.0004206	.0928349	.6680279	.0015416
#2	-.402275	.0607990	.0015457	.0004132	.0933573	.6692771	.0012882
#3	-.423890	.0630563	-.005862	.0003783	.0933450	.6533407	.0006403

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-08LX5 Acquired: 9/19/2014 00:34:03 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1L Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0564638	.0008566	.0031664
Stddev	.0004852	.0020312	.0001023
%RSD	.8592650	237.1386	3.231980
#1	.0565505	.0030367	.0032835
#2	.0559412	-.000983	.0031212
#3	.0568998	.000516	.0030943

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	141.4030	5752.928	69231.90	15102.37	6227.695
Stddev	2.4077	6.446	421.68	107.97	10.787
%RSD	1.702713	.1120494	.6090773	.7148931	.1732073
#1	138.6336	5758.405	68904.55	14990.94	6232.169
#2	142.5758	5754.555	69707.73	15109.67	6235.525
#3	142.9996	5745.825	69083.40	15206.50	6215.391

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-11 Acquired: 9/19/2014 00:38:09 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0044509	-.001503	.0295200	.0046980	.0001657	7.397022	.0784939
Stddev	.0013701	.000520	.0005129	.0007525	.0008214	.026987	.0003065
%RSD	30.78202	34.57698	1.737624	16.01793	495.7595	.3648375	.3904320
#1	.0037311	-.001584	.0289845	.0047522	.0007741	7.423837	.0787870
#2	.0035908	-.000948	.0300070	.0039199	.0004916	7.369866	.0781757
#3	.0060309	-.001979	.0295686	.0054220	-.000769	7.397363	.0785191

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008088	.0004308	1.958331	.0189669	.0092934	.0097428	18.21218
Stddev	.0002681	.0000213	.006016	.0001121	.0000953	.0019449	.04494
%RSD	33.14975	4.937948	.3071985	.5910218	1.025491	19.96248	.2467576
#1	.0010850	.0004333	1.963248	.0190329	.0093287	.0109007	18.26340
#2	.0007918	.0004084	1.951623	.0190304	.0093661	.0108303	18.19382
#3	.0005496	.0004507	1.960122	.0188375	.0091855	.0074974	18.17933

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2029075	.3875999	.0064038	-.000081	.0239171	.0295852	.0573845
Stddev	.0005902	.0150638	.0000859	.000150	.1161912	.0008209	.0024694
%RSD	.2908946	3.886423	1.340544	185.1217	485.8083	2.774686	4.303198
#1	.2035891	.3703816	.0064209	-.000249	-.052923	.0297902	.0548039
#2	.2025673	.3940724	.0063107	.000043	.157585	.0302842	.0597251
#3	.2025662	.3983457	.0064798	-.000038	-.032910	.0286813	.0576243

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.77443	.3387330	.0142436	.0012561	.3793043	3.300547	.0067925
Stddev	.02634	.0015302	.0046296	.0001527	.0019274	.009687	.0001625
%RSD	1.484246	.4517272	32.50344	12.15794	.5081471	.2935041	2.392150
#1	-1.75681	.3403510	.0166271	.0014098	.3786379	3.308814	.0067173
#2	-1.80471	.3373092	.0089078	.0011044	.3777984	3.289888	.0066814
#3	-1.76178	.3385388	.0171958	.0012543	.3814764	3.302941	.0069790

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-11 Acquired: 9/19/2014 00:38:09 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK2 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.3197413	.0044458	.0110448
Stddev	.0036400	.0009099	.0000579
%RSD	1.138408	20.46783	.5241107
#1	.3238598	.0045623	.0111073
#2	.3169554	.0034831	.0109930
#3	.3184087	.0052918	.0110341

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	142.4048	5823.276	70333.99	15273.06	6246.585
Stddev	1.3591	10.559	119.73	72.42	4.723
%RSD	.9544095	.1813202	.1702375	.4741599	.0756114
#1	143.9741	5822.167	70197.02	15190.44	6244.153
#2	141.6284	5834.345	70418.78	15303.20	6252.029
#3	141.6117	5813.315	70386.15	15325.54	6243.574

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-12 Acquired: 9/19/2014 00:42:13 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0236196	-.003247	.0719556	.0145240	.0013759	27.03648	.3092785
Stddev	.0007414	.000803	.0001436	.0009540	.0003550	.05408	.0016281
%RSD	3.138966	24.73304	.1996058	6.568419	25.79933	.2000352	.5264138
#1	.0241908	-.002354	.0718330	.0144880	.0017694	27.05136	.3087710
#2	.0227817	-.003476	.0719202	.0154954	.0012787	26.97652	.3079646
#3	.0238864	-.003910	.0721136	.0135884	.0010797	27.08157	.3110999

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0041780	.0021593	10.16295	.0451868	.0487856	.0251927	79.90642
Stddev	.0002696	.0000550	.03333	.0003380	.0000440	.0010523	.08667
%RSD	6.452878	2.548761	.3279175	.7479915	.0901038	4.176859	.1084595
#1	.0044893	.0022218	10.18433	.0452293	.0487681	.0240154	79.94872
#2	.0040226	.0021380	10.12455	.0448296	.0487532	.0260416	79.96382
#3	.0040220	.0021180	10.17998	.0455015	.0488357	.0255212	79.80673

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7109870	1.252787	.0231012	-.000033	.3780122	.0957966	.2091367
Stddev	.0017428	.006241	.0002514	.000298	.0557406	.0022585	.0022248
%RSD	.2451299	.4981991	1.088142	903.1868	14.74570	2.357558	1.063795
#1	.7106260	1.259464	.0231135	.000143	.3173005	.0933826	.2076925
#2	.7094529	1.251797	.0228439	.000135	.4268769	.0978581	.2080188
#3	.7128820	1.247100	.0233462	-.000377	.3898592	.0961493	.2116987

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.38697	1.477365	.0646000	.0027689	2.693424	3.846694	.0080026
Stddev	.01481	.000528	.0048780	.0000915	.006136	.013625	.0003708
%RSD	1.067895	.0357409	7.551023	3.304189	.2278169	.3541889	4.633403
#1	-1.39414	1.477073	.0693048	.0028030	2.700274	3.858948	.0076484
#2	-1.39682	1.477046	.0649297	.0026652	2.691568	3.832023	.0083880
#3	-1.36993	1.477974	.0595656	.0028384	2.688431	3.849111	.0079714

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-12 Acquired: 9/19/2014 00:42:13 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK3 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2455903	.0184586	.0458472
Stddev	.0005111	.0002547	.0001977
%RSD	.2081056	1.380074	.4312548
#1	.2450341	.0187485	.0460232
#2	.2456974	.0182706	.0456333
#3	.2460393	.0183566	.0458850

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	151.2022	5961.090	72604.88	16022.96	6029.078
Stddev	1.9394	5.985	208.49	95.43	2.184
%RSD	1.282651	.1003928	.2871517	.5955566	.0362252
#1	148.9962	5967.243	72415.93	15928.44	6031.497
#2	152.6392	5960.738	72570.18	16119.26	6028.485
#3	151.9711	5955.289	72828.54	16021.18	6027.251

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-13 Acquired: 9/19/2014 00:46:14 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0164112	-.004208	.0992231	.0112940	.0014537	27.25596	.3742956
Stddev	.0009164	.001780	.0004868	.0005112	.0006580	.05719	.0000950
%RSD	5.584127	42.30967	.4905691	4.526509	45.26736	.2098120	.0253838
#1	.0169083	-.004080	.0997358	.0117332	.0019045	27.19019	.3741861
#2	.0169717	-.002495	.0991663	.0107328	.0006986	27.29395	.3743562
#3	.0153537	-.006048	.0987673	.0114160	.0017580	27.28374	.3743445

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0083607	.0100061	16.55908	.0462160	.0276012	.0315846	53.19488
Stddev	.0003552	.0000952	.04115	.0001832	.0002019	.0011150	.15901
%RSD	4.248978	.9517566	.2485194	.3963863	.7316473	3.530040	.2989146
#1	.0084128	.0101109	16.52203	.0464270	.0275042	.0328233	53.03420
#2	.0079823	.0099824	16.55184	.0461247	.0278334	.0306613	53.35216
#3	.0086870	.0099249	16.60338	.0460965	.0274661	.0312694	53.19828

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6322993	1.264405	.0257668	-.000303	.3798323	.1301846	.2196341
Stddev	.0005800	.018141	.0004265	.000045	.0902795	.0017452	.0008074
%RSD	.0917284	1.434717	1.655390	14.69874	23.76825	1.340564	.3676080
#1	.6317521	1.284907	.0261758	-.000261	.3246643	.1321278	.2187110
#2	.6329073	1.257876	.0257998	-.000299	.3308150	.1296753	.2199828
#3	.6322386	1.250433	.0253247	-.000350	.4840176	.1287507	.2202085

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.82218	1.127356	.0479084	.0031395	4.906538	3.615514	.0082176
Stddev	.03726	.002827	.0016026	.0000654	.013597	.021567	.0004200
%RSD	2.044566	.2507395	3.345062	2.081797	.2771225	.5965198	5.110543
#1	-1.85301	1.127838	.0491837	.0031637	4.918559	3.595023	.0079007
#2	-1.83275	1.129910	.0484319	.0030655	4.909275	3.638016	.0080581
#3	-1.78078	1.124319	.0461095	.0031894	4.891781	3.613504	.0086939

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-13 Acquired: 9/19/2014 00:46:14 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK4 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2438862	.0162868	.0691443
Stddev	.0013308	.0007659	.0000478
%RSD	.5456642	4.702442	.0690521
#1	.2434200	.0161660	.0691297
#2	.2453873	.0155885	.0691977
#3	.2428512	.0171059	.0691056

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	154.9069	6149.850	75411.80	16716.22	6030.331
Stddev	.1102	19.832	118.25	52.22	25.432
%RSD	.0711269	.3224855	.1568041	.3124176	.4217422
#1	154.9710	6131.145	75436.68	16762.80	6006.378
#2	154.7797	6147.759	75515.62	16659.76	6027.593
#3	154.9700	6170.644	75283.08	16726.10	6057.022

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-14 Acquired: 9/19/2014 00:50:16 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0184371	-.003873	.1007499	.0129628	.0009954	55.62859	.4706219
Stddev	.0003670	.000713	.0001310	.0026825	.0005951	.15746	.0008734
%RSD	1.990473	18.41427	.1300258	20.69370	59.78122	.2830495	.1855889
#1	.0188153	-.004450	.1008683	.0154998	.0016630	55.52468	.4698217
#2	.0180825	-.004094	.1007724	.0101553	.0008028	55.55134	.4715536
#3	.0184135	-.003076	.1006091	.0132332	.0005206	55.80976	.4704902

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0044418	.0010784	4.785751	.0829334	.0341180	.0237057	65.71836
Stddev	.0002520	.0000531	.012794	.0006454	.0001159	.0008357	.22489
%RSD	5.674592	4.928804	.2673344	.7781501	.3395651	3.525302	.3421989
#1	.0042467	.0010738	4.771470	.0835369	.0340548	.0227445	65.62052
#2	.0043522	.0011337	4.789614	.0822531	.0342517	.0242601	65.55896
#3	.0047263	.0010277	4.796168	.0830103	.0340474	.0241125	65.97559

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4206105	2.608956	.0280000	-.000713	.4604590	.1575580	.1264666
Stddev	.0042550	.007552	.0003654	.000235	.0352922	.0027063	.0023657
%RSD	1.011630	.2894577	1.304902	32.99072	7.664570	1.717658	1.870620
#1	.4172747	2.614791	.0277342	-.000901	.4204133	.1606014	.1291609
#2	.4191544	2.600427	.0278492	-.000788	.4739402	.1566504	.1255097
#3	.4254025	2.611650	.0284167	-.000449	.4870236	.1554221	.1247292

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.326879	1.109357	.0533851	.0054637	1.075043	4.454838	.0087870
Stddev	.020054	.002766	.0027165	.0001283	.001665	.047414	.0001066
%RSD	6.135091	.2493221	5.088497	2.348724	.1548325	1.064319	1.213135
#1	-.346729	1.110177	.0538029	.0053875	1.075098	4.409507	.0086782
#2	-.327281	1.106274	.0504839	.0053918	1.073352	4.450914	.0088913
#3	-.306627	1.111620	.0558685	.0056119	1.076679	4.504091	.0087914

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-14 Acquired: 9/19/2014 00:50:16 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK5 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.4527463	.0397262	.0415469
Stddev	.0035819	.0004936	.0000523
%RSD	.7911556	1.242548	.1259298
#1	.4554217	.0399700	.0414865
#2	.4541404	.0391581	.0415772
#3	.4486770	.0400505	.0415770

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	149.8652	6008.137	72252.47	16198.26	5969.254
Stddev	.8406	12.092	211.38	99.72	15.511
%RSD	.5608758	.2012668	.2925574	.6156071	.2598401
#1	149.4370	5994.888	72402.39	16219.78	5951.694
#2	149.3250	6018.579	72344.32	16285.45	5974.987
#3	150.8337	6010.945	72010.70	16089.53	5981.083

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-15 Acquired: 9/19/2014 00:54:19 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK6 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0448550	-.006153	.0956213	.0230620	.0025299	39.20667	.5200193
Stddev	.0006839	.000585	.0006477	.0023640	.0006644	.14850	.0018012
%RSD	1.524614	9.499278	.6773553	10.25062	26.26307	.3787696	.3463795
#1	.0442808	-.005564	.0957627	.0254648	.0022038	39.19435	.5205777
#2	.0446725	-.006733	.0961866	.0207388	.0020915	39.36094	.5214753
#3	.0456115	-.006164	.0949146	.0229823	.0032944	39.06471	.5180050

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0057918	.0030164	10.86462	.0677071	.0848293	.0329493	122.4827
Stddev	.0002390	.0001182	.04559	.0001770	.0005559	.0017455	.4307
%RSD	4.125677	3.918443	.4196160	.2614350	.6553224	5.297506	.3516088
#1	.0060112	.0030610	10.84025	.0676283	.0847547	.0349505	122.3337
#2	.0058268	.0028824	10.91721	.0675831	.0843145	.0321570	122.9681
#3	.0055372	.0031058	10.83639	.0679098	.0854188	.0317405	122.1464

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.333976	1.804210	.0346860	-.000600	.3146820	.1267817	.2552829
Stddev	.013167	.015943	.0001540	.000185	.0474754	.0012226	.0039865
%RSD	.3949339	.8836617	.4440014	30.81910	15.08678	.9643142	1.561607
#1	3.331484	1.816195	.0345227	-.000605	.3303496	.1269213	.2528579
#2	3.348211	1.810320	.0347066	-.000412	.3523432	.1279285	.2531068
#3	3.322234	1.786116	.0348286	-.000782	.2613530	.1254953	.2598839

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.26723	1.862776	.0958138	.0039280	2.972714	4.894743	.0088204
Stddev	.01473	.004008	.0014105	.0002136	.014622	.023683	.0003642
%RSD	1.161998	.2151806	1.472163	5.437629	.4918568	.4838503	4.129186
#1	-1.27425	1.859960	.0971216	.0040653	2.976207	4.881752	.0090787
#2	-1.27713	1.861002	.0960005	.0036819	2.956663	4.922079	.0089786
#3	-1.25031	1.867365	.0943192	.0040367	2.985274	4.880399	.0084038

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-15 Acquired: 9/19/2014 00:54:19 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK6 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2651809	.0324551	.0608529
Stddev	.0032888	.0006573	.0001726
%RSD	1.240207	2.025396	.2836423
#1	.2682469	.0328446	.0608847
#2	.2655883	.0316961	.0610075
#3	.2617073	.0328246	.0606667

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	150.8951	6026.234	73208.21	16561.70	5956.809
Stddev	.7137	5.974	252.57	93.55	18.386
%RSD	.4729956	.0991376	.3449978	.5648635	.3086565
#1	150.6276	6026.790	73412.85	16631.20	5953.944
#2	151.7039	6031.910	72925.94	16455.34	5976.459
#3	150.3537	6020.001	73285.85	16598.57	5940.023

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-16 Acquired: 9/19/2014 00:58:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0160258	-.001663	.0205545	.0119987	.0024319	6.175794	.0716300
Stddev	.0005113	.000790	.0004742	.0013554	.0006502	.030485	.0004528
%RSD	3.190216	47.50442	2.306804	11.29656	26.73479	.4936218	.6322008
#1	.0159357	-.000956	.0208418	.0125849	.0016989	6.145726	.0711384
#2	.0155656	-.002515	.0200072	.0104488	.0026582	6.206680	.0720301
#3	.0165761	-.001517	.0208144	.0129624	.0029388	6.174976	.0717216

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0013334	.0008217	2.288683	.0198451	.0096296	.0213781	67.78590
Stddev	.0002552	.0000391	.009791	.0003694	.0000911	.0015995	.19811
%RSD	19.13884	4.754722	.4278171	1.861191	.9458491	7.481722	.2922620
#1	.0012967	.0008415	2.277644	.0202665	.0097230	.0202131	67.68953
#2	.0010985	.0007767	2.296316	.0196909	.0095411	.0232017	68.01376
#3	.0016050	.0008469	2.292090	.0195778	.0096248	.0207194	67.65441

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5331679	.3845197	.0086616	-.000279	.1317757	.0228760	.0921365
Stddev	.0029067	.0194761	.0000923	.000129	.0443341	.0015306	.0039505
%RSD	.5451819	5.065042	1.065820	46.09180	33.64361	6.690676	4.287611
#1	.5303572	.3631151	.0086628	-.000386	.1427465	.0212335	.0944867
#2	.5329844	.3892468	.0087533	-.000316	.1695944	.0242622	.0943472
#3	.5361620	.4011970	.0085686	-.000136	.0829862	.0231324	.0875756

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-2.12107	.5250352	.0538165	.0019964	.3329412	2.638293	.0075395
Stddev	.05575	.0020935	.0041443	.0001029	.0028985	.010458	.0004774
%RSD	2.628276	.3987276	7.700699	5.156374	.8705798	.3964073	6.331710
#1	-2.13605	.5241331	.0568406	.0018804	.3299399	2.650001	.0073952
#2	-2.05936	.5235440	.0490926	.0020321	.3331590	2.635000	.0071509
#3	-2.16779	.5274284	.0555163	.0020768	.3357247	2.629877	.0080724

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-16 Acquired: 9/19/2014 00:58:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK7 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1578859	.0026512	.0119948
Stddev	.0016006	.0005893	.0000799
%RSD	1.013755	22.22581	.6659970
#1	.1569209	.0027527	.0119172
#2	.1570034	.0020178	.0120768
#3	.1597335	.0031830	.0119903

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	145.9202	5817.709	69868.38	15423.47	6220.006
Stddev	1.7633	12.473	125.81	35.74	15.190
%RSD	1.208429	.2143985	.1800651	.2316932	.2442043
#1	145.5250	5815.592	69723.64	15436.38	6219.079
#2	144.3880	5831.105	69951.44	15383.07	6235.639
#3	147.8476	5806.429	69930.07	15450.96	6205.302

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-17 Acquired: 9/19/2014 01:02:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK8 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0383142	-.001305	.0666602	.0075895	.0015925	35.16122	.3524741
Stddev	.0015699	.000260	.0005371	.0015248	.0004839	.11864	.0010855
%RSD	4.097496	19.95327	.8057427	20.09034	30.38718	.3374108	.3079520
#1	.0390711	-.001594	.0660419	.0091592	.0018515	35.15697	.3531814
#2	.0365092	-.001089	.0669279	.0061141	.0018918	35.28192	.3530167
#3	.0393623	-.001233	.0670109	.0074951	.0010342	35.04476	.3512244

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0024081	.0013974	15.96770	.2277199	.0194398	.1411470	40.71183
Stddev	.0003340	.0000300	.03546	.0002747	.0001396	.0008970	.06312
%RSD	13.87032	2.148929	.2220627	.1206241	.7182603	.6354953	.1550348
#1	.0026697	.0014306	15.98570	.2278565	.0192833	.1405529	40.69093
#2	.0025226	.0013721	15.99055	.2278995	.0194844	.1421788	40.78275
#3	.0020319	.0013895	15.92686	.2274037	.0195517	.1407094	40.66182

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3328780	2.824392	.0267345	-.000205	.2487737	.0732413	.4979616
Stddev	.0012070	.034781	.0002335	.000226	.0912831	.0023947	.0065863
%RSD	.3625921	1.231455	.8734715	109.9784	36.69322	3.269604	1.322657
#1	.3328199	2.813655	.0266281	-.000088	.2455181	.0715157	.5015751
#2	.3341130	2.863276	.0270023	-.000466	.3416410	.0722330	.5019501
#3	.3317012	2.796246	.0265732	-.000063	.1591619	.0759753	.4903594

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.13783	1.705486	.0385889	.0029569	3.053692	3.365146	.0055119
Stddev	.00507	.006736	.0045116	.0001642	.008686	.003681	.0004248
%RSD	.4452269	.3949396	11.69137	5.552953	.2844514	.1093842	7.706592
#1	-1.14318	1.702118	.0349235	.0029087	3.048030	3.363014	.0059922
#2	-1.13719	1.701098	.0436275	.0031398	3.049353	3.363027	.0051857
#3	-1.13311	1.713241	.0372156	.0028223	3.063693	3.369396	.0053578

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-17 Acquired: 9/19/2014 01:02:24 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK8 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.4554129	.0245245	.0669002
Stddev	.0009731	.0006195	.0003260
%RSD	.2136769	2.526136	.4872646
#1	.4545246	.0251875	.0670983
#2	.4564530	.0244257	.0670783
#3	.4552611	.0239603	.0665239

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	144.8566	5872.202	69885.80	15670.92	6058.640
Stddev	.8047	27.050	118.01	53.62	22.779
%RSD	.5555137	.4606473	.1688581	.3421869	.3759746
#1	144.8444	5890.656	69918.24	15714.62	6070.048
#2	144.0581	5884.800	69754.97	15611.08	6073.461
#3	145.6673	5841.151	69984.20	15687.05	6032.411

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-18 Acquired: 9/19/2014 01:06:26 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK9 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0201504	-.002479	.0538429	.0082473	.0004386	28.25829	.2856474
Stddev	.0012159	.001005	.0009481	.0025165	.0016848	.00825	.0007712
%RSD	6.033918	40.52334	1.760889	30.51277	384.1774	.0292022	.2699776
#1	.0210385	-.001506	.0541889	.0111020	.0008061	28.25375	.2847719
#2	.0187646	-.003513	.0545695	.0072893	.0019093	28.26782	.2859438
#3	.0206480	-.002418	.0527704	.0063505	-.001400	28.25331	.2862263

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017268	.0009448	9.588992	.1412030	.0205006	.0745974	37.99867
Stddev	.0003507	.0000235	.035823	.0004582	.0002276	.0006054	.01503
%RSD	20.31256	2.485370	.3735886	.3244609	1.110036	.8115478	.0395483
#1	.0013503	.0009208	9.555692	.1408159	.0205301	.0744383	38.00265
#2	.0017858	.0009459	9.626894	.1410842	.0202598	.0752665	38.01131
#3	.0020443	.0009677	9.584391	.1417088	.0207120	.0740875	37.98205

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3571290	2.358110	.0216295	-.000169	.2168256	.0750067	.3533700
Stddev	.0008664	.012111	.0001871	.000163	.0646125	.0009242	.0076200
%RSD	.2426122	.5136011	.8651815	96.28771	29.79931	1.232165	2.156374
#1	.3561444	2.350478	.0217975	-.000161	.2057471	.0739427	.3471141
#2	.3577752	2.372075	.0214278	-.000010	.1584686	.0756100	.3618563
#3	.3574673	2.351777	.0216632	-.000336	.2862610	.0754674	.3511396

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.451435	1.446010	.0343352	.0022599	1.750009	4.374301	.0069551
Stddev	.007117	.003757	.0030774	.0001570	.006912	.014521	.0004153
%RSD	1.576595	.2598284	8.962932	6.945909	.3949722	.3319653	5.970925
#1	-.446567	1.441765	.0341933	.0020884	1.746783	4.367070	.0066700
#2	-.448135	1.447357	.0313311	.0022950	1.745300	4.364815	.0074315
#3	-.459603	1.448908	.0374811	.0023964	1.757944	4.391018	.0067637

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-18 Acquired: 9/19/2014 01:06:26 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK9 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.5548913	.0205921	.0517000
Stddev	.0006774	.0003104	.0001378
%RSD	.1220764	1.507496	.2665154
#1	.5554459	.0208728	.0516970
#2	.5550917	.0202587	.0515638
#3	.5541363	.0206448	.0518393

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	144.4916	5803.000	69745.31	15561.12	6052.840
Stddev	2.5944	17.503	86.13	76.15	19.534
%RSD	1.795548	.3016187	.1234880	.4893630	.3227213
#1	147.3455	5804.089	69648.12	15607.65	6046.673
#2	142.2758	5819.933	69812.18	15473.24	6074.712
#3	143.8534	5784.978	69775.62	15602.46	6037.133

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-19 Acquired: 9/19/2014 01:10:30 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AL0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0708293	-.003846	.1535075	.0135224	.0019523	57.11768	.4980300
Stddev	.0026127	.002553	.0011275	.0010168	.0005749	.03431	.0009599
%RSD	3.688788	66.38048	.7345217	7.519661	29.44669	.0600704	.1927303
#1	.0690489	-.001259	.1523792	.0123562	.0014850	57.11312	.4985069
#2	.0696103	-.003916	.1535090	.0139876	.0025942	57.15405	.4986581
#3	.0738288	-.006363	.1546343	.0142235	.0017777	57.08588	.4969251

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0043883	.0016503	6.363080	.1680580	.0358468	.0956617	67.00511
Stddev	.0002316	.0000325	.020014	.0003352	.0003207	.0007941	.19684
%RSD	5.278311	1.970573	.3145380	.1994670	.8945606	.8300877	.2937663
#1	.0041525	.0016878	6.383510	.1678886	.0361283	.0957878	66.86200
#2	.0043970	.0016322	6.343509	.1678413	.0354977	.0948121	66.92374
#3	.0046155	.0016308	6.362219	.1684441	.0359143	.0963852	67.22959

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5654941	2.936129	.0302974	-.000347	.3277612	.1557317	.3566861
Stddev	.0012260	.024353	.0002595	.000264	.0343659	.0005670	.0014100
%RSD	.2167993	.8294360	.8564664	76.14015	10.48505	.3640960	.3952904
#1	.5643025	2.925315	.0305880	-.000098	.3616601	.1558662	.3551915
#2	.5667518	2.919056	.0302156	-.000624	.3286769	.1551095	.3568745
#3	.5654281	2.964017	.0300888	-.000319	.2929466	.1562194	.3579924

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.391310	2.052054	.0558466	.0057663	2.368538	4.704375	.0090127
Stddev	.070826	.006451	.0015883	.0001547	.008208	.018155	.0006557
%RSD	18.09971	.3143795	2.844119	2.683001	.3465341	.3859216	7.275563
#1	-.310149	2.046314	.0540736	.0057325	2.375884	4.690561	.0094844
#2	-.440606	2.050810	.0571396	.0056313	2.359679	4.697626	.0082639
#3	-.423175	2.059036	.0563265	.0059352	2.370052	4.724938	.0092898

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-19 Acquired: 9/19/2014 01:10:30 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AL0 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.3987842	.0395946	.0489619
Stddev	.0007528	.0009797	.0002057
%RSD	.1887804	2.474397	.4201258
#1	.3981492	.0406668	.0491447
#2	.3996158	.0387459	.0490017
#3	.3985876	.0393712	.0487391

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	148.4285	6065.088	72948.99	16380.02	5987.816
Stddev	1.2756	18.701	68.08	65.68	23.819
%RSD	.8594108	.3083457	.0933222	.4009494	.3977993
#1	148.1500	6064.144	72988.34	16379.45	5982.656
#2	147.3152	6084.243	72988.24	16445.98	6013.793
#3	149.8204	6046.876	72870.38	16314.63	5966.999

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-20 Acquired: 9/19/2014 01:14:31 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AL1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0020306	-.001648	.0130841	.0032596	-.000009	3.201822	.0305746
Stddev	.0005623	.000457	.0007264	.0016401	.000160	.005994	.0002283
%RSD	27.69356	27.75535	5.551428	50.31643	1769.884	.1872166	.7467240
#1	.0024497	-.001615	.0135985	.0033124	-.000068	3.204381	.0308234
#2	.0013915	-.001208	.0134007	.0015938	-.000131	3.194973	.0305258
#3	.0022505	-.002121	.0122532	.0048727	.000172	3.206112	.0303747

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002978	.0001570	1.098539	.0102418	.0032514	.0057811	3.611917
Stddev	.0000373	.0000425	.008681	.0002687	.0001090	.0005108	.012302
%RSD	12.51911	27.06470	.7901989	2.623068	3.351629	8.835265	.1428542
#1	.0003123	.0001577	1.094437	.0103604	.0031431	.0052231	8.603840
#2	.0003257	.0001142	1.108511	.0104307	.0032500	.0062256	8.626076
#3	.0002555	.0001992	1.092670	.0099343	.0033611	.0058945	8.605836

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1193063	.1506048	.0029908	-.000202	-.112276	.0185038	.0261720
Stddev	.0007769	.0093577	.0000995	.000087	.130189	.0013237	.0016893
%RSD	.6511764	6.213396	3.328328	43.36180	115.9548	7.153533	6.454597
#1	.1188325	.1427995	.0030995	-.000204	.031974	.0169764	.0269583
#2	.1188834	.1480365	.0029042	-.000113	-.221051	.0192176	.0273248
#3	.1202028	.1609785	.0029688	-.000288	-.147749	.0193174	.0242329

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.85987	.1610478	.0006274	.0006970	.1405862	1.841603	.0057535
Stddev	.02403	.0008730	.0011317	.0000605	.0032310	.003644	.0003979
%RSD	1.292216	.5420597	180.3648	8.680024	2.298219	.1978817	6.915462
#1	-1.86003	.1620558	.0017082	.0007266	.1427406	1.843207	.0056480
#2	-1.83575	.1605439	-.000549	.0007371	.1368712	1.837431	.0061934
#3	-1.88382	.1605437	.000723	.0006274	.1421468	1.844169	.0054189

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-20 Acquired: 9/19/2014 01:14:31 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AL1 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1847858	.0008820	.0066416
Stddev	.0028223	.0004177	.0000168
%RSD	1.527324	47.35901	.2526615
#1	.1816834	.0008022	.0066507
#2	.1872011	.0013338	.0066223
#3	.1854729	.0005099	.0066519

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	142.5203	5794.208	69735.14	15138.12	6279.589
Stddev	2.6166	8.623	291.47	47.07	15.944
%RSD	1.835980	.1488149	.4179731	.3109143	.2538995
#1	145.5045	5796.798	69409.11	15156.79	6287.868
#2	140.6188	5801.239	69825.82	15172.98	6289.690
#3	141.4375	5784.588	69970.50	15084.58	6261.208

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-21 Acquired: 9/19/2014 01:18:37 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AL2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0100219	-.001928	.1288576	.0083455	.0009896	19.58459	.1765899
Stddev	.0015477	.000283	.0008608	.0014473	.0011935	.03771	.0005313
%RSD	15.44345	14.68985	.6680456	17.34235	120.6035	.1925256	.3008623
#1	.0105300	-.001610	.1297719	.0069047	-.000087	19.61707	.1769698
#2	.0112518	-.002153	.1287383	.0083326	.002273	19.59346	.1768172
#3	.0082840	-.002020	.1280627	.0097992	.000782	19.54324	.1759828

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0023986	.0008410	3.782811	.0341815	.0147454	.0159385	43.29558
Stddev	.0005841	.0000122	.016348	.0002410	.0001021	.0018954	.07501
%RSD	24.35048	1.448584	.4321689	.7051162	.6922015	11.89200	.1732437
#1	.0019646	.0008446	3.764031	.0339659	.0148627	.0170480	43.21666
#2	.0030626	.0008510	3.793855	.0344417	.0146767	.0170175	43.30415
#3	.0021684	.0008275	3.790548	.0341369	.0146968	.0137499	43.36594

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2744683	.8703695	.0120865	-.000247	.1678774	.0735107	.0858107
Stddev	.0013351	.0093502	.0000274	.000152	.1136291	.0010920	.0014176
%RSD	.4864252	1.074275	.2269031	61.62076	67.68576	1.485477	1.651962
#1	.2733967	.8794013	.0121105	-.000085	.2603276	.0738493	.0869527
#2	.2759639	.8607306	.0120566	-.000387	.2022829	.0722895	.0862552
#3	.2740443	.8709766	.0120924	-.000269	.0410217	.0743933	.0842242

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.32262	.7914051	.0373340	.0024675	.9852292	4.623955	.0069819
Stddev	.02569	.0011654	.0000927	.0001071	.0005161	.012656	.0001566
%RSD	1.942087	.1472638	.2483925	4.341046	.0523794	.2737114	2.242215
#1	-1.34474	.7927509	.0374002	.0024037	.9851357	4.617339	.0071526
#2	-1.32868	.7907289	.0373737	.0025912	.9857856	4.638548	.0068451
#3	-1.29445	.7907357	.0372280	.0024077	.9847663	4.615978	.0069481

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: F3939-21 Acquired: 9/19/2014 01:18:37 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AL2 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2541469	.0135518	.0397569
Stddev	.0002852	.0003477	.0000463
%RSD	.1122165	2.565402	.1164885
#1	.2544716	.0131504	.0398036
#2	.2540321	.0137479	.0397109
#3	.2539369	.0137572	.0397562

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	149.2066	5952.401	71672.67	15782.38	6171.200
Stddev	.8092	6.907	301.60	66.94	8.278
%RSD	.5423548	.1160309	.4207991	.4241459	.1341331
#1	149.6254	5945.148	71359.59	15818.28	6168.875
#2	148.2738	5953.155	71697.11	15705.15	6164.333
#3	149.7206	5958.899	71961.30	15823.71	6180.392

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV59 Acquired: 9/19/2014 01:35:33 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV59 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.741401	4.962209	25.92535	4.548851	4.805548	410.8141
Stddev	.004123	.004094	.06862	.011623	.005347	2.1126
%RSD	.0869554	.0825077	.2646656	.2555048	.1112691	.5142417
#1	4.741799	4.964309	25.87514	4.541879	4.800724	410.5367
#2	4.737093	4.957490	25.89739	4.542406	4.804625	413.0517
#3	4.745310	4.964826	26.00353	4.562268	4.811297	408.8539

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 11.49429	.4995439	2.435989	F 450.7541	15.44669	2.538750
Stddev	.01907	.0021164	.002906	1.0870	.02815	.004176
%RSD	.1659123	.4236587	.1193052	.2411461	.1822294	.1644772
#1	11.48096	.4996518	2.434387	451.5217	15.41816	2.536992
#2	11.48578	.5016043	2.434236	449.5103	15.47444	2.535740
#3	11.51614	.4973757	2.439344	451.2302	15.44746	2.543517

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	16.05700	392.0966	16.17342	392.2010	2.404673	1.317496
Stddev	.03118	.1382	.01913	.3067	.004239	.003044
%RSD	.1941714	.0352408	.1182843	.0781939	.1762999	.2310306
#1	16.05880	392.1468	16.19025	391.8469	2.406982	1.314023
#2	16.02495	392.2026	16.15262	392.3796	2.399780	1.318766
#3	16.08723	391.9403	16.17739	392.3766	2.407257	1.319700

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	420.3701	2.667666	15.05144	156.6675	4.995538	5.086210
Stddev	.9625	.001054	.08564	.1928	.003022	.008538
%RSD	.2289561	.0395117	.5690032	.1230407	.0604848	.1678747
#1	420.6975	2.668074	15.12139	156.4703	4.994216	5.079179
#2	419.2866	2.666469	14.95592	156.8555	4.998995	5.095711
#3	421.1261	2.668455	15.07699	156.6767	4.993403	5.083740

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCV59 Acquired: 9/19/2014 01:35:33 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV59 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 4.468924	5.004699	5.439307	4.796238	5.032252	5.596077
Stddev	.001720	.006257	.020787	.004598	.010615	.015463
%RSD	.0384975	.1250288	.3821559	.0958737	.2109457	.2763190
#1	4.470882	4.998769	5.454900	4.801547	5.020066	5.589031
#2	4.467654	5.011239	5.415708	4.793663	5.039491	5.585391
#3	4.468236	5.004090	5.447314	4.793504	5.037199	5.613808

Elem	Sr4077
Units	ppm
Avg	5.651864
Stddev	.051152
%RSD	.9050462
#1	5.679870
#2	5.592825
#3	5.682897

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	122.4868	4723.721	58518.42	13921.09	4430.602
Stddev	.5340	3.708	91.83	26.90	5.608
%RSD	.4359470	.0784909	.1569323	.1931974	.1265707
#1	122.1273	4720.410	58613.78	13929.88	4429.242
#2	123.1004	4727.727	58510.92	13890.90	4436.764
#3	122.2328	4723.025	58430.57	13942.49	4425.799

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB59 Acquired: 9/19/2014 01:39:44 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB59 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001342	.0019294	.0006475	.0011041	.0007355	.0116680	-.000925
Stddev	.001064	.0003175	.0006327	.0007964	.0010299	.0060662	.000286
%RSD	79.28251	16.45365	97.72725	72.12691	140.0221	51.98997	30.92444
#1	-.001809	.0016307	.0008814	.0004977	.0019232	.0070462	-.001135
#2	-.002093	.0022628	.0011299	.0008087	.0001931	.0185372	-.000599
#3	-.000124	.0018947	-.000069	.0020060	.0000902	.0094207	-.001042

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000345	.0000493	.0104011	.0000749	.0000511	.0021959	.0129081
Stddev	.000145	.0000236	.0056227	.0001902	.0000465	.0015783	.0089942
%RSD	42.09823	47.77476	54.05904	253.9576	91.03346	71.87311	69.67868
#1	-.000178	.0000221	.0052340	-.000143	.0000335	.0009585	.0205254
#2	-.000414	.0000633	.0163892	.000209	.0001038	.0016559	.0152130
#3	-.000442	.0000625	.0095800	.000158	.0000160	.0039733	.0029857

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005673	-.000078	-.000082	.0002603	-.090515	.0002273	.0027545
Stddev	.0001334	.015853	.000065	.0000234	.034704	.0013355	.0039448
%RSD	23.51615	20305.83	79.33121	8.995331	38.34017	587.4574	143.2130
#1	.0004170	-.011448	-.000085	.0002838	-.105484	-.000999	-.000343
#2	.0006717	-.006817	-.000015	.0002601	-.050839	.001650	.001410
#3	.0006132	.018031	-.000145	.0002370	-.115222	.000031	.007196

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6964397	-.000533	.0034614	.0015311	-.009412	.0112945	.0001358
Stddev	.0567791	.000507	.0026307	.0002174	.001635	.0052418	.0003355
%RSD	8.152762	95.26431	76.00157	14.20132	17.37552	46.41023	247.0821
#1	.6941360	-.001084	.0029457	.0017637	-.007612	.0168854	.0002715
#2	.7543356	-.000085	.0011268	.0014967	-.009819	.0105072	-.000246
#3	.6408476	-.000429	.0063119	.0013329	-.010806	.0064909	.000382

Reviewed By:BIN
On:9/19/2014 12:41:16 PM
Inst Id :P5

Sample Name: CCB59 Acquired: 9/19/2014 01:39:44 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v550) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB59 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000632	.0035532	.0000344
Stddev	.000809	.0005780	.0000512
%RSD	127.9476	16.26719	148.4861
#1	.000161	.0040542	.0000905
#2	-.000602	.0029208	.0000226
#3	-.001455	.0036845	-.000010

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	142.6820	5755.521	68620.75	14837.52	6253.249
Stddev	1.6977	5.511	59.36	64.26	5.769
%RSD	1.189840	.0957527	.0865014	.4330754	.0922506
#1	141.2718	5750.476	68687.57	14803.39	6247.096
#2	142.2078	5761.403	68574.14	14797.53	6258.536
#3	144.5663	5754.685	68600.52	14911.64	6254.115

CHEMTECH

Instrument ID: P5

284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Daily Analysis Runlog For Sequence/QCBatch ID # LB72805

Review By BIN Review On 9/19/2014 12:41:16 PM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

Sr#	SampleId	ClientID	QcType	Date	Comment	Status
1	S0	S0	CAL1	09/18/14 17:13		OK
2	S1	S1	CAL2	09/18/14 17:17		OK
3	S2	S2	CAL3	09/18/14 17:21		OK
4	S3	S3	CAL4	09/18/14 17:25		OK
5	S4	S4	CAL5	09/18/14 17:29		OK
6	S5	S5	CAL6	09/18/14 17:33		OK
7	S6	S6	CAL7	09/18/14 17:37		OK
8	ICV53	ICV53	ICV	09/18/14 17:51		OK
9	ICB53	ICB53	ICB	09/18/14 17:55		OK
10	ICSA53	ICSA53	ICSA	09/18/14 17:59		OK
11	ICSAB53	ICSAB53	ICSAB	09/18/14 18:03		OK
12	CCV54	CCV54	CCV	09/18/14 18:07		OK
13	CCB54	CCB54	CCB	09/18/14 18:11		OK
14	PB79026BL	PBS01	MB	09/18/14 18:15	Contamination for Cu,K(Below RL)	OK
15	PB79026BS	LCS01	LCS	09/18/14 18:19		OK
16	F3961-01	MB0AB6	SAM	09/18/14 18:23		OK
17	F3961-02	MB0AB7	SAM	09/18/14 18:27		OK
18	F3961-03	MB0AC0	SAM	09/18/14 18:31		OK
19	F3961-04	MB0AC1	SAM	09/18/14 18:36		OK
20	F3961-05	MB0AC2	SAM	09/18/14 18:40		OK
21	F3961-06	MB0AC3	SAM	09/18/14 18:44		OK

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ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

22	F3961-07	MB0AC4	SAM	09/18/14 18:48		OK
23	F3961-08	MB0AC5	SAM	09/18/14 18:51		OK
24	F3961-09	MB0AF4	SAM	09/18/14 18:55		OK
25	F3961-10	MB0AF5	SAM	09/18/14 18:59		OK
26	F3961-11	MB0AF6	SAM	09/18/14 19:04		OK
27	F3961-12	MB0AF7	SAM	09/18/14 19:08		OK
28	PB78990BS	LCS01	LCS	09/18/14 19:12		OK
29	F3961-13	MB0AF8	SAM	09/18/14 19:19		OK
30	F3961-14	MB0AF9	SAM	09/18/14 19:23		OK
31	F3961-15	MB0AF9D	DUP	09/18/14 19:27		OK
32	F3961-16	MB0AF9S	MS	09/18/14 19:31	MS fail for Sb(Below RL)	OK
33	F3961-14L	MB0AF9L	SD	09/18/14 19:35		OK
34	CCV55	CCV55	CCV	09/18/14 19:39		OK
35	CCB55	CCB55	CCB	09/18/14 19:43		OK
36	F3961-17	MB0AG0	SAM	09/18/14 19:47		OK
37	F3961-18	MB0AG1	SAM	09/18/14 19:51		OK
38	F3961-19	MB0AG2	SAM	09/18/14 19:55		OK
39	F3961-20	MB0AG3	SAM	09/18/14 19:59		OK
40	F3961-21	MB0AQ8	SAM	09/18/14 20:03		OK
41	F3930-14	MG8Q62	SAM	09/18/14 20:07		OK
42	F3930-15	MG8Q63	SAM	09/18/14 20:11		OK
43	F3914-01	MB0AA4	SAM	09/18/14 20:15	Report for Zn	Confirms
44	F3914-02	MB0AA4D	DUP	09/18/14 20:19	Report for Zn	Confirms

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ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

45	F3914-03	MB0AA4S	MS	09/18/14 20:23	Report for Zn	Confirms
46	F3914-01L	MB0AA4L	SD	09/18/14 20:27	Report for Zn	Confirms
47	F3942-16	MC0AH2	SAM	09/18/14 20:31		OK
48	F3942-17	MC0AH3	SAM	09/18/14 20:35		OK
49	F3942-18	MC0AH4	SAM	09/18/14 20:39		OK
50	F3942-13A	MC0AH1A	PS	09/18/14 20:43	PS for Ba,Cr,Cu,Pb,Mn,V	OK
51	F3914-01A	MB0AA4A	PS	09/18/14 20:48	Not required	Not Ok
52	PB78990BL	PBF01	MB	09/18/14 20:52		OK
53	F3936-01	MH0609	SAM	09/18/14 20:56		OK
54	F3936-02	MH0609D	DUP	09/18/14 21:00		OK
55	F3936-03	MH0609S	MS	09/18/14 21:04		OK
56	CCV56	CCV56	CCV	09/18/14 21:08		OK
57	CCB56	CCB56	CCB	09/18/14 21:12		OK
58	F3936-01L	MH0609L	SD	09/18/14 21:16		OK
59	F3936-04	MH0613	SAM	09/18/14 21:20		OK
60	F3936-05	MH0617	SAM	09/18/14 21:24		OK
61	F3936-06	MH0597	SAM	09/18/14 21:29		OK
62	F3936-07	MH0601	SAM	09/18/14 21:33		OK
63	F3936-08	MH0605	SAM	09/18/14 21:37		OK
64	PB78992BL	PBS01	MB	09/18/14 21:41	Contamination for K(Below RL)	OK
65	PB78992BS	LCS01	LCS	09/18/14 21:45		OK
66	F3935-01	MH0608	SAM	09/18/14 21:49		OK
67	F3935-02	MH0608D	DUP	09/18/14 21:53		OK

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STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

68	F3935-03	MH0608S	MS	09/18/14 21:57	MS fail for Cr(831.48ppb)	OK
69	F3935-01L	MH0608L	SD	09/18/14 22:01		OK
70	F3935-04	MH0612	SAM	09/18/14 22:05		OK
71	F3935-05	MH0616	SAM	09/18/14 22:09	Cu high	Dilution
72	F3935-06	MH0596	SAM	09/18/14 22:13	Cu high	Dilution
73	F3935-07	MH0600	SAM	09/18/14 22:17		OK
74	F3935-08	MH0604	SAM	09/18/14 22:21	Cu high	Dilution
75	F3941-01	MC0AF1	SAM	09/18/14 22:25		OK
76	F3941-02	MC0AF2	SAM	09/18/14 22:29		OK
77	F3941-03	MC0AF3	SAM	09/18/14 22:33		OK
78	CCV57	CCV57	CCV	09/18/14 22:37		OK
79	CCB57	CCB57	CCB	09/18/14 22:41		OK
80	F3941-04	MC0AF4	SAM	09/18/14 22:45		OK
81	F3941-05	MC0AF5	SAM	09/18/14 22:49		OK
82	F3941-06	MC0AF6	SAM	09/18/14 22:53		OK
83	F3941-07	MC0AF7	SAM	09/18/14 22:57		OK
84	F3941-08	MC0AF7D	DUP	09/18/14 23:01		OK
85	F3941-09	MC0AF7S	MS	09/18/14 23:05	MS fail for Sb(Below RL)	OK
86	F3941-07L	MC0AF7L	SD	09/18/14 23:09		OK
87	F3941-10	MC0AF8	SAM	09/18/14 23:13		OK
88	F3941-11	MC0AF9	SAM	09/18/14 23:17		OK
89	F3941-12	MC0AG0	SAM	09/18/14 23:21		OK
90	F3941-13	MC0AG1	SAM	09/18/14 23:25		OK

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ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

91	F3941-14	MC0AG2	SAM	09/18/14 23:29		OK
92	F3941-15	MC0AG3	SAM	09/18/14 23:33		OK
93	PB78987BL	PBS01	MB	09/18/14 23:37	Contamination for K,Se(Below RL)	OK
94	PB78987BS	LCS01	LCS	09/18/14 23:41		OK
95	F3939-01	MC0AJ3	SAM	09/18/14 23:45		OK
96	F3939-02	MC0AJ4	SAM	09/18/14 23:49		OK
97	F3939-03	MC0AJ5	SAM	09/18/14 23:53		OK
98	F3939-04	MC0AJ7	SAM	09/18/14 23:57		OK
99	F3939-05	MC0AJ8	SAM	09/19/14 00:01		OK
100	CCV58	CCV58	CCV	09/19/14 00:05		OK
101	CCB58	CCB58	CCB	09/19/14 00:09		OK
102	F3939-06	MC0AJ9	SAM	09/19/14 00:13	CCV fail for Ba,Ca	Not Ok
103	F3939-07	MC0AK0	SAM	09/19/14 00:17	CCV fail for Ba,Ca	Not Ok
104	F3939-08	MC0AK1	SAM	09/19/14 00:21	CCV fail for Ba,Ca	Not Ok
105	F3939-09	MC0AK1D	DUP	09/19/14 00:26	CCV fail for Ba,Ca	Not Ok
106	F3939-10	MC0AK1S	MS	09/19/14 00:30	CCV fail for Ba,Ca	Not Ok
107	F3939-08L	MC0AK1L	SD	09/19/14 00:34	CCV fail for Ba,Ca	Not Ok
108	F3939-11	MC0AK2	SAM	09/19/14 00:38	CCV fail for Ba,Ca	Not Ok
109	F3939-12	MC0AK3	SAM	09/19/14 00:42	CCV fail for Ba,Ca	Not Ok
110	F3939-13	MC0AK4	SAM	09/19/14 00:46	CCV fail for Ba,Ca	Not Ok
111	F3939-14	MC0AK5	SAM	09/19/14 00:50	CCV fail for Ba,Ca	Not Ok
112	F3939-15	MC0AK6	SAM	09/19/14 00:54	CCV fail for Ba,Ca	Not Ok
113	F3939-16	MC0AK7	SAM	09/19/14 00:58	CCV fail for Ba,Ca	Not Ok

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Daily Analysis Runlog For Sequence/QCBatch ID # LB72805

Review By	BIN	Review On	9/19/2014 12:41:16 PM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

114	F3939-17	MC0AK8	SAM	09/19/14 01:02	CCV fail for Ba,Ca	Not Ok
115	F3939-18	MC0AK9	SAM	09/19/14 01:06	CCV fail for Ba,Ca	Not Ok
116	F3939-19	MC0AL0	SAM	09/19/14 01:10	CCV fail for Ba,Ca	Not Ok
117	F3939-20	MC0AL1	SAM	09/19/14 01:14	CCV fail for Ba,Ca	Not Ok
118	F3939-21	MC0AL2	SAM	09/19/14 01:18	CCV fail for Ba,Ca	Not Ok
119	CCV59	CCV59	CCV	09/19/14 01:35	Fail for Ba,Ca	OK
120	CCB59	CCB59	CCB	09/19/14 01:39		OK

Prep Standard - Chemical Standard Summary

Order ID : F3939

Test : Metals CLP Full

Prepbatch ID : PB78987

Sequence ID/Qc Batch ID: LB72805

Standard ID :
MP23410,MP23642,MP23639,MP23643,MP23655,MP23656,MP23658,MP23654,MP23659,MP23660,MP23661,MP23662,MP23663,MP23664,MP23665,MP23666,MP23667,MP23668,MP23410,MP23639,MP23642,MP23643,MP23654,MP23655,MP23656,MP23658,MP23659,MP23660,MP23661,MP23662,MP23663,MP23664,MP23665,MP23666,MP23667,MP23668,

Chemical ID :
M3245,M3207,M3218,M2942,V1456,M3215,M3047,W1152,M3218,M3227,M3057,M3156,M2988,M2961,M3081,M3187,M3242,M3240,M2782,M3151,M3096,M3099,M3100,M3102,M3115,M3224,M2979,M3112,M3124,M3122,M3110,M3185,M3225,M2975,M2991,M3113,M3118,M3098,M3117,M3106,M3121,M3101,M3097,M3108,M2987,M3111,M3104,M3123,M2962,M3145,M3148,M2782,M2942,M2961,M2962,M2975,M2979,M2987,M2988,M2991,M3047,M3057,M3081,M3096,M3097,M3098,M3099,M3100,M3101,M3102,M3104,M3106,M3108,M3110,M3111,M3112,M3113,M3115,M3117,M3118,M3121,M3122,M3123,M3124,M3145,M3148,M3151,M3156,M3185,M3187,M3207,M3215,M3218,M3224,M3225,M3227,M3240,M3242,M3245,V1456,W1152,

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
169	1:1HNO3	MP23410	09/02/2014	03/02/2015	BHUPENDRA

FROM 1250.000ml of M3215 + 1250.000ml of V1456 = Final Quantity: 2500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23639	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
904	ICP AES ICSA SOLN	MP23642	09/17/2014	09/30/2014	BIN

FROM 25.000ml of M3047 + 225.000ml of MP23639 = Final Quantity: 250.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
905	ICP AES ICSAB SOLN	MP23643	09/17/2014	09/30/2014	BIN

FROM 25.000ml of M3047 + 25.000ml of M3057 + 200.000ml of MP23639 = Final Quantity: 250.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23654	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
903	ICP AES RINSE SOLN	MP23655	09/17/2014	09/30/2014	BIN

FROM 200.000ml of M3227 + 9800.000ml of W1152 = Final Quantity: 10000.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
919	ICP AES INTERNAL STD	MP23656	09/17/2014	09/30/2014	BIN

FROM 1.000ml of M2988 + 10.000ml of M3156 + 1969.000ml of W1152 + 20.000ml of M3227 = Final Quantity: 2000.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
2054	ICV-ICPAES	MP23658	09/17/2014	09/30/2014	BIN

FROM 0.500ml of M2961 + 0.500ml of M3187 + 10.000ml of M3081 + 89.000ml of MP23654 = Final Quantity: 100.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
921	ICPAES SPIKE SOL#6	MP23659	09/17/2014	09/30/2014	BIN

FROM 10.000ml of M3240 + 10.000ml of M3242 + 80.000ml of MP23654 = Final Quantity: 100.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
994	ICPAES ISM01.2 S1 (CONC.)	MP23660	09/17/2014	09/30/2014	BIN

FROM 0.100ml of M3100 + 0.100ml of M3112 + 0.100ml of M3115 + 0.140ml of M2987 + 0.200ml of M2979 + 0.200ml of M2991 + 0.200ml of M3096 + 0.200ml of M3102 + 0.200ml of M3106 + 0.200ml of M3110 + 0.200ml of M3122 + 0.300ml of M2975 + 0.300ml of M3187 + 0.400ml of M2782 + 0.500ml of M3108 + 0.500ml of M3124 + 0.700ml of M3098 + 0.800ml of M3113 + 1.000ml of M3104 + 1.000ml of M3185 + 1.200ml of M3123 + 1.200ml of M3151 + 10.000ml of M3118 + 10.000ml of M3121 + 10.000ml of M3224 + 10.000ml of M3225 + 2.000ml of M3097 + 2.000ml of M3101 + 2.000ml of M3111 + 2.000ml of M3117 + 4.000ml of M3099 + 37.360ml of MP23654 = Final Quantity: 100.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1003	ICPAES ISM01.2 S1	MP23661	09/17/2014	09/18/2014	BIN

FROM 1.000ml of MP23660 + 199.000ml of MP23654 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1004	ICPAES ISM01.2 (S5)	MP23662	09/17/2014	09/30/2014	BIN

FROM 0.375ml of M3100 + 18.750ml of M2975 + 18.750ml of M3118 + 18.750ml of M3121 + 18.750ml of M3123 + 20.625ml of M3124 + 21.750ml of M2782 + 21.750ml of M2979 + 21.750ml of M3122 + 30.000ml of M3110 + 33.750ml of M3224 + 33.750ml of M3225 + 7.500ml of M2962 + 7.500ml of M3097 + 7.500ml of M3101 + 7.500ml of M3145 + 7.500ml of M3148 + 7.500ml of M3151 + 7.500ml of M3185 + 7.500ml of M3187 + 431.250ml of MP23654 = Final Quantity: 750.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1119	ICPAES ISM01.2(CCV)	MP23663	09/17/2014	09/30/2014	BIN

FROM 12.250ml of M2782 + 12.500ml of M3121 + 12.500ml of M3122 + 7.500ml of M3224 + 7.500ml of M3225 + 197.750ml of MP23654 + 250.000ml of MP23662 = Final Quantity: 500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1005	ICPAES ISM01.2(S4)	MP23664	09/17/2014	09/30/2014	BIN

FROM 100.000ml of MP23654 + 100.000ml of MP23662 = Final Quantity: 200.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1007	ICPAES ISM01.2(S3)	MP23665	09/17/2014	09/30/2014	BIN

FROM 150.000ml of MP23654 + 50.000ml of MP23662 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1008	ICPAES ISM01.2(S2)	MP23666	09/17/2014	09/30/2014	BIN

FROM 175.000ml of MP23654 + 25.000ml of MP23662 = Final Quantity: 200.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
2480	ICP AES STD 6 ISM01.3	MP23667	09/17/2014	09/30/2014	BIN

FROM 16.000ml of M2782 + 16.000ml of M3121 + 16.000ml of M3122 + 16.000ml of M3224 + 16.000ml of M3225 + 120.000ml of MP23654 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23668	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Aluminum (Al) 10,000PPM	082812	08/28/2015	12/28/2012 / Janet	12/28/2012 / Janet	M2782

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Labpure	0919120 / Boiling Stones	4368-7F031	08/22/2018	08/22/2013 / bhupendra	08/22/2013 / bhupendra	M2942

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CHEM-QC-4 / CHEM-QC-4, Second Source, 1000 ug/ml, B, Mo, Si, Sn, Ti	F2-MEB452072	10/01/2014	09/03/2013 / aesha	08/26/2013 / aesha	M2961

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	G2-MEB491013	10/01/2014	09/03/2013 / aesha	08/26/2013 / aesha	M2962

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58025 / Manganese, Mn, 500 ml, 1000 PPM	070313	07/03/2016	09/25/2013 / jaswal	09/25/2013 / jaswal	M2975

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58024 / Chromium, Cr, 500 ml, 1000 PPM	072913	07/29/2016	09/25/2013 / jaswal	09/25/2013 / jaswal	M2979

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSNCL1-1 / TIN/HCL 125mL 1000ug/mL	G2-SN02062	11/01/2014	10/21/2013 / BIN	10/18/2013 / BIN	M2987

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	F2-Y02004	11/01/2014	10/21/2013 / BIN	10/18/2013 / BIN	M2988

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57042 / Molybdeum, Mo, 100 ml, 1000 PPM	080913	08/09/2016	10/30/2013 / BIN	09/25/2013 / BIN	M2991

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3047

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3057

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV1-0307	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3081

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGAS1-1 / ARSENIC 125mL 1000ug/mL	G2-AS02102	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3096

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGS1-1 / SULFUR 125mL 1000ug/mL	G2-S02007	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3097

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSE(4)1-1 / SELENIUM 125mL 1000ug/mL	E2-SE02033	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3098

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGBA1-1 / BARIUM 125mL 1000ug/mL	F2-BA02076	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3099

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGBE1-1 / BERYLLIUM 125mL 1000ug/mL	F2-BE02021	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3100

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSR1-1 / Strontium, 125 ml, 1000 PPM	F2-SR02036	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3101

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGB1-1 / BORON 125mL 1000ug/mL	F2-B02109	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3102

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGV1-1 / VANADIUM 125mL 1000ug/mL	G2-V02081	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3104

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGAG1-1 / SILVER 125mL 1000ug/mL	G2-AG03035	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3106

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTL1-1 / THALLIUM 125mL 1000ug/mL	F2-TL02003	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3108

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGPB1-1 / LEAD 125mL 1000ug/mL	G2-PB03044	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3110

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	F2-TI02094	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3111

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCO1-1 / COBALT 125mL 1000ug/mL	F2-CO02052	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3112

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGNI1-1 / NICKEL 125mL 1000ug/mL	G2-NI02086	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3113

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCD1-1 / CADMIUM, 125mL 1000ug/mL	G2-CD02043	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3115

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSI1-1 / SILICON 125mL 1000ug/mL	G2-SI03023	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3117

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGK10-5 / Potassium, 500 ml, 10000 PPM	F2-K03033	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3118

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGNA10-5 / Sodium, 500 ml, 10000 PPM	G2-NA03110	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3121

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGFE10-5 / Iron, 500 ml, 10000 PPM	G2-FE04029	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3122

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGZN1-5 / Zinc, 500 ml, 1000 PPM	F2-ZN02088	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3123

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCU1-5 / Copper, 500 ml, 1000 PPM	F2-CU02147	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3124

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	G2-MEB479124	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3145

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	G2-MEB467069	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3148

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSBF1-1 / Antimony, Sb, 125 ml	G2-SB03021	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3151

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGIN10-1 / INDIUM 125mL 10,000ug/mL	F2-IN01095	04/01/2015	03/07/2014 / jaswal	03/07/2014 / jaswal	M3156

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57003 / Lithium, Li, 100 ml, 1000 PPM	122713	12/27/2016	05/19/2014 / BIN	05/09/2014 / jaswal	M3185

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGP1-1 / Phosphorus, 125 ml	G2-P02048	06/01/2015	09/02/2014 / BIN	05/09/2014 / jaswal	M3187

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-2186-03 / Hydrogen Peroxide (cs/4x4L)	0000064775	05/27/2015	07/15/2014 / bhupendra	07/03/2014 / bhupendra	M3207

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000077192	04/15/2019	08/22/2014 / bhupendra	08/12/2014 / bhupendra	M3215

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	0000075649	03/25/2019	09/02/2014 / BHUPENDRA	08/20/2014 / bhupendra	M3218

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCA10-5 / Calcium, 500 ml, 10000 PPM	G2-CA04095	09/01/2015	09/02/2014 / BIN	08/12/2014 / jaswal	M3224

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGMG10-5 / Magnesium, 500 ml, 10000 PPM	G2-MG03120	09/01/2015	09/02/2014 / BIN	08/12/2014 / jaswal	M3225

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000077192	04/15/2019	09/05/2014 / bhupendra	09/03/2014 / bhupendra	M3227

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-1 / SOIL/WATER SPIKE SOLN 1, 125mL	F2-MEB427123	10/01/2015	09/05/2014 / BIN	09/05/2014 / BIN	M3240

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-5 / CLP Spike Standard 5	G2-MEB474100	10/01/2015	09/05/2014 / BIN	09/05/2014 / BIN	M3242

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000084115	07/01/2019	09/23/2014 / bhupendra	09/12/2014 / BHUPENDRA	M3245

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Res-Kem General water	DIW / DI Water	DAILY	12/31/2019	03/01/2010 / apatel	03/02/2010 / apatel	V1456

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Res-Kem General water	DIW / DI Water	Lab certified	02/23/2015	02/23/2010 /	02/23/2010 / divya	W1152

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Scopes: http://Absolute[illegible]andards.com

Standard ID : M2782

CERTIFIED WEIGHT REPORT:

D: 12/28/12
R: 12/28/12

Part Number: 58113
Lot Number: 082812
Description: Aluminum (Al)
Expiration Date: 082815
Storage: 20 °C
Nominal Concentration (µg/mL): 10000
Weight shown below was diluted to (mL): 1999.68

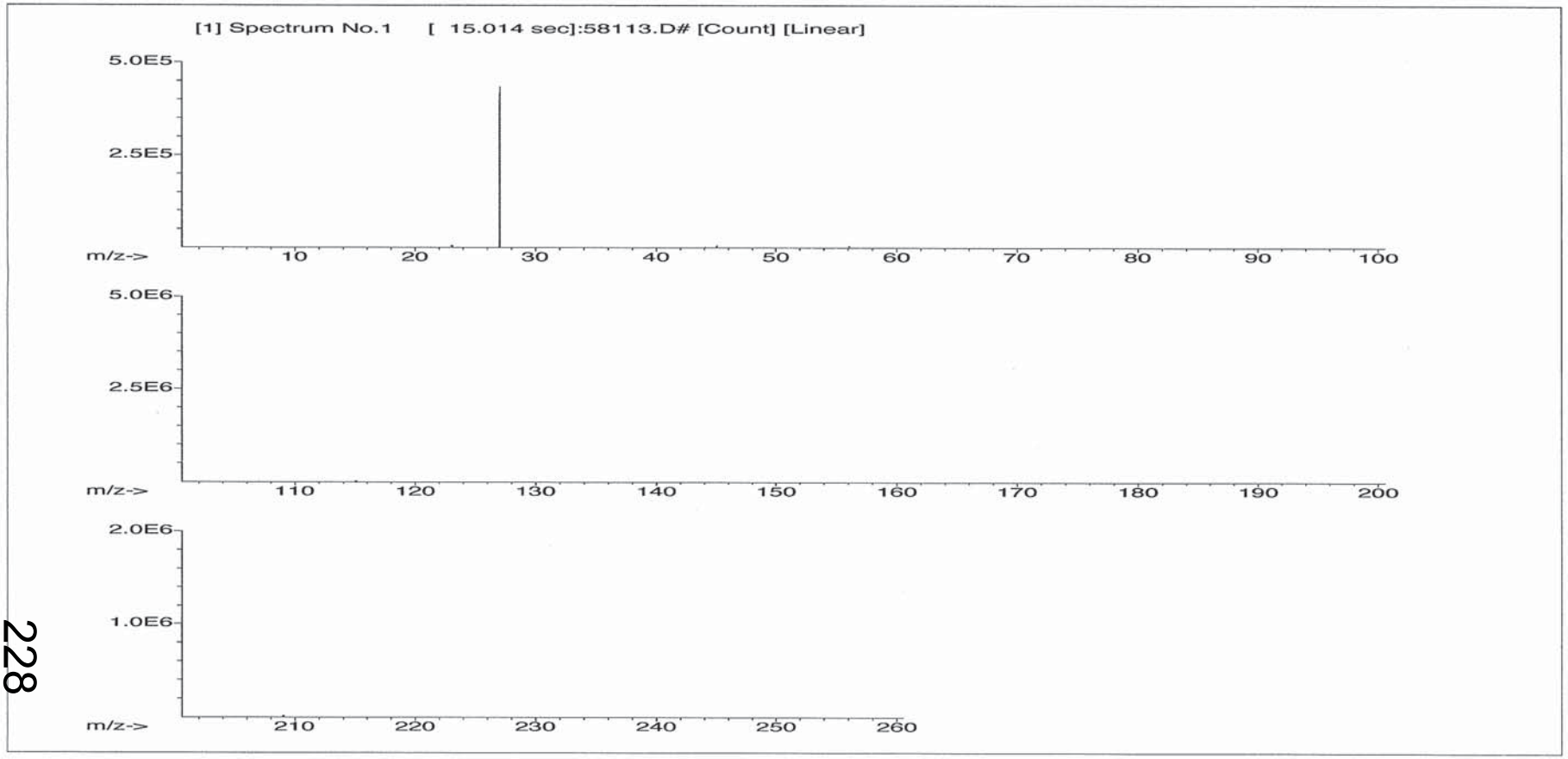
	Lot #		
Solvent:	C142199	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.100 Flask Uncertainty

M2782

Formulated By:	Lawrence Barry	082812
Reviewed By:	Pedro L. Rentas	082812

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity	Uncertainty Purity	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty (+/-)	CAS#	MSDS Information (Solvent Safety Info. On Attached pg.) OSHA PEL (TWA)	LD50	NIST SRM
1. Aluminum Nitrate Nonahydrate (Al)	IN022	D312ALA1	10000.0	99.999	0.10	7.10	281.6484	281.6803	**10001.1**	0.00200	07784-27-2	5 mg/m3	orl-rat 264 mg/kg	3101a



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INORGANIC VENTURES™
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CERTIFICATE OF ANALYSIS

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fax: 540.585.3012
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M296 1

R: 08/26/13

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Custom Second Source Solution**

Catalog No.: CHEM-QC-4

Lot Number: **F2-MEB452072**

Matrix: 3% HNO3(v/v), 2.7% HF(v/v)

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

1,000 µg/mL ea:
B, Mo, Si, Sn, Ti

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Boron, B	1,000 ± 7 µg/mL	Molybdenum, Mo	1,000 ± 6 µg/mL	Silicon, Si	1,000 ± 5 µg/mL
Tin, Sn	1,000 ± 5 µg/mL	Titanium, Ti	1,000 ± 7 µg/mL		

Certified Density: 1.033 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\sum x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2\ [\ \Sigma(s_i)^2\ ]^{½}$ 2 = the coverage factor.

$[\ \Sigma(s_i)^2\ ]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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Standard ID : M2962

CERTIFICATE OF ANALYSIS

M2962

R: 08/26/13

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Custom Solution**

Catalog No.: CHEM-CLP-4

Lot Number: **G2-MEB491013**

Matrix: 3% HNO3(v/v), 2.7% HF(v/v)

1,000 µg/mL ea:
B, Mo, Si, Sn, Ti

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Boron, B	1,000 ± 7 µg/mL	Molybdenum, Mo	1,000 ± 5 µg/mL	Silicon, Si	1,000 ± 7 µg/mL
Tin, Sn	1,001 ± 7 µg/mL	Titanium, Ti	1,000 ± 7 µg/mL		

Certified Density: 1.035 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Absolute Standards, Inc.
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Certified Reference Material CRM

RD: 09/25/13
M2975

ISO 9001 QS Registered
ISO 17025-34-35- Accredited
Scopes: http://Absolute ndards.com

Standard ID : M2975

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**58025**		C257285	Nitric Acid	
Lot Number:	**070313**				
Description:	**Manganese (Mn)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	070316				
	Storage:	20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty		

Gabriel Helland

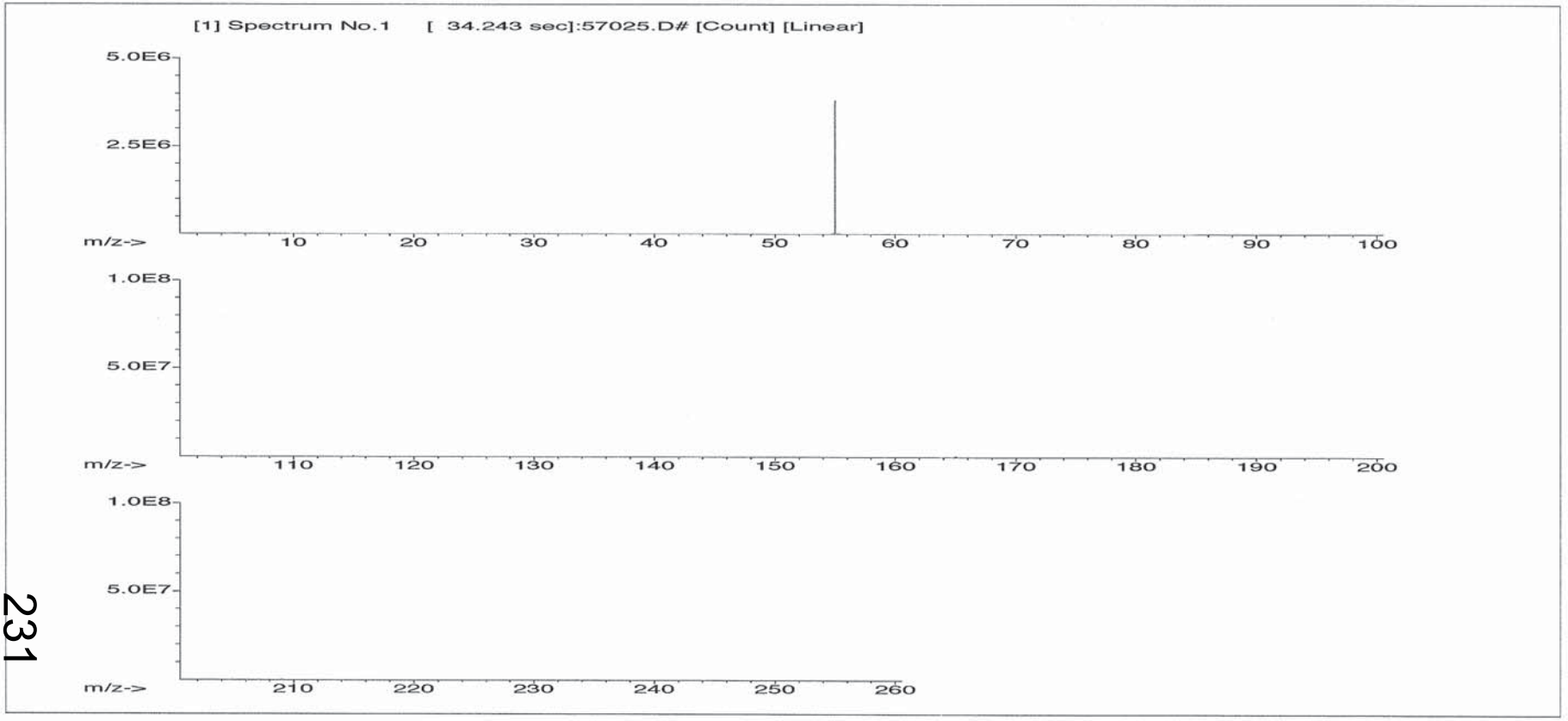
Formulated By:	Gabriel Helland	070313

Pedro Rentas

Reviewed By:	Pedro L. Rentas	070313

MSDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	ty Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Manganese (II) nitrate Hydrate (Mn)	58125	122712	0.1000	200.0	0.013	10000.9	**1000.2**	0.00201	15710-66-4	5 mg/m3	N/A	3132



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Absolute Standards, Inc.
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Certified Reference Material CRM

RD: 09/25/13
M2979

ISO 9001 QS Registered
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Scopes: http://Absolute[illegible]andards.com

Standard ID : M2979

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**58024**		C257285	Nitric Acid	
Lot Number:	**072913**				
Description:	**Chromium (Cr)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	072916				
	Storage:	20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty		

Gabriel Helland

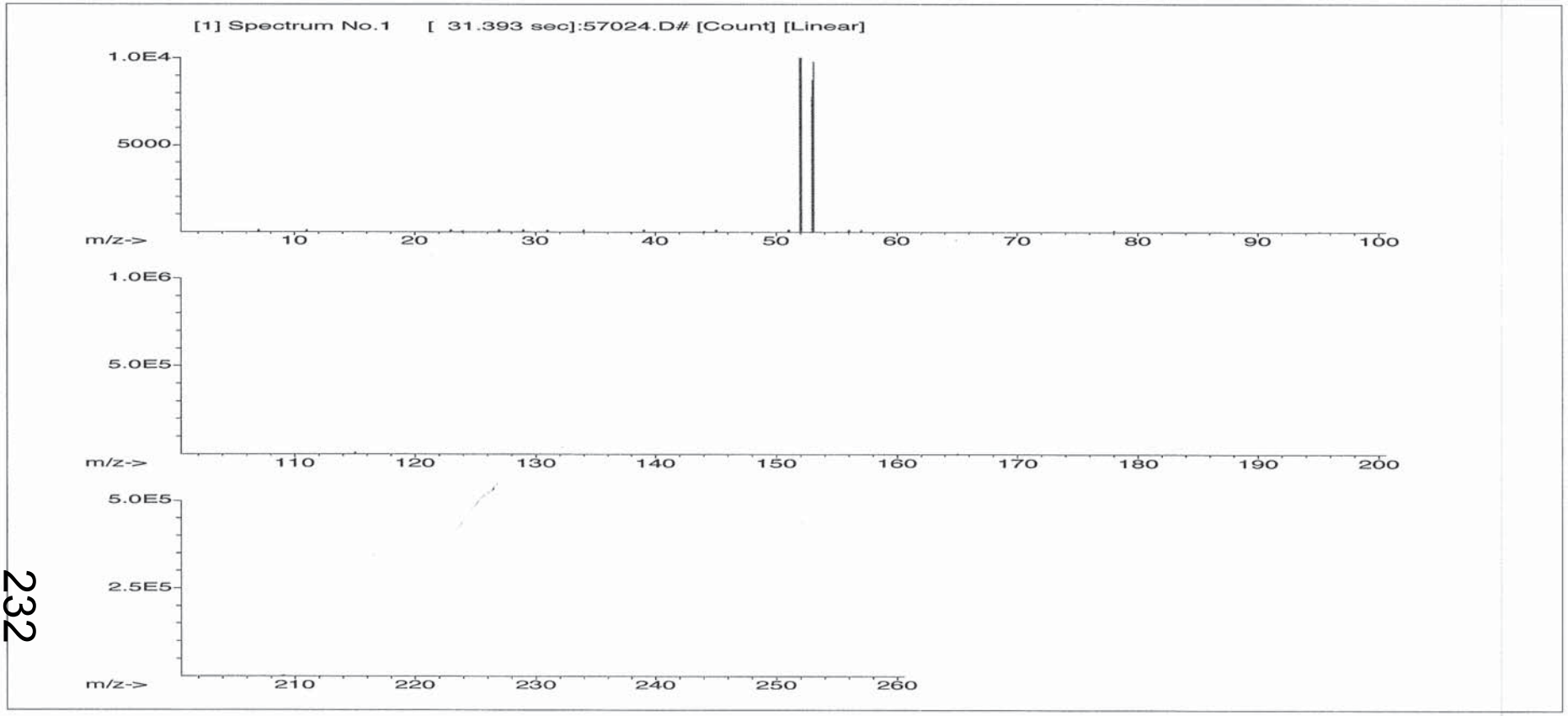
Formulated By:	Gabriel Helland	072913

Pedro Rentas

Reviewed By:	Pedro L. Rentas	072913

MSDS Information
(Solvent Safety Info. On Attached pg.)

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	**Final Conc. (µg/mL)**	Expanded Uncertainty (+/-)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Chromium (III) nitrate nonahydrate (Cr)	58124	022213	0.100	200.0	0.013	10000.9	**1000.2**	0.00201	07789-02-8	0.5 mg(Cr)/m3	orl-rat 3250 mg/kg	3112a



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M2987

Standard ID : M2987

RV: 10/18/2013

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CERTIFICATE OF ANALYSIS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Tin HCl in 20% (v/v) HCl**

Catalog Number:	CGSNCL1-1, CGSNCL1-2, and CGSNCL1-5
Lot Number:	**G2-SN02062**
Starting Material:	Sn shot
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1744
Matrix:	20% (v/v) HCl

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 3 µg/mL -weighted mean-
Certified Density:	1.042 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

RD : 10/18/2013

Standard ID : M2988

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CERTIFICATE OF ANALYSIS

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2.0 DESCRIPTION OF CRM **10000 µg/mL Yttrium in 2% (v/v) HNO3**

Catalog Number:	CGY10-1, CGY10-2, and CGY10-5
Lot Number:	**F2-Y02004**
Starting Material:	Y2O3
Starting Material Purity (%):	99.9999
Starting Material Lot No:	0623052
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,006 ± 53 µg/mL - weighted mean
Certified Density:	1.034 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M2991

RD : 09/25/13

Certified Reference Material CRM

ISO 9001 QS R
ISO 17025 24-35-43 A
Scopes: http:/ soluteStan

Standard ID : M2991

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:
Part Number:	**57042**	Y47057	Ammonium hydroxide
Lot Number:	**080913**		
Description:	**Molybdenum (Mo)**		
		0.5%	10.0 (mL) Ammonium hydroxide
Expiration Date:	080916		
	Storage: 20 °C		
Nominal Concentration (µg/mL):	**1000**		
		5E-05	Balance Uncertainty
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty

Gabriel Helland

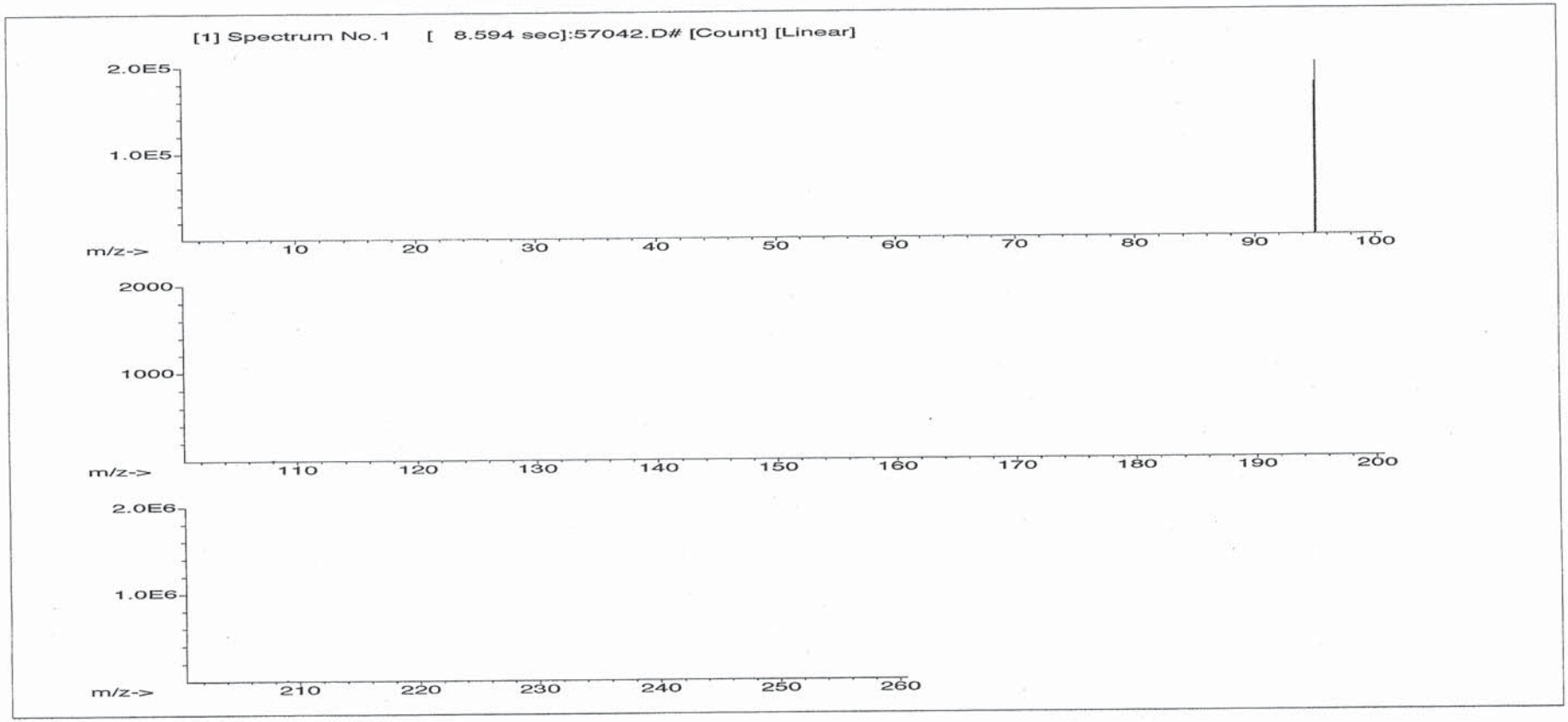
Formulated By:	Gabriel Helland	080913

Pedro Rentas

Reviewed By:	Pedro L. Rentas	080913

MSDS Information
(Solvent Safety Info. On Attached pg.)

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium molybdate (Mo)	58142	072613	0.1000	200.0	0.013	10001.3	**1000.3**	0.00201	12054-85-2	5 mg(Mo)/m3	orl-rat 333 mg/kg	3134



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interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:
ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSA solution by ICP-AES.
ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSAB solution by ICP-AES.

(D) *"CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)*

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB) events, CLP pre-award events, and external referee laboratories.

ICSA M3046 ↓ to M3055

ICSB M3056 ↓ to M3065

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	254900	203920	305880	246800	197440	296160
Sb	60	(0)*	-60	60	618	494	742
As	10	(0)	-10	10	104	83	125
Ba	200	(6)	-194	206	(537)	337	737
Be	5	(0)	-5	5	495	396	594
Cd	5	(1)	-4	6	972	778	1166
Ca	5000	244500	195600	293400	234900	187920	281880
Cr	10	52	42	62	542	434	650
Co	50	(0)	-50	50	476	381	571
Cu	25	(2)	-23	27	511	409	613
Fe	100	100700	80560	120840	99320	79456	119184
Pb	10	(0)	-10	10	(49)	39	59
Mg	5000	255400	204320	306480	248000	198400	297600
Mn	15	(7)	-8	22	507	406	608
Ni	40	(2)	-38	42	954	763	1145
Se	35	(0)	-35	35	(46)	11	81
Ag	10	(0)	-10	10	201	161	241
Tl	25	(0)	-25	25	(108)	83	133
V	50	(0)	-50	50	491	393	589
Zn	60	(0)	-60	60	952	762	1142

* The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 20 percent of the listed certified value.

R: 10/09/13

Standard ID : M3081

(D) *CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS*

M3081 To M3090

ICV1-0307		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2521	504
Sb	994	199
As	999	200
Ba	497	99
Be	495	99
Cd	496	99
Ca	10026	2005
Cr	490	98
Co	499	100
Cu	492	98
Fe	5082	1016
Pb	1002	200
Mg	6074	1215
Mn	499	100
Ni	503	101
K	10021	2004
Se	1029	206
Ag	501	100
Na	10097	2019
Tl	1028	206
V	501	100
Zn	1025	205

ICV5-0508		ICV6-0400	
Element	Concentration (µg/L) (after 100-fold dilution)	Analyte	Concentration (µg/L) (after 100-fold dilution)
Hg	4.0	CN^-	99

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R: 01517JM

M3096-

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2.0 DESCRIPTION OF CRM **1000 µg/mL Arsenic in 2% (v/v) HNO3**

Catalog Number:	CGAS1-1, CGAS1-2, and CGAS1-5
Lot Number:	**G2-AS02102**
Starting Material:	As Lump
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1814
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 5 µg/mL -weighted mean-

Certified Density: 1.012 (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2);$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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R1. 01/17/14

M3097

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2.0 DESCRIPTION OF CRM **1000 µg/mL Sulfur in H2O**

Catalog Number:	CGS1-1, CGS1-2, and CGS1-5
Lot Number:	**G2-S02007**
Starting Material:	H2SO4
Starting Material Purity (%):	100.0000
Starting Material Lot No:	H44F03
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,005 ± 5 µg/mL -weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

Standard ID : M3098

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Selenium(+4) in 2% (v/v) HNO3**

Catalog Number:	CGSE(4)1-1, CGSE(4)1-2, and CGSE(4)1-5
Lot Number:	**E2-SE02033**
Starting Material:	Se shot
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1616
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 6 µg/mL - weighted mean

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1	**Assay Method #1**	**1,002 ± 4 µg/mL** ICP Assay NIST SRM 3149 Lot Number: 100901
	Assay Method #2	**1,000 ± 3 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

Standard ID : M3099

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M3099-

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2.0 DESCRIPTION OF CRM **1000 µg/mL Barium in 0.1%(v/v) HNO3**

Catalog Number:	CGBA1-1, CGBA1-2, and CGBA1-5
Lot Number:	**F2-BA02076**
Starting Material:	Ba(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	BAE42012A1
Matrix:	0.1%(v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	996 ± 5 µg/mL -No weighted mean-
Certified Density:	1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements

Uncertainty (±) = $2\ [\ \Sigma(s_i)^2\ ]^{½}$

2 = the coverage factor.
$[\ \Sigma(s_i)^2\ ]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M3100

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2.0 DESCRIPTION OF CRM **1000 µg/mL Beryllium in 3% (v/v) HNO3**

Catalog Number:	CGBE1-1, CGBE1-2, and CGBE1-5
Lot Number:	**F2-BE02021**
Starting Material:	Be4O(OOCCH3)6
Starting Material Purity (%):	99.9999
Starting Material Lot No:	1772
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,003 ± 4 µg/mL - weighted mean

Certified Density: 1.022 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Strontium in 0.1% (v/v) HNO3**

Catalog Number:	CGSR1-1, CGSR1-2, and CGSR1-5
Lot Number:	**F2-SR02036**
Starting Material:	SrCO3
Starting Material Purity (%):	99.9988
Starting Material Lot No:	1610
Matrix:	0.1% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,000 ± 5 µg/mL - weighted mean

Certified Density: 1.001 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Standard ID : M3102

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Boron in H2O**

Catalog Number:	CGB1-1, CGB1-2, and CGB1-5
Lot Number:	**F2-B02109**
Starting Material:	H3BO3
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1631
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 999 ± 5 µg/mL -weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Vanadium in 2% (v/v) HNO3**

Catalog Number:	CGV1-1, CGV1-2, and CGV1-5
Lot Number:	**G2-V02081**
Starting Material:	V2O5
Starting Material Purity (%):	99.9991
Starting Material Lot No:	1782
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2);$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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2.0 DESCRIPTION OF CRM **1000 µg/mL Silver in 5% (v/v) HNO3**

Catalog Number:	CGAG1-1, CGAG1-2, and CGAG1-5
Lot Number:	**G2-AG03035**
Starting Material:	Ag shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1641
Matrix:	5% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,002 ± 6 µg/mL -weighted mean-
Certified Density:	1.026 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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M3108

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Thallium in 0.7% (v/v) HNO3**

Catalog Number:	CGTL1-1, CGTL1-2, and CGTL1-5
Lot Number:	**F2-TL02003**
Starting Material:	TlNO3
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1576
Matrix:	0.7% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 5 µg/mL - weighted mean

Certified Density: 1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Lead in 0.5%(v/v) HNO3**

Catalog Number:	CGPB1-1, CGPB1-2, and CGPB1-5
Lot Number:	**G2-PB03044**
Starting Material:	Pb(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1717
Matrix:	0.5%(v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 3 µg/mL -weighted mean-
Certified Density:	1.002 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Titanium in 2% (v/v) HNO3 / tr. HF**

Catalog Number:	CGTI1-1, CGTI1-2, and CGTI1-5
Lot Number:	**F2-TI02094**
Starting Material:	Ti powder
Starting Material Purity (%):	99.9948
Starting Material Lot No:	1769
Matrix:	2% (v/v) HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 6 µg/mL - weighted mean
Certified Density:	1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Cobalt in 3% (v/v) HNO3**

Catalog Number:	CGCO1-1, CGCO1-2, and CGCO1-5
Lot Number:	**F2-CO02052**
Starting Material:	Co powder
Starting Material Purity (%):	99.9982
Starting Material Lot No:	1749
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,003 ± 5 µg/mL - weighted mean
Certified Density:	1.018 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

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2.0 **DESCRIPTION OF CRM** **1000 µg/mL Nickel in 2% (v/v) HNO3**

Catalog Number:	CGNI1-1, CGNI1-2, and CGNI1-5
Lot Number:	**G2-NI02086**
Starting Material:	Ni pieces
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1559
Matrix:	2% (v/v) HNO3

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,002 ± 4 µg/mL -weighted mean-

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

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· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1	**Assay Method #1**	**1,001 ± 3 µg/mL** ICP Assay NIST SRM 3136 Lot Number: 000612
	Assay Method #2	**1,002 ± 3 µg/mL** EDTA NIST SRM 928 Lot Number: 928

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Cadmium in 3% (v/v) HNO3**

Catalog Number:	CGCD1-1, CGCD1-2, and CGCD1-5
Lot Number:	**G2-CD02043**
Starting Material:	Cd shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1714
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,004 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements

Uncertainty (±) = $2\ [\ \Sigma(s_i)^2\ ]^{½}$

2 = the coverage factor.
$[\ \Sigma(s_i)^2\ ]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Silicon in tr. HNO3 / tr. HF**

Catalog Number:	CGSI1-1, CGSI1-2, and CGSI1-5
Lot Number:	**G2-SI03023**
Starting Material:	SiO2
Starting Material Purity (%):	99.9993
Starting Material Lot No:	1551
Matrix:	tr. HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 999 ± 5 µg/mL -weighted mean-

Certified Density: 1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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Standard ID : M3118

CERTIFICATE OF ANALYSIS

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M3118

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Potassium in 2% (v/v) HNO3**

Catalog Number:	CGK10-1, CGK10-2, and CGK10-5
Lot Number:	**F2-K03033**
Starting Material:	KNO3
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1727
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 10,022 ± 60 µg/mL - weighted mean

Certified Density: 1.025 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M3121

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Sodium in 2% (v/v) HNO3**

Catalog Number:	CGNA10-1, CGNA10-2, and CGNA10-5
Lot Number:	**G2-NA03110**
Starting Material:	Na2CO3
Starting Material Purity (%):	99.9992
Starting Material Lot No:	1628
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,008 ± 17 µg/mL -weighted mean-
Certified Density:	1.033 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

Standard ID : M3122

CERTIFICATE OF ANALYSIS

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M3122

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Iron in 5 % (v/v) HNO3**

Catalog Number:	CGFE10-1, CGFE10-2, and CGFE10-5
Lot Number:	**G2-FE04029**
Starting Material:	Fe pieces
Starting Material Purity (%):	99.9977
Starting Material Lot No:	1762
Matrix:	5 % (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	9,977 ± 24 µg/mL -weighted mean-
Certified Density:	1.035 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Zinc in 2% (v/v) HNO3**

Catalog Number:	CGZN1-1, CGZN1-2, and CGZN1-5
Lot Number:	**F2-ZN02088**
Starting Material:	Zn shot
Starting Material Purity (%):	99.9999
Starting Material Lot No:	1689
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	998 ± 5 µg/mL -weighted mean-
Certified Density:	1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Copper in 3% (v/v) HNO3**

Catalog Number:	CGCU1-1, CGCU1-2, and CGCU1-5
Lot Number:	**F2-CU02147**
Starting Material:	Cu shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1718
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 **DESCRIPTION OF CRM** **Stock Solution**

Catalog No.: CLPP-CAL-1

Lot Number: **G2-MEB479124**

Matrix: 5% HNO3(v/v)

5,000 µg/mL ea:
Ca, K, Mg, Na,

2,000 µg/mL ea:
Al, Ba,

1,000 µg/mL ea:
Fe,

500 µg/mL ea:
Co, Mn, Ni, V, Zn,

250 µg/mL ea:
Ag, Cu,

200 µg/mL ea:
Cr3,

50 µg/mL ea:
Be

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	2,002 ± 13 µg/mL	Barium, Ba	2,002 ± 13 µg/mL	Beryllium, Be	50.03 ± 0.28 µg/mL
Calcium, Ca	5,004 ± 35 µg/mL	Chromium+3, Cr3	200.2 ± 1.3 µg/mL	Cobalt, Co	500.5 ± 3.3 µg/mL
Copper, Cu	250.2 ± 1.6 µg/mL	Iron, Fe	1,001 ± 6 µg/mL	Magnesium, Mg	5,004 ± 33 µg/mL
Manganese, Mn	500.4 ± 3.2 µg/mL	Nickel, Ni	500.5 ± 3.3 µg/mL	Potassium, K	5,004 ± 22 µg/mL
Silver, Ag	250.2 ± 1.6 µg/mL	Sodium, Na	5,004 ± 33 µg/mL	Vanadium, V	500.4 ± 3.4 µg/mL
Zinc, Zn	500.4 ± 3.3 µg/mL				

Certified Density: 1.117 g/mL (measured at 20 ± 1° C)

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM

	Stock Solution
Catalog No.:	CLPP-CAL-3
Lot Number:	**G2-MEB467069**
Matrix:	7% HNO3(v/v)

1,000 µg/mL ea:
As, Pb, Se, Tl,

500 µg/mL ea:
Cd

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Arsenic, As	1,000 ± 7 µg/mL	Cadmium, Cd	500.0 ± 3.2 µg/mL	Lead, Pb	1,000 ± 7 µg/mL
Selenium, Se	1,000 ± 7 µg/mL	Thallium, Tl	1,000 ± 7 µg/mL		

Certified Density: 1.043 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

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$(\bar{x})$ = mean
x_i = individual results
n = number of measurements

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$$

2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

Standard ID : M3151

R: 2/22/14

CERTIFICATE OF ANALYSIS

M3151

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

M3151

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Antimony in HF in 2% (v/v) HNO3 / tr. HF**

Catalog Number:	CGSBF1-1, CGSBF1-2, and CGSBF1-5
Lot Number:	**G2-SB03021**
Starting Material:	Sb shot
Starting Material Purity (%):	99.9997
Starting Material Lot No:	1647
Matrix:	2% (v/v) HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,006 ± 5 µg/mL -No weighted mean-
Certified Density:	1.010 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. **w_a and w_b** = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

INORGANIC VENTURES™
300 Technology Drive
urg, VA 24073 · USA
inorganicventures.com

R: 03/07/14

CERTIFICATE OF ANALYSIS

Standard ID : M3156

M3156 To M3160

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Indium in 5% (v/v) HNO3**

Catalog Number:	CGIN10-1, CGIN10-2, and CGIN10-5
Lot Number:	**F2-IN01095**
Starting Material:	In shot
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1775, 1777
Matrix:	5% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,050 ± 51 µg/mL -weighted mean-
Certified Density:	1.033 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

R : 05/08/14

M3185

ISO 9001 QS Registered
ISO 17025-34-35-43 Accredited
Scopes: http://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**57003**		C363101	Nitric Acid	
Lot Number:	**122713**				
Description:	**Lithium (Li)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	122716				
		Storage: 20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05 Balance Uncertainty			
Volume shown below was diluted to (mL):	1999.98	0.090 Flask Uncertainty			

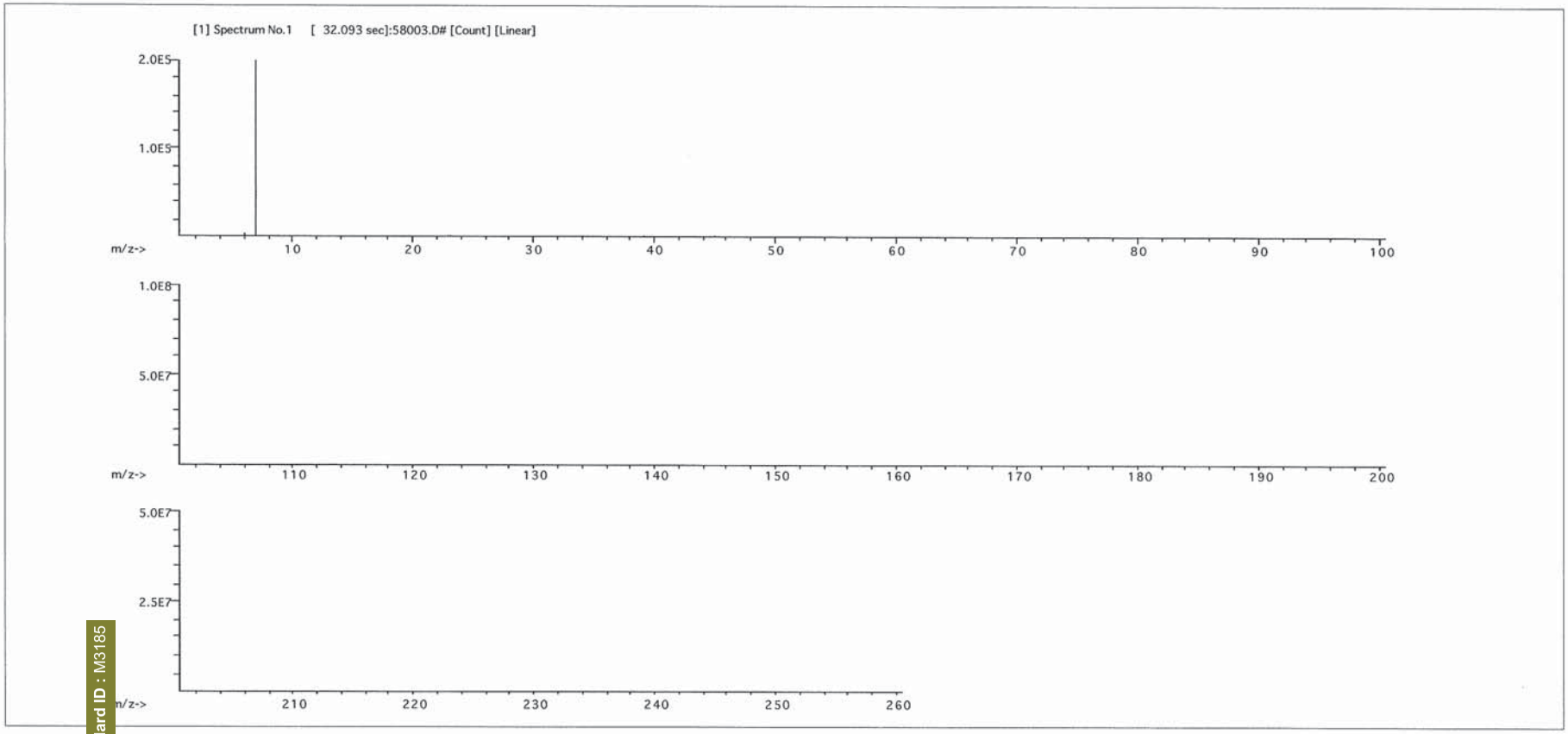
Gabriel Helland

Formulated By:	Gabriel Helland	122713

Pedro Rentas

Reviewed By:	Pedro L. Rentas	122713

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	**Final Conc. (µg/mL)**	Expanded Uncertainty (+/-)	MSDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lithium nitrate (Li)	58103	111412	0.1000	200.0	0.013	10001.5	**1000.2**	0.00201	07790-69-4	5 mg/m3	N/A	N/A



Standard ID : M3185

INORGANIC VENTURES™

Standard ID : M3187

R: 05/09/19

CERTIFICATE OF ANALYSIS

M3187

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Phosphorus in H2O**

Catalog Number:	CGP1-1, CGP1-2, and CGP1-5
Lot Number:	**G2-P02048**
Starting Material:	H3PO4
Starting Material Purity (%):	99.9997
Starting Material Lot No:	1704
Matrix:	H2O

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration:	1,001 ± 4 µg/mL -weighted mean-
Certified Density:	1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	**Characterization of CRM by one method**
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$ CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$ $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results: X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$ $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

Standard ID : M3207

Hydrogen Peroxide, 30%
BAKER ANALYZED® A.C.S. Reagent
(Stabilized)

M3207.
Received Date 7/3/14
Exp. Date 5/27/15 7/3/14.

Material No.: 2186-03
Batch No.: 0000064775
Manufactured Date: 2013/11/26
Expiration Date: 2015/05/27

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay (H_2O_2)	30.0 - 32.0 %	31.7
Color (APHA)	<= 10	5
Residue after Evaporation	<= 0.0020 %	0.0002
Titrable Acid (meq/g)	<= 0.0006	< 0.0001
Chloride (Cl)	<= 3 ppm	< 1
Nitrate (NO_3)	<= 2 ppm	< 2
Phosphate (PO_4)	<= 2 ppm	< 1
ACS - Sulfate (SO_4)	<= 5 ppm	< 3
Ammonium (NH_4)	<= 5 ppm	< 3
Trace Impurities - Copper (Cu)	<= 50.0 ppb	< 1.0
Trace Impurities - Iron (Fe)	<= 100.0 ppb	4.1
Heavy Metals (as Pb)	<= 1000 ppb	< 250
Trace Impurities - Lead (Pb)	<= 100.0 ppb	< 10.0
Trace Impurities - Nickel (Ni)	<= 50.0 ppb	< 5.0

For Laboratory, Research or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs

Country of Origin: US
Packaging Site: Paris Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Nitric Acid, 69.0-70.0%
Standard ID : M3215 ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

M 3215
Received D. 08/12/14
Exp. D. 04/15/19.

Material No.: 9598-34
Batch No.: 0000077192
Manufactured Date: 2014/04/16
Retest Date: 2019/04/15

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.7
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.419
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	< 0.7
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.3
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	2.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	< 1.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000077192

Test	Specification	Result
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	< 1.0
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.3
Trace Impurities - Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities - Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities - Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities - Silicon (Si)	<= 20.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 200.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Standard ID : M3218

Hydrochloric Acid, 36.5-38.0%
[redacted]ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

M 3218
Received d. 8/20/14
Exp. D. 25/03/19
By

Material No.: 9530-33
Batch No.: 0000075649
Manufactured Date: 2014/03/26
Retest Date: 2019/03/25

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	< 1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.190
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	< 1
ACS - Free Chlorine (as Cl_2)	<= 0.5 ppm	< 0.5
Phosphate (PO_4)	<= 0.05 ppm	< 0.03
Sulfate (SO_4)	<= 0.5 ppm	< 0.3
Sulfite (SO_3)	<= 0.8 ppm	0.2
Ammonium (NH_4)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	9.3
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9530-33
Batch No.: 0000075649

Test	Specification	Result
Trace Impurities - Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 15.0 ppb	< 1.0
Trace Impurities - Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 10.0 ppb	0.2
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.1
Trace Impurities - Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities - Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.2
Trace Impurities - Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities - Selenium (Se), For Information Only	ppb	1.0
Trace Impurities - Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Titanium (Ti)	<= 1.0 ppb	0.5
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

INORGANIC VENTURES

Standard ID : M3224

CERTIFICATE OF ANALYSIS

M3224

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number (010105).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.03

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGCA10
Lot Number:	G2-CA04095
Matrix:	2% (v/v) HNO3
Value/Analyte(s):	10,000 µg/mL Calcium
Starting Material:	CaO
Starting Material Lot#:	Multiple Lots
Starting Material Purity:	99.9990%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10,027 ± 23 µg/mL weighted mean

Certified Density: 1.040 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	**10031 ± 41 µg/mL** ICP Assay NIST SRM 3109a Lot Number: 050825
Assay Method #2	**10025 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

INORGANIC VENTURES

Standard ID : M3225

CERTIFICATE OF ANALYSIS

M3225

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number (010105).

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGMG10
Lot Number:	G2-MG03120
Matrix:	2% (v/v) HNO3
Value/Analyte(s):	10,000 µg/mL Magnesium
Starting Material:	Mg chips
Starting Material Lot#:	1484
Starting Material Purity:	99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9,973 ± 20 µg/mL -weighted mean-

Certified Density: 1.053 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	**9,955 ± 29 µg/mL** ICP Assay NIST SRM 3131a Lot Number: 050302
Assay Method #2	**9,986 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Standard ID : M3227 0-70.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

SEIDLER CHEMICAL COMPANY
537 Raymond Boulevard
Newark, NJ 07105

Material No.: 9598-34
Batch No.: 0000077192
Manufactured Date: 2014/04/16
Retest Date: 2019/04/15

M3227.
Received D. 9/3/14
Expired d. 4/15/19.
B 9/3/14.

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.7
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.419
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	< 0.7
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.3
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	2.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	< 1.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000077192

Test	Specification	Result
Trace Impurities – Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities – Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities – Magnesium (Mg)	<= 7.0 ppb	< 1.0
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities – Mercury (Hg)	<= 0.5 ppb	0.3
Trace Impurities – Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities – Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities – Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities – Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities – Silicon (Si)	<= 20.0 ppb	< 10.0
Trace Impurities – Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities – Sodium (Na)	<= 200.0 ppb	< 5.0
Trace Impurities – Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities – Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities – Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities – Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities – Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities – Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities – Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

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INORGANIC VENTURES

CERTIFICATE OF ANALYSIS

Standard ID : M3240

M3240 R:09/05/14

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM**

	Stock Solution
Catalog No.:	CLPP-SPK-1
Lot Number:	**F2-MEB427123**
Matrix:	7% HNO3(v/v)

2,000 µg/mL ea:
Al, Ba,

1,000 µg/mL ea:
Fe,

500 µg/mL ea:
Co, Mn, Ni, V, Zn,

250 µg/mL ea:
Cu,

200 µg/mL ea:
Cr3,

50 µg/mL ea:
Ag, Be

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	2,000 ± 14 µg/mL	Barium, Ba	2,000 ± 13 µg/mL	Beryllium, Be	50.01 ± 0.34 µg/mL
Chromium+3, Cr3	200.0 ± 1.4 µg/mL	Cobalt, Co	500.0 ± 3.2 µg/mL	Copper, Cu	250.1 ± 1.6 µg/mL
Iron, Fe	1,000 ± 7 µg/mL	Manganese, Mn	500.0 ± 3.2 µg/mL	Nickel, Ni	499.9 ± 3.3 µg/mL
Silver, Ag	50.02 ± 0.32 µg/mL	Vanadium, V	500.0 ± 3.5 µg/mL	Zinc, Zn	500.0 ± 3.2 µg/mL

Certified Density: 1.070 g/mL (measured at 20 ± 1° C)

INORGANIC VENTURES™

Standard ID : M3242

Christiansburg, VA 24073 · USA
inorganicventures.com

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Stock Solution**

Catalog No.: CLPP-SPK-5

Lot Number: **G2-MEB474100**

Matrix: 5% HNO3(v/v)

100 µg/mL ea:
Sb,

50 µg/mL ea:
Cd, Se, Tl,

40 µg/mL ea:
As,

20 µg/mL ea:
Pb

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Antimony, Sb	100.0 ± 0.8 µg/mL	Arsenic, As	40.01 ± 0.27 µg/mL	Cadmium, Cd	50.03 ± 0.32 µg/mL
Lead, Pb	20.00 ± 0.13 µg/mL	Selenium, Se	50.02 ± 0.33 µg/mL	Thallium, Tl	49.96 ± 0.33 µg/mL

Certified Density: 1.025 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

Standard ID : M3245 -70.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

M3245
Received 9/12/14
Exp. 07/01/19.

Part of AVANTOR™ PERFORMANCE MATERIALS

Material No.: 9598-34
Batch No.: 0000084115
Manufactured Date: 2014/07/02
Retest Date: 2019/07/01

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.5
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	< 1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.420
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	0.5
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	0.8
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.0
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	3.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 0.2
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	0.5

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000084115

Test	Specification	Result
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	0.2
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	< 0.1
Trace Impurities - Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities - Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities - Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities - Silicon (Si)	<= 20.0 ppb	2.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 200.0 ppb	< 0.5
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	0.2

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

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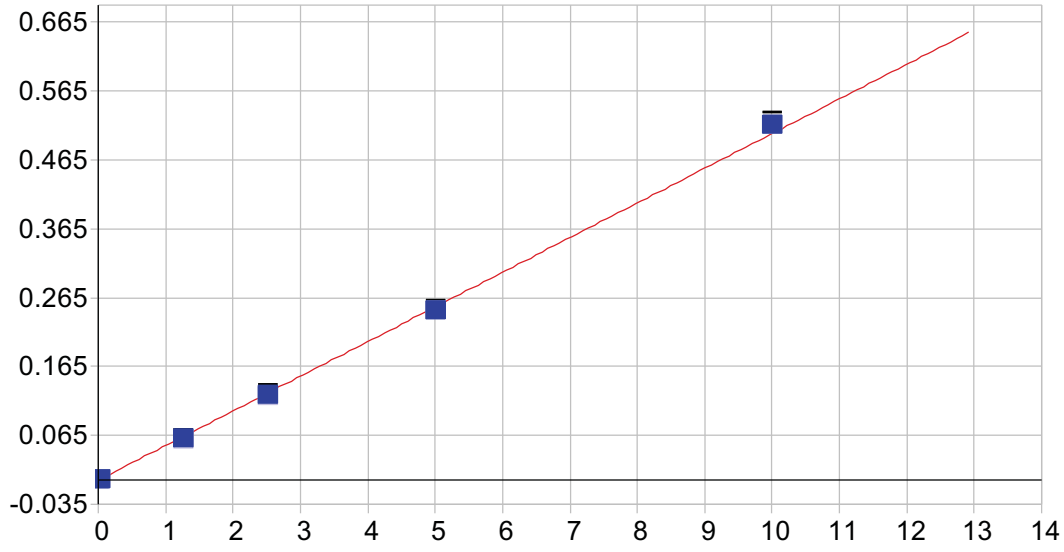
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



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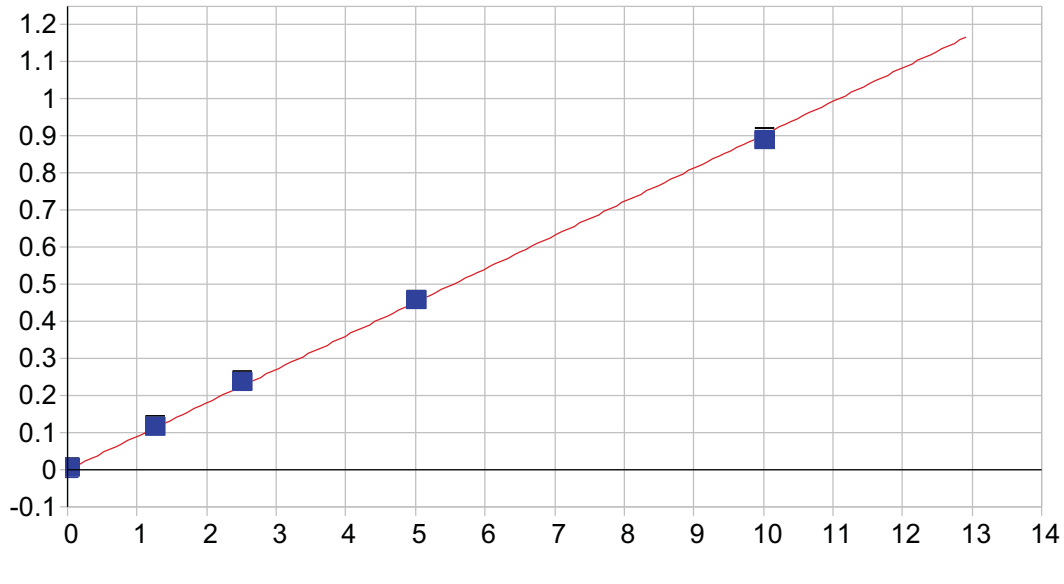
A0 (Offset):	-0.000102	Re-Slope:	1.000000
A1 (Gain):	0.050347	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999594	Status:	OK.
Std Error of Est:	0.000024		
Predicted MDL:	0.001737		
Predicted MQL:	0.005789		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00010	.000	1
S1	.01000	.00817	-.002	-18.3	.00031	.000	1
S2	1.2500	1.1731	-.077	-6.15	.05886	.000	1
S3	2.5000	2.4307	-.069	-2.77	.12207	.002	1
S4	5.0000	4.8995	-.100	-2.01	.24617	.001	1
S5	10.000	10.249	.249	2.49	.51506	.005	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



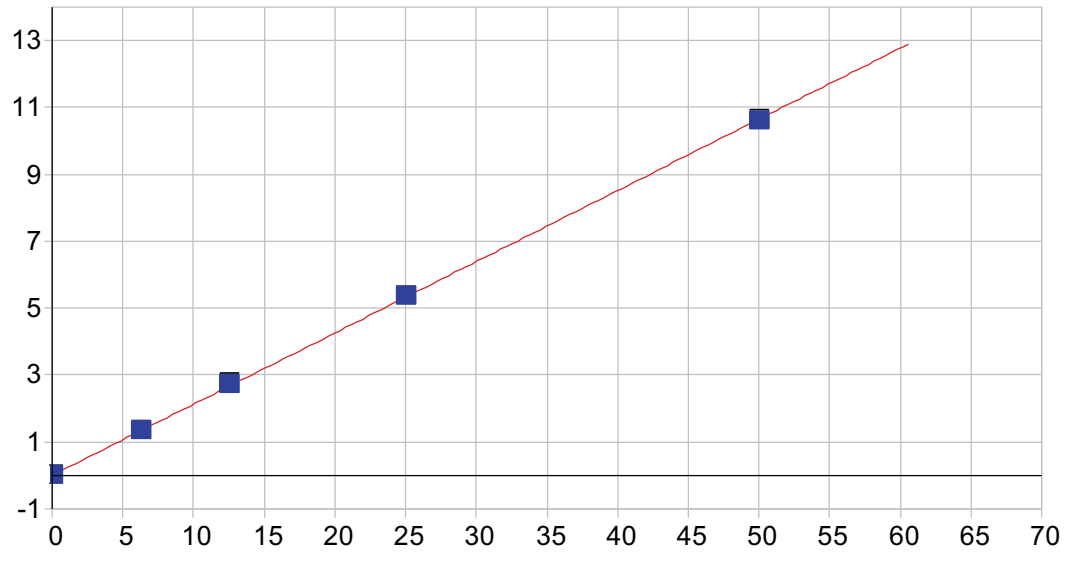
Tl 190.856 {477}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000118	Re-Slope:	1.000000
A1 (Gain):	0.090348	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999786	Status:	OK.
Std Error of Est:	0.000050		
Predicted MDL:	0.001150		
Predicted MQL:	0.003833		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00012	.000	1
S1	.02500	.02562	.001	2.48	.00219	.000	1
S2	1.2500	1.2815	.031	2.52	.11559	.000	1
S3	2.5000	2.6017	.102	4.07	.23481	.004	1
S4	5.0000	5.0347	.035	.695	.45450	.002	1
S5	10.000	9.8314	-.169	-1.69	.88760	.006	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



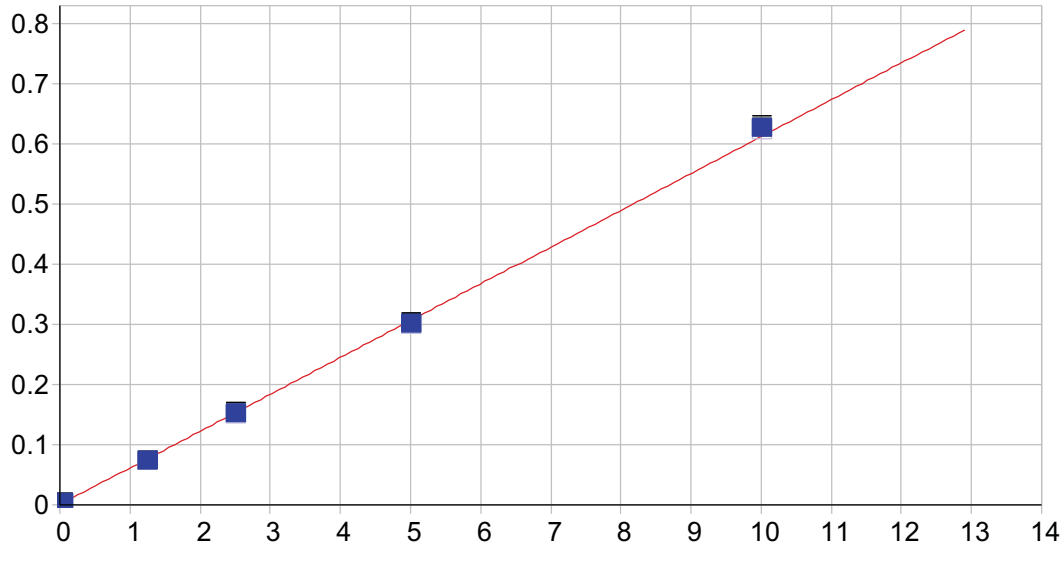
Pb 220.353 {453}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000112	Re-Slope:	1.000000
A1 (Gain):	0.212950	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999962	Status:	OK.
Std Error of Est:	0.000070		
Predicted MDL:	0.001083		
Predicted MQL:	0.003609		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00011	.000	1
S1	.01000	.00854	-.001	-14.6	.00169	.000	1
S2	6.2500	6.1936	-.056	-.902	1.3184	.003	1
S3	12.500	12.733	.233	1.86	2.7104	.055	1
S4	25.000	25.111	.111	.443	5.3454	.017	1
S5	50.000	49.714	-.286	-.571	10.583	.058	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



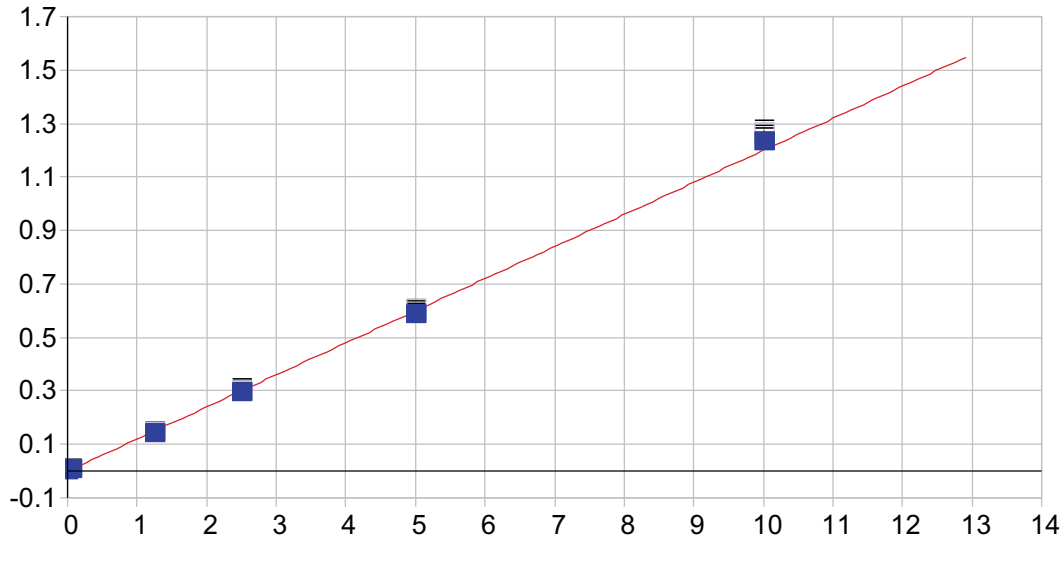
Se 196.090 {472}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear
Weighting:	1/Conc		

A0 (Offset):	0.000162	Re-Slope:	1.000000
A1 (Gain):	0.061213	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999703	Status:	OK.
Std Error of Est:	0.000047		
Predicted MDL:	0.001996		
Predicted MQL:	0.006653		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00016	.000	1
S1	.03500	.03150	-.004	-10.0	.00209	.000	1
S2	1.2500	1.1837	-.066	-5.30	.07213	.000	1
S3	2.5000	2.4491	-.051	-2.04	.14910	.004	1
S4	5.0000	4.9092	-.091	-1.82	.29871	.002	1
S5	10.000	10.211	.211	2.11	.62132	.004	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



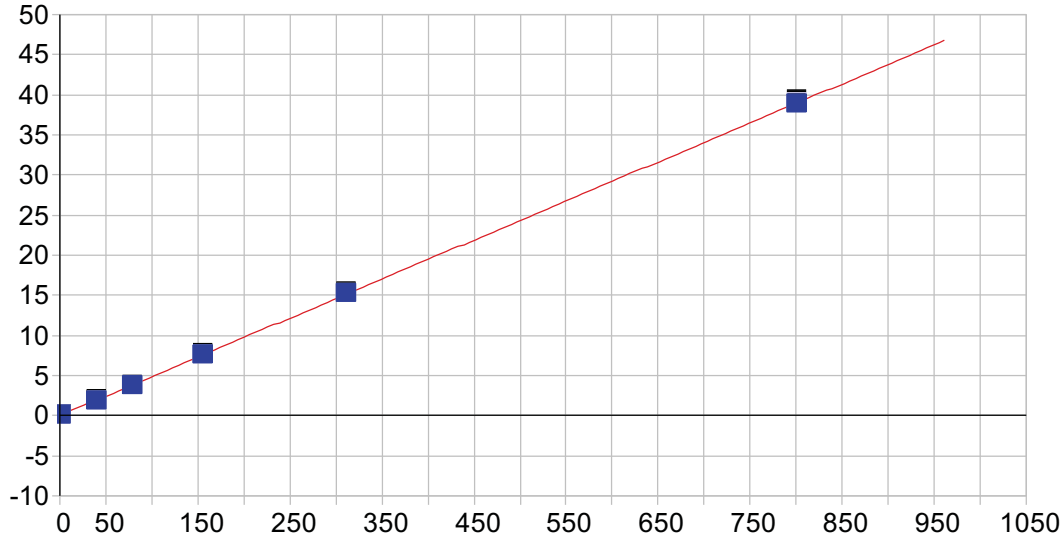
Sb 206.833 {463}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000064	Re-Slope:	1.000000
A1 (Gain):	0.119924	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999508	Status:	OK.
Std Error of Est:	0.000159		
Predicted MDL:	0.001235		
Predicted MQL:	0.004115		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00007	.000	1
S1	.06000	.05381	-.006	-10.3	.00652	.000	1
S2	1.2500	1.1607	-.089	-7.14	.14321	.000	1
S3	2.5000	2.4248	-.075	-3.01	.29875	.006	1
S4	5.0000	4.8904	-.110	-2.19	.60232	.002	1
S5	10.000	10.280	.280	2.80	1.2644	.010	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



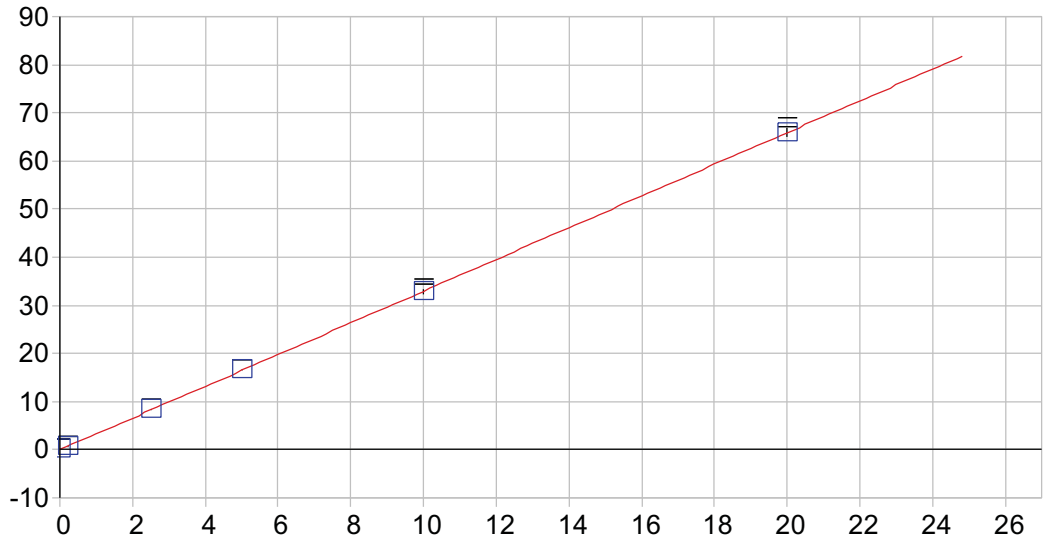
Al 396.152 { 85}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000117	Re-Slope:	1.000000
A1 (Gain):	0.048657	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999988	Status:	OK.
Std Error of Est:	0.000147		
Predicted MDL:	0.008481		
Predicted MQL:	0.028269		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00003	.000	.000	-.00012	.000	1
S1	.20000	.17504	-.025	-12.5	.00933	.000	1
S2	38.750	38.369	-.381	-.983	1.8805	.014	1
S3	77.500	76.561	-.939	-1.21	3.7524	.008	1
S4	155.00	155.32	.322	.208	7.6120	.031	1
S5	310.00	311.98	1.98	.639	15.289	.041	1
S6	800.00	799.04	-.958	-.120	39.023	.233	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



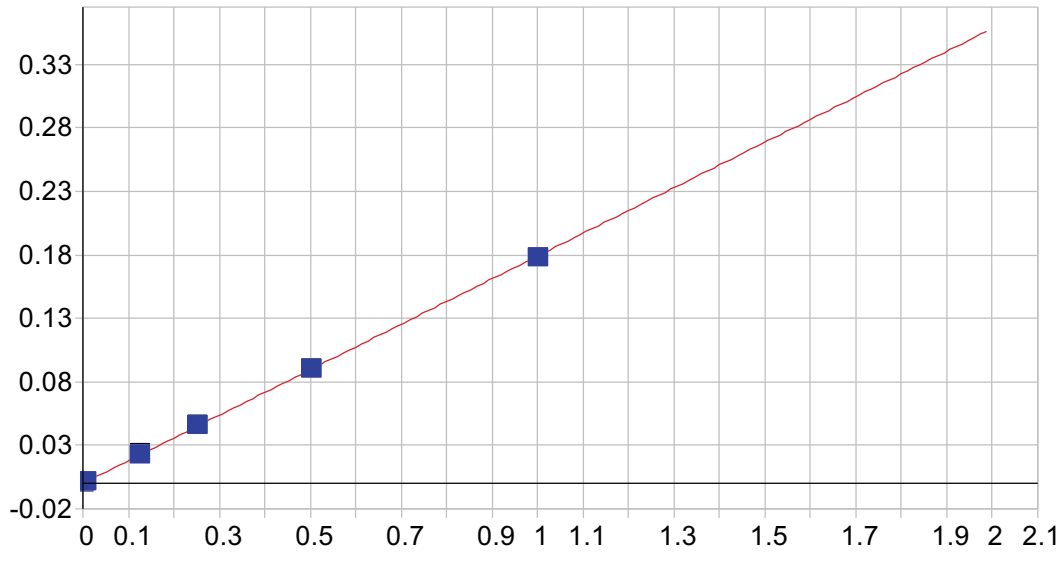
Ba 493.409 { 68}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000417	Re-Slope:	1.000000
A1 (Gain):	3.294693	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999992	Status:	OK.
Std Error of Est:	0.001427		
Predicted MDL:	0.000331		
Predicted MQL:	0.001105		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00042	.001	1
S1	.20000	.19776	-.002	-1.12	.65114	.001	1
S2	2.5000	2.5262	.026	1.05	8.3227	.037	1
S3	5.0000	5.0265	.027	.530	16.560	.022	1
S4	10.000	9.9573	-.043	-.427	32.806	.500	1
S5	20.000	19.992	-.008	-.039	65.868	.949	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

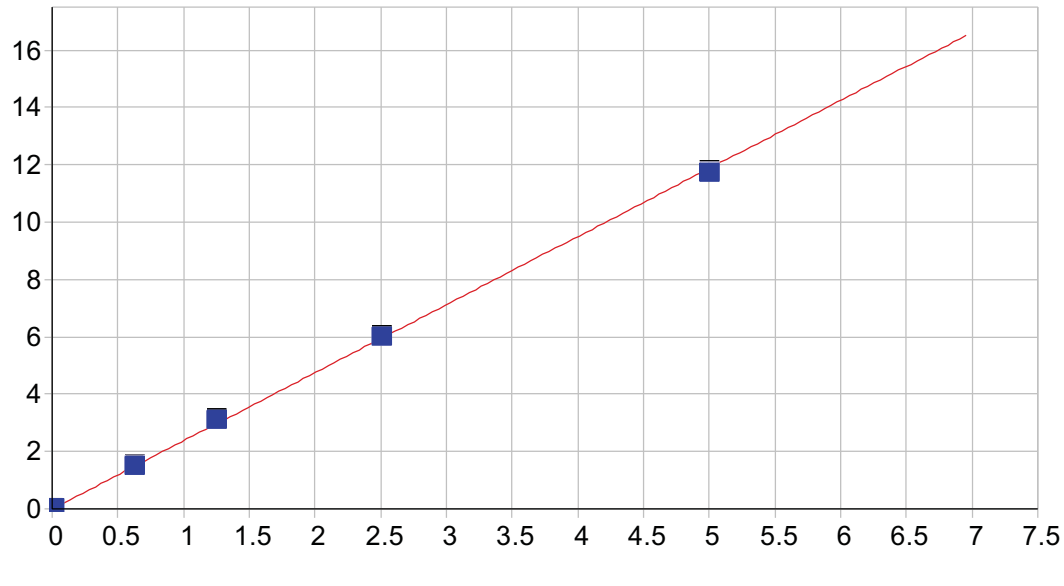


Be 234.861 {144}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	-0.000084		Re-Slope:	1.000000		
A1 (Gain):	0.179140		Y-int:	0.000000		
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.999950		Status:	OK.		
Std Error of Est:	0.000007					
Predicted MDL:	0.000469					
Predicted MQL:	0.001562					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00008	.000	1
S1	.00500	.00515	.000	3.03	.00084	.000	1
S2	.12500	.12773	.003	2.18	.02276	.000	1
S3	.25000	.25291	.003	1.16	.04515	.000	1
S4	.50000	.50277	.003	.553	.08983	.000	1
S5	1.0000	.99144	-.009	-.856	.17722	.000	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



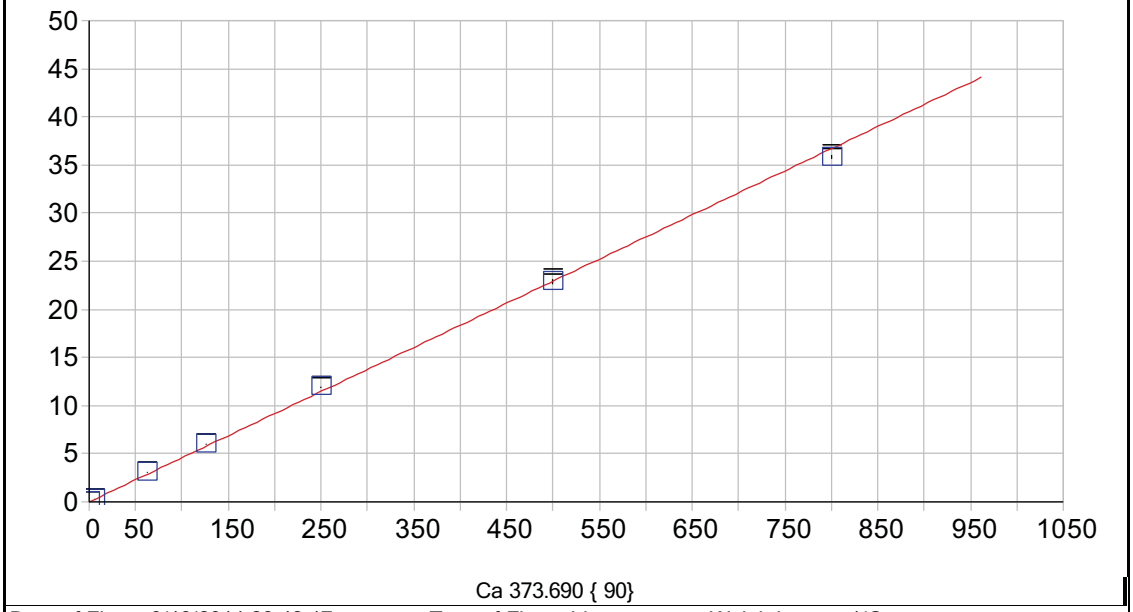
Cd 214.438 {457}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000140	Re-Slope:	1.000000
A1 (Gain):	2.374374	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999856	Status:	OK.
Std Error of Est:	0.000338		
Predicted MDL:	0.000058		
Predicted MQL:	0.000194		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00014	.000	1
S1	.00500	.00479	.000	-4.24	.01152	.000	1
S2	.62500	.62974	.005	.758	1.4982	.004	1
S3	1.2500	1.2927	.043	3.42	3.0752	.057	1
S4	2.5000	2.5232	.023	.927	6.0025	.015	1
S5	5.0000	4.9296	-.070	-1.41	11.728	.070	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



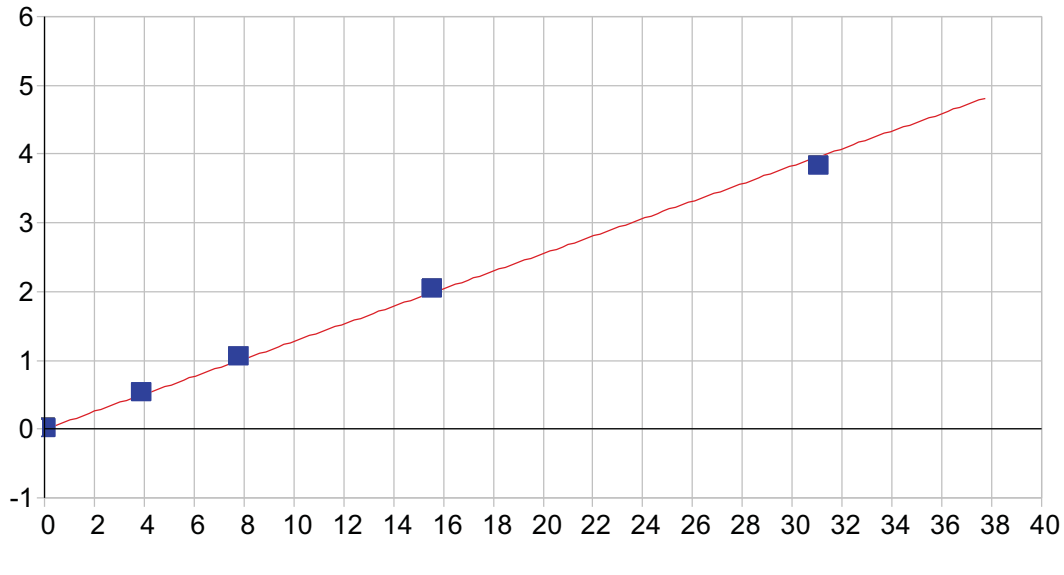
Ca 373.690 { 90}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001261	Re-Slope:	1.000000
A1 (Gain):	0.045864	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999584	Status:	OK.
Std Error of Est:	0.004621		
Predicted MDL:	0.008011		
Predicted MQL:	0.026703		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00071	-.001	.000	.00123	.000	1
S1	5.0000	5.0649	.065	1.30	.23356	.000	1
S2	62.500	66.625	4.12	6.60	3.0570	.012	1
S3	125.00	131.17	6.17	4.94	6.0174	.005	1
S4	250.00	260.10	10.1	4.04	11.931	.042	1
S5	500.00	498.77	-1.23	-.246	22.877	.274	1
S6	800.00	780.76	-19.2	-2.40	35.810	.217	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

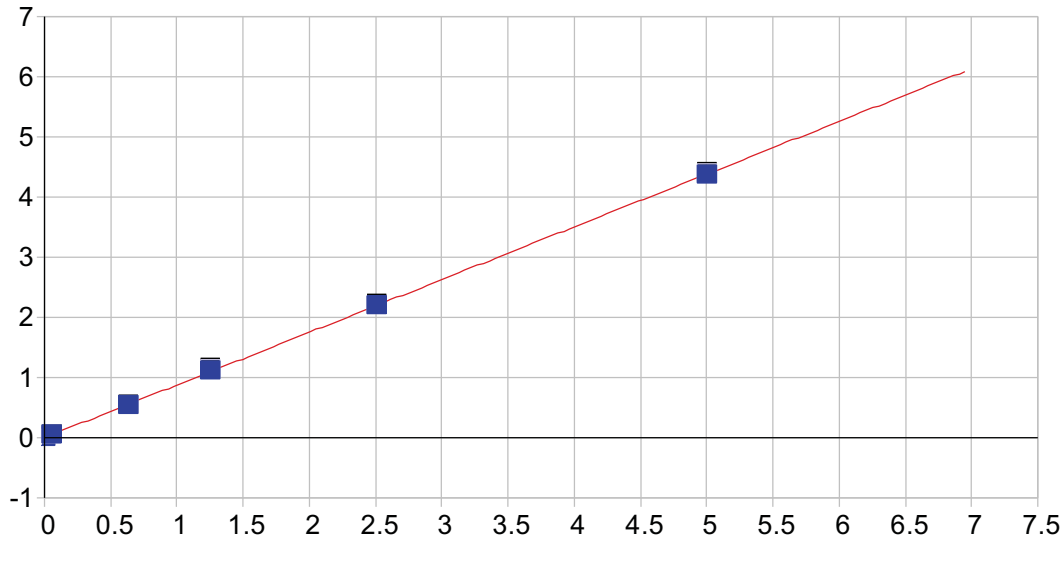


Cr 267.716 {126}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	-0.000031			Re-Slope:	1.000000	
A1 (Gain):	0.127540			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.999203		Status:	OK.		
Std Error of Est:	0.000150					
Predicted MDL:	0.000342					
Predicted MQL:	0.001141					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00003	.000	1
S1	.01000	.01054	.001	5.44	.00131	.000	1
S2	3.8750	4.1438	.269	6.94	.52860	.001	1
S3	7.7500	8.1813	.431	5.57	1.0437	.002	1
S4	15.500	15.906	.406	2.62	2.0292	.008	1
S5	31.000	29.893	-1.11	-3.57	3.8136	.011	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



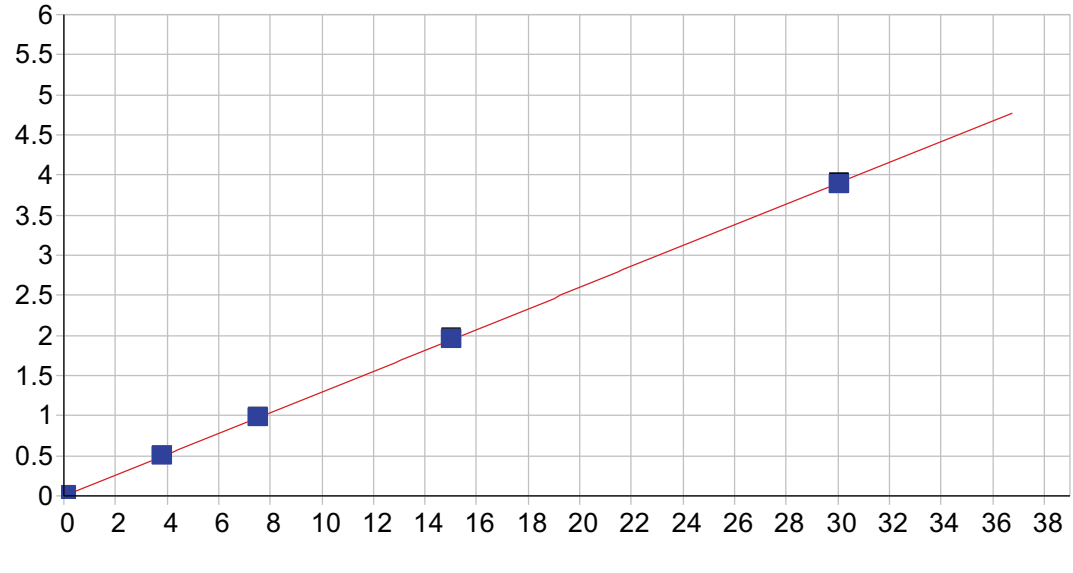
Co 228.616 {448}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000307	Re-Slope:	1.000000
A1 (Gain):	0.876309	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999954	Status:	OK.
Std Error of Est:	0.000225		
Predicted MDL:	0.000181		
Predicted MQL:	0.000604		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00030	.000	1
S1	.05000	.04649	-.004	-7.02	.04058	.000	1
S2	.62500	.61708	-.008	-1.27	.54133	.001	1
S3	1.2500	1.2740	.024	1.92	1.1179	.022	1
S4	2.5000	2.5048	.005	.191	2.1982	.007	1
S5	5.0000	4.9826	-.017	-.347	4.3732	.026	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



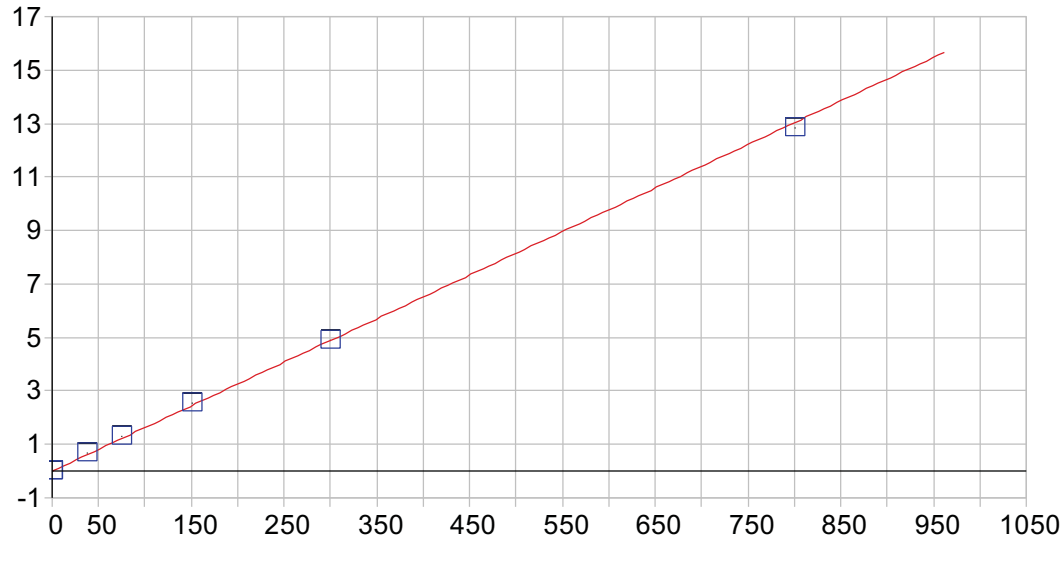
Cu 324.754 {104}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000790	Re-Slope:	1.000000
A1 (Gain):	0.129761	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999994	Status:	OK.
Std Error of Est:	0.000021		
Predicted MDL:	0.001947		
Predicted MQL:	0.006490		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00079	.000	1
S1	.02500	.02384	-.001	-4.66	.00387	.000	1
S2	3.7500	3.7904	.040	1.08	.49198	.004	1
S3	7.5000	7.5076	.008	.102	.97366	.001	1
S4	15.000	15.023	.023	.154	1.9476	.005	1
S5	30.000	29.930	-.070	-.233	3.8792	.012	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



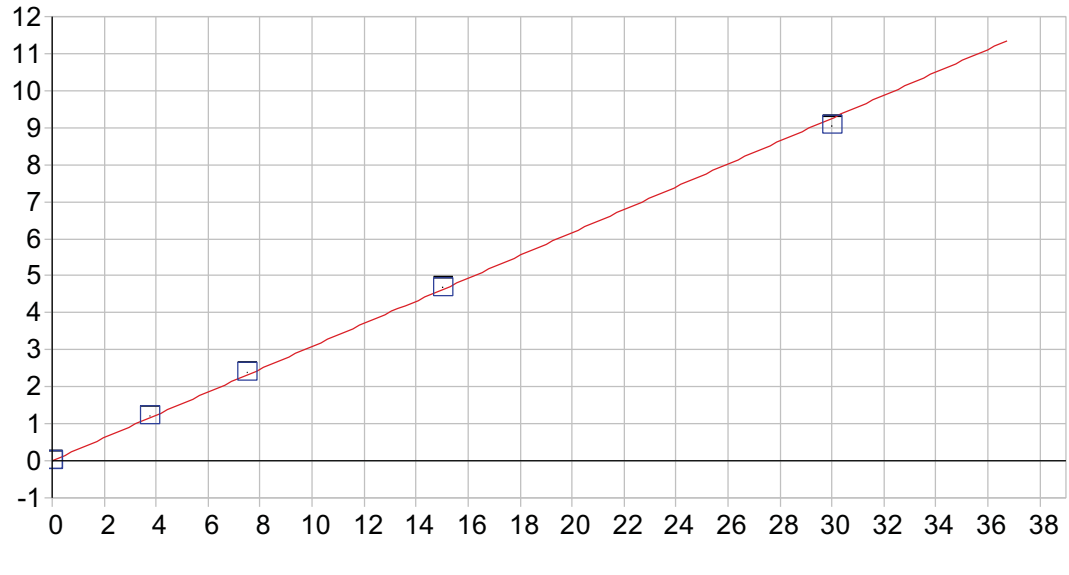
Fe 259.837 {130}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000004	Re-Slope:	1.000000
A1 (Gain):	0.016289	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999711	Status:	OK.
Std Error of Est:	0.000171		
Predicted MDL:	0.007364		
Predicted MQL:	0.024547		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00002	.000	.000	.00000	.000	1
S1	.10000	.10322	.003	3.22	.00168	.000	1
S2	37.500	40.403	2.90	7.74	.65811	.002	1
S3	75.000	79.104	4.10	5.47	1.2885	.002	1
S4	150.00	155.09	5.09	3.39	2.5261	.007	1
S5	300.00	299.36	-.635	-.212	4.8762	.008	1
S6	800.00	788.54	-11.5	-1.43	12.844	.014	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



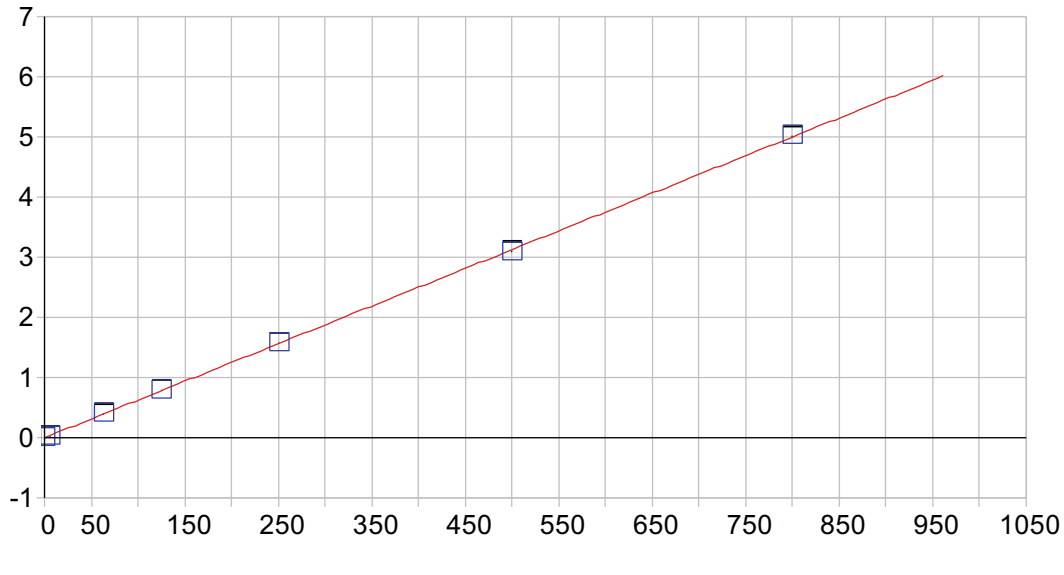
Mn 257.610 {131}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000042	Re-Slope:	1.000000
A1 (Gain):	0.308551	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999671	Status:	OK.
Std Error of Est:	0.000281		
Predicted MDL:	0.000392		
Predicted MQL:	0.001305		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00004	.000	1
S1	.01500	.01531	.000	2.09	.00468	.000	1
S2	3.7500	3.9571	.207	5.52	1.2209	.005	1
S3	7.5000	7.7570	.257	3.43	2.3934	.004	1
S4	15.000	15.191	.191	1.28	4.6873	.019	1
S5	30.000	29.344	-.656	-2.19	9.0542	.024	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



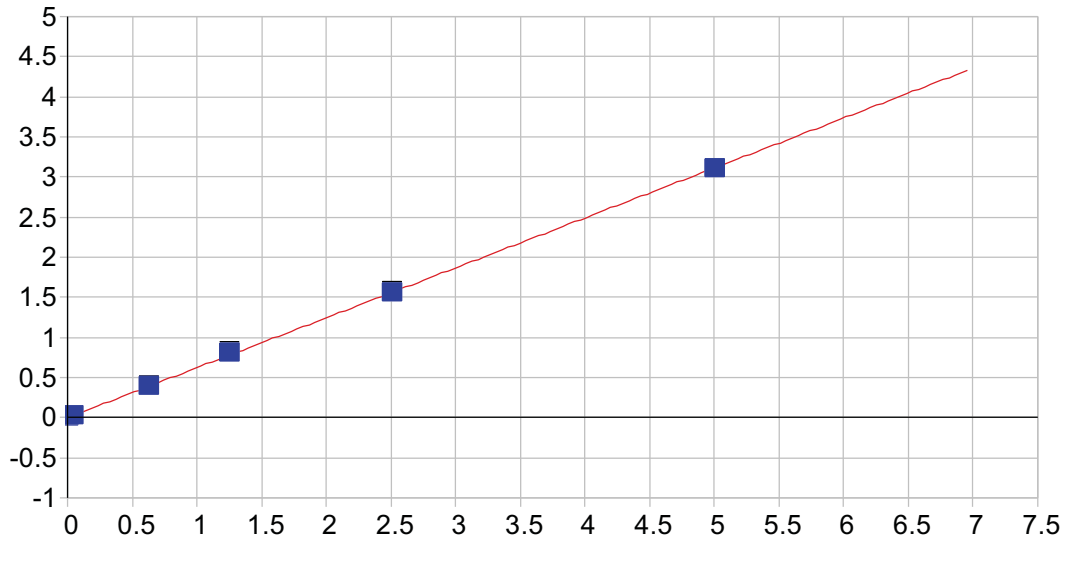
Mg 279.079 {121}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000068	Re-Slope:	1.000000
A1 (Gain):	0.006253	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999970	Status:	OK.
Std Error of Est:	0.000169		
Predicted MDL:	0.021754		
Predicted MQL:	0.072512		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	-.00007	.000	1
S1	5.0000	4.9105	-.089	-1.79	.03064	.000	1
S2	62.500	63.290	.790	1.26	.39568	.002	1
S3	125.00	126.21	1.21	.969	.78912	.003	1
S4	250.00	251.82	1.82	.727	1.5745	.007	1
S5	500.00	494.37	-5.63	-1.13	3.0912	.008	1
S6	800.00	801.90	1.90	.238	5.0142	.005	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



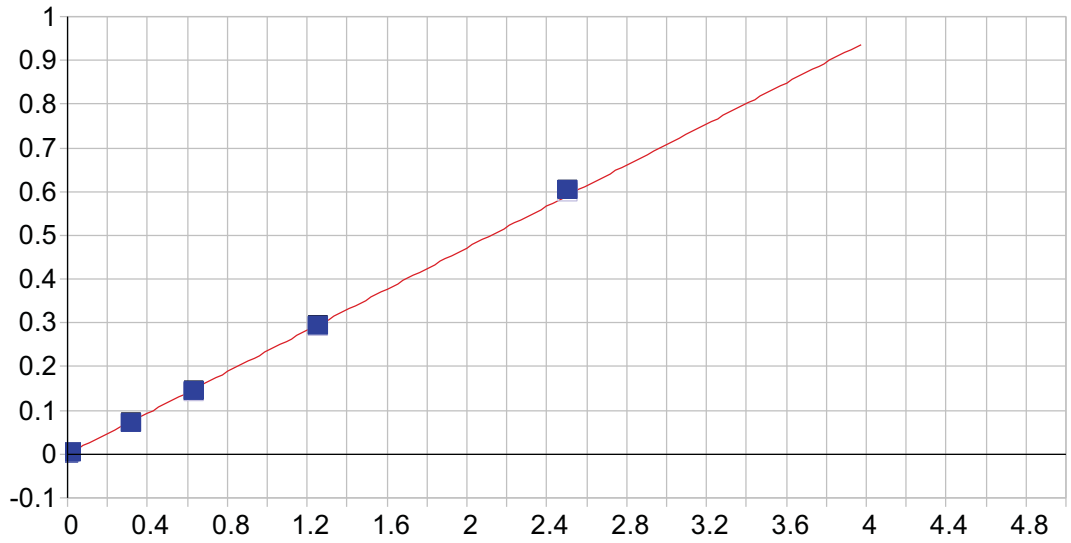
Ni 231.604 {446}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000378	Re-Slope:	1.000000
A1 (Gain):	0.622604	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999948	Status:	OK.
Std Error of Est:	0.000150		
Predicted MDL:	0.000288		
Predicted MQL:	0.000961		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00038	.000	1
S1	.04000	.03834	-.002	-4.15	.02348	.000	1
S2	.62500	.62131	-.004	-.590	.38634	.000	1
S3	1.2500	1.2794	.029	2.35	.79596	.016	1
S4	2.5000	2.5057	.006	.226	1.5592	.005	1
S5	5.0000	4.9703	-.030	-.594	3.0932	.015	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



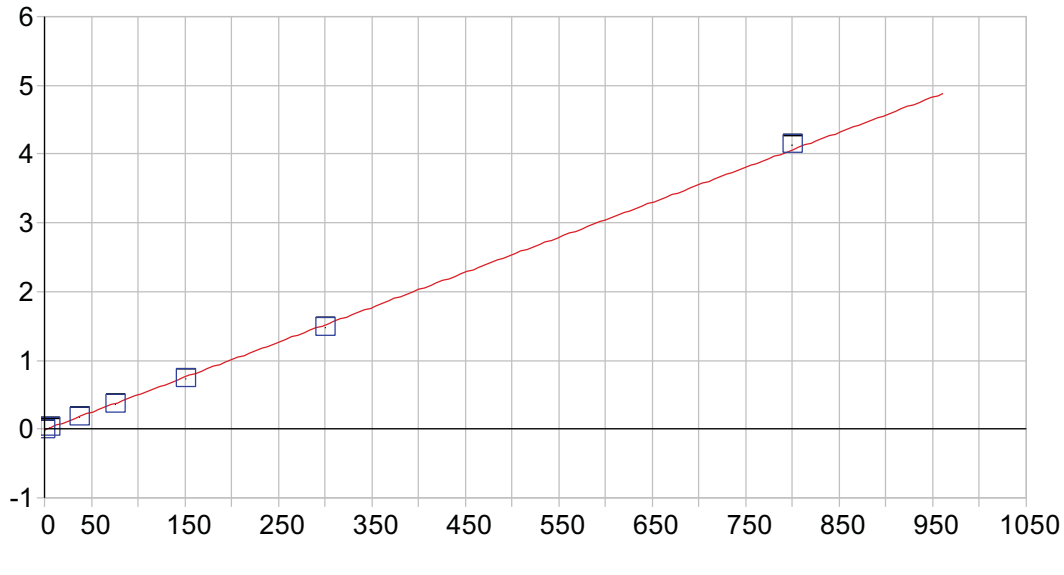
Ag 328.068 {103}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000345	Re-Slope:	1.000000
A1 (Gain):	0.235931	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999732	Status:	OK.
Std Error of Est:	0.000045		
Predicted MDL:	0.000309		
Predicted MQL:	0.001030		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00034	.000	1
S1	.01000	.00911	-.001	-8.94	.00179	.000	1
S2	.31250	.29814	-.014	-4.59	.06933	.000	1
S3	.62500	.60468	-.020	-3.25	.14099	.000	1
S4	1.2500	1.2372	-.013	-1.03	.28889	.001	1
S5	2.5000	2.5484	.048	1.94	.59560	.000	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



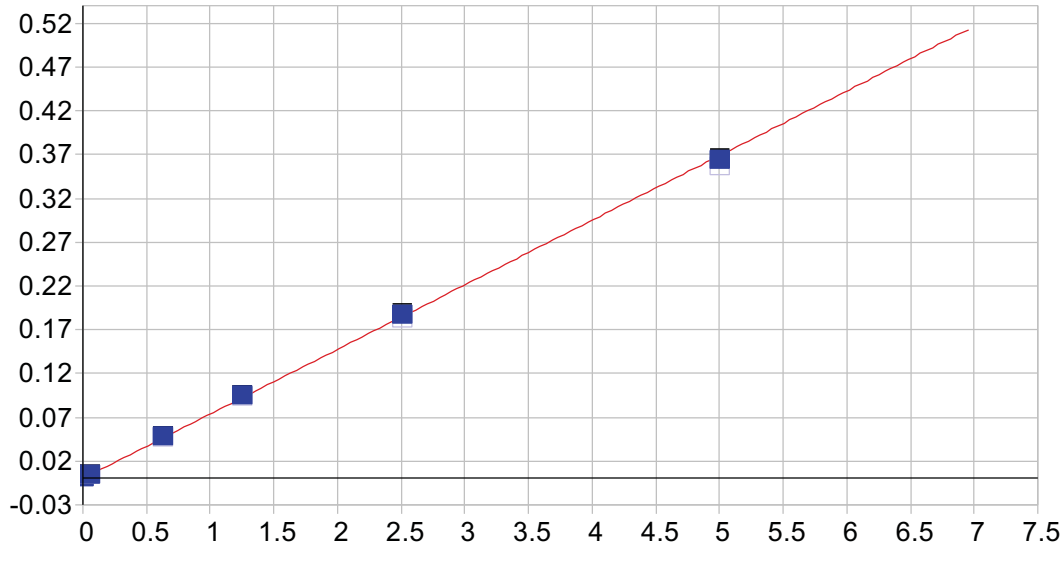
Na 818.326 { 41}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.009788	Re-Slope:	1.000000
A1 (Gain):	0.005090	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999790	Status:	OK.
Std Error of Est:	0.000323		
Predicted MDL:	0.165152		
Predicted MQL:	0.550506		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00056	.001	.000	-.00979	.000	1
S1	5.0000	4.8259	-.174	-3.48	.01478	.000	1
S2	37.500	36.647	-.853	-2.27	.17675	.001	1
S3	75.000	73.282	-1.72	-2.29	.36323	.002	1
S4	150.00	146.34	-3.66	-2.44	.73513	.001	1
S5	300.00	292.60	-7.40	-2.47	1.4796	.003	1
S6	800.00	813.80	13.8	1.72	4.1326	.008	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

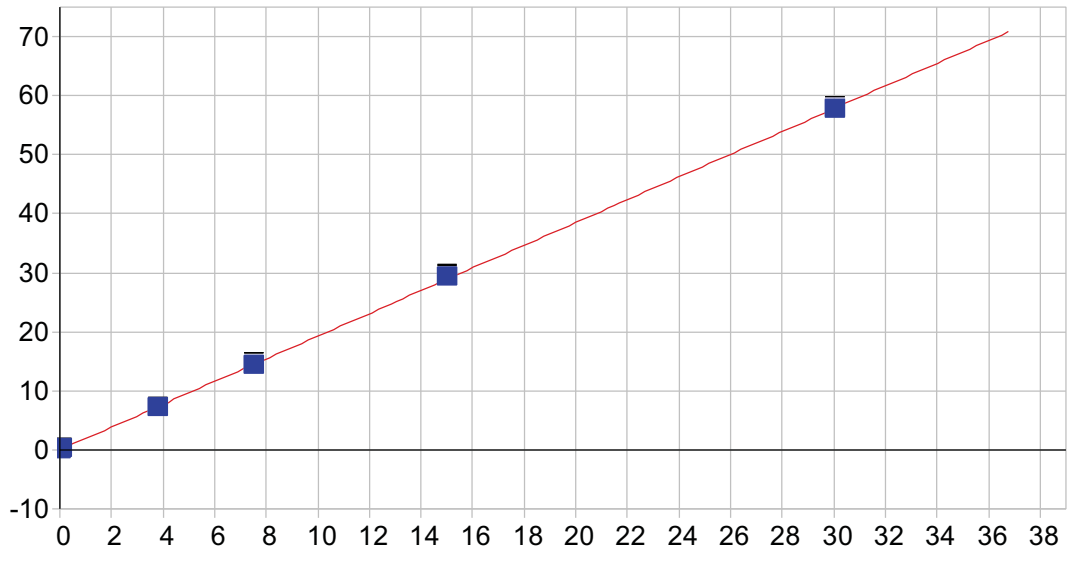


Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000009	Re-Slope:	1.000000
A1 (Gain):	0.073770	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999872	Status:	OK.
Std Error of Est:	0.000031		
Predicted MDL:	0.002337		
Predicted MQL:	0.007790		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00001	.000	1
S1	.05000	.05045	.000	.910	.00371	.000	1
S2	.62500	.64432	.019	3.09	.04660	.000	1
S3	1.2500	1.2751	.025	2.01	.09222	.001	1
S4	2.5000	2.5248	.025	.993	.18257	.001	1
S5	5.0000	4.9303	-.070	-1.39	.35635	.001	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



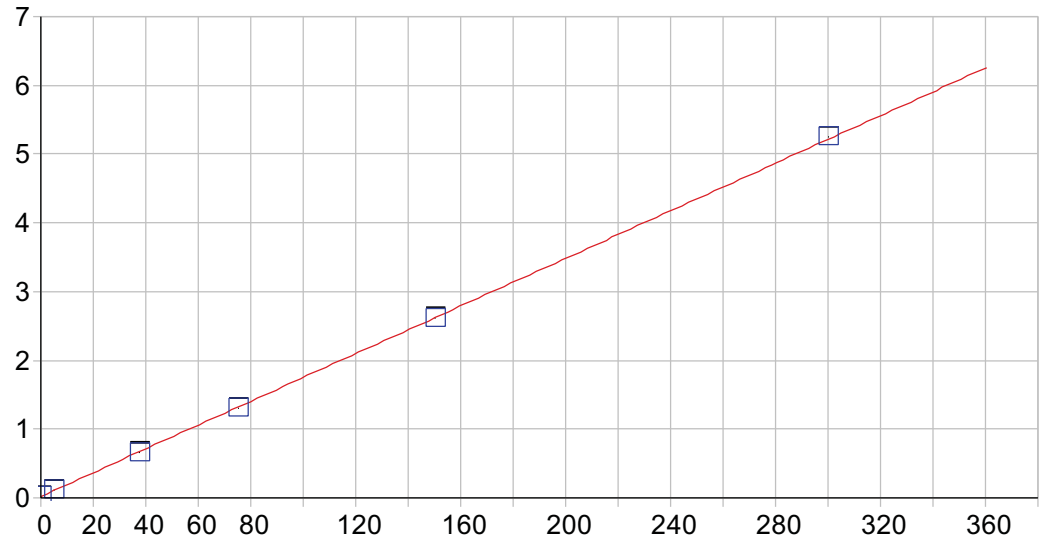
Zn 213.856 {158}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000342	Re-Slope:	1.000000
A1 (Gain):	1.925674	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999967	Status:	OK.
Std Error of Est:	0.001110		
Predicted MDL:	0.003167		
Predicted MQL:	0.010556		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00035	.006	1
S1	.06000	.05763	-.002	-3.95	.11169	.005	1
S2	3.7500	3.6770	-.073	-1.95	7.0929	.053	1
S3	7.5000	7.4376	-.062	-.833	14.346	.302	1
S4	15.000	15.157	.157	1.05	29.236	.338	1
S5	30.000	29.980	-.020	-.066	57.827	.296	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



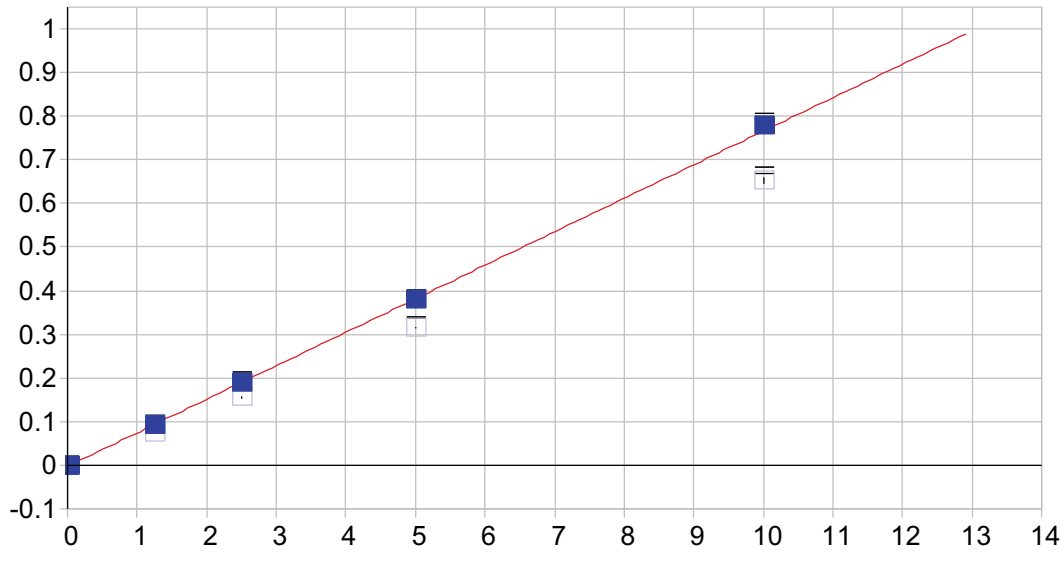
K 769.896 { 44}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.021092	Re-Slope:	1.000000
A1 (Gain):	0.017304	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999957	Status:	OK.
Std Error of Est:	0.000332		
Predicted MDL:	0.044605		
Predicted MQL:	0.148682		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00038	.000	.000	.02110	.001	1
S1	5.0000	4.7378	-.262	-5.24	.10307	.000	1
S2	37.500	36.929	-.571	-1.52	.66010	.003	1
S3	75.000	74.033	-.967	-1.29	1.3021	.002	1
S4	150.00	149.77	-.234	-.156	2.6126	.006	1
S5	300.00	302.03	2.03	.678	5.2474	.006	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



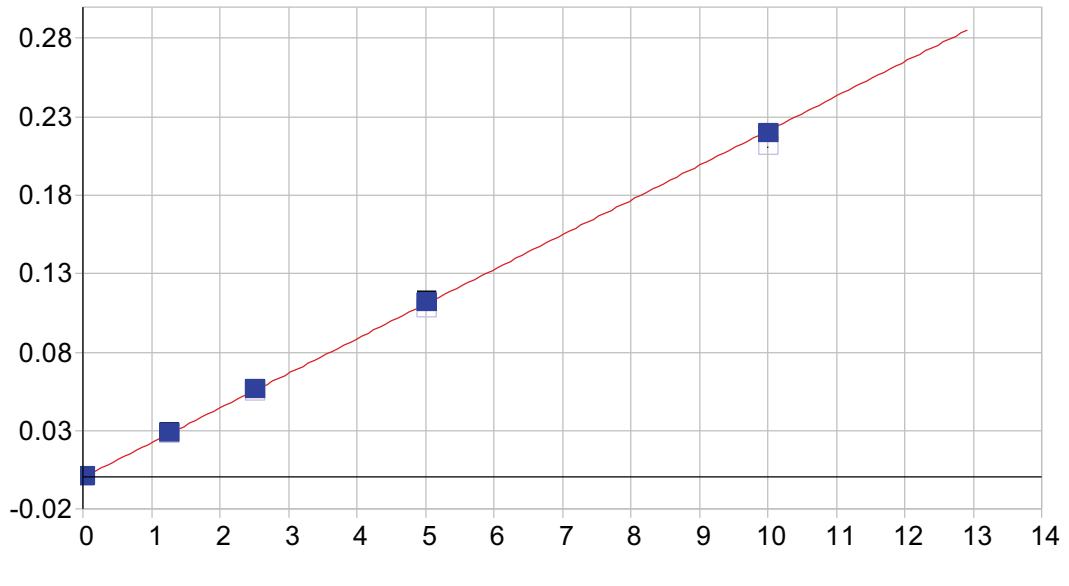
P 177.495 {490}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.002446	Re-Slope:	1.000000
A1 (Gain):	0.076799	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999324	Status:	OK.
Std Error of Est:	0.000049		
Predicted MDL:	0.001268		
Predicted MQL:	0.004227		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	-.00244	.000	1
S1	.01500	.00138	-.014	-90.8	-.00244	.000	1
S2	1.2500	1.2003	-.050	-3.98	.07412	.000	1
S3	2.5000	2.4653	-.035	-1.39	.15566	.003	1
S4	5.0000	4.9455	-.055	-1.09	.31491	.001	1
S5	10.000	10.154	.154	1.54	.65245	.006	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



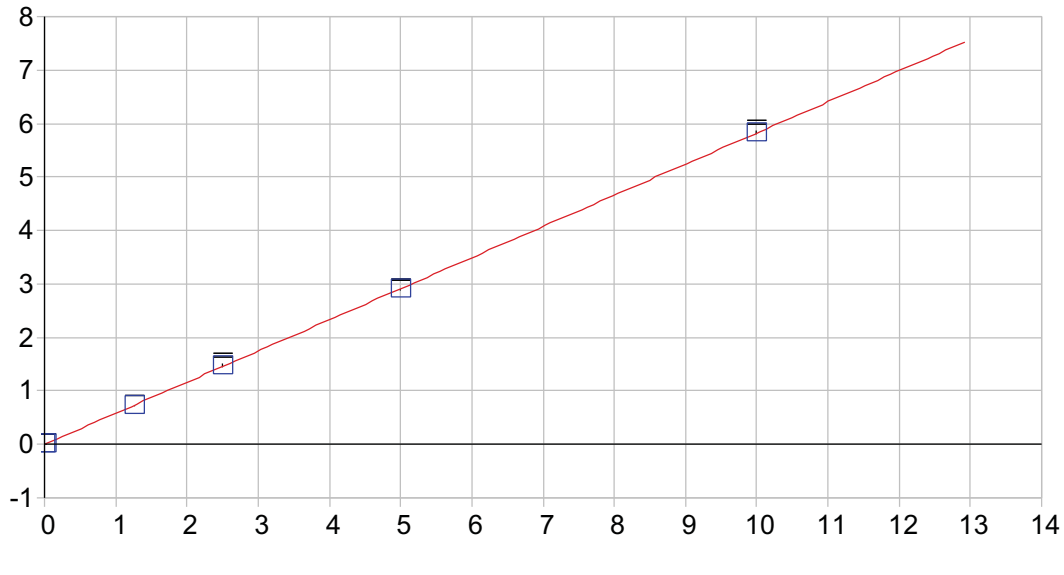
B 249.678 {135}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000065	Re-Slope:	1.000000
A1 (Gain):	0.022098	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999844	Status:	OK.
Std Error of Est:	0.000006		
Predicted MDL:	0.005175		
Predicted MQL:	0.017249		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	.00006	.000	1
S1	.01000	.01588	.006	58.8	.00041	.000	1
S2	1.2500	1.2747	.025	1.97	.02721	.000	1
S3	2.5000	2.5289	.029	1.15	.05390	.000	1
S4	5.0000	5.0353	.035	.706	.10725	.001	1
S5	10.000	9.9051	-.095	-.949	.21077	.001	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



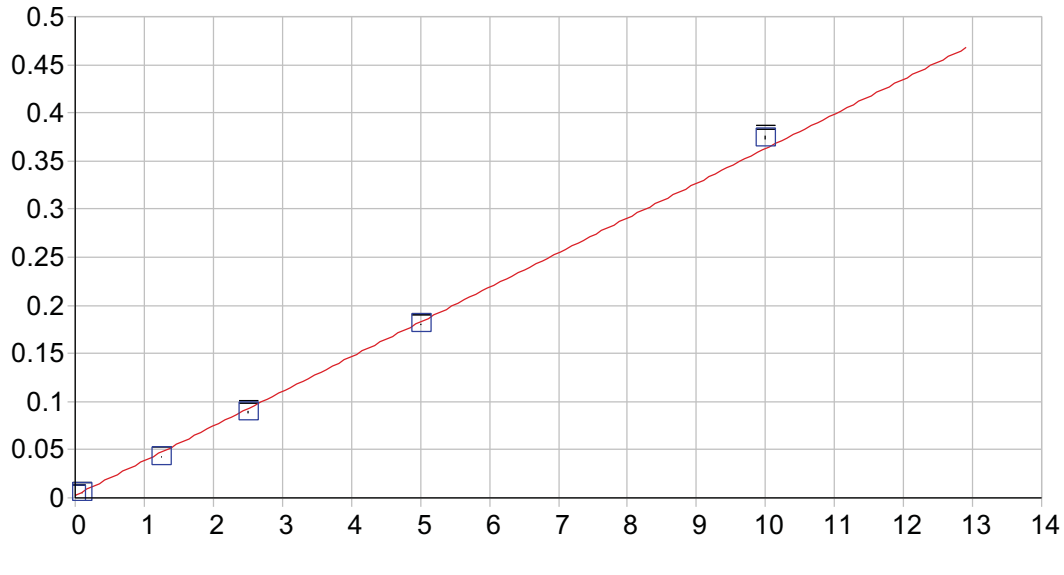
Mo 202.030 {467}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear
Weighting:	1/Conc		

A0 (Offset):	-0.000014	Re-Slope:	1.000000
A1 (Gain):	0.582319	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999978	Status:	OK.
Std Error of Est:	0.000065		
Predicted MDL:	0.000231		
Predicted MQL:	0.000770		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00001	.000	1
S1	.01000	.00971	.000	-2.88	.00564	.000	1
S2	1.2500	1.2423	-.008	-.613	.72343	.001	1
S3	2.5000	2.5368	.037	1.47	1.4772	.031	1
S4	5.0000	4.9664	-.034	-.672	2.8920	.011	1
S5	10.000	10.005	.005	.048	5.8260	.036	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



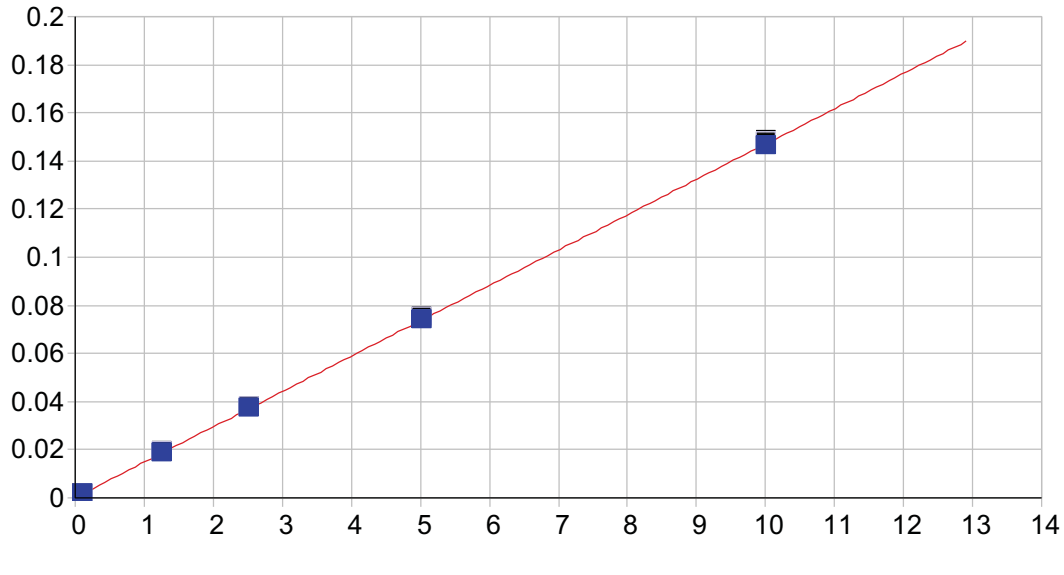
S 182.034 {485}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002472	Re-Slope:	1.000000
A1 (Gain):	0.036036	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999139	Status:	OK.
Std Error of Est:	0.000080		
Predicted MDL:	0.002400		
Predicted MQL:	0.008001		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00004	.000	.000	.00247	.000	1
S1	.10000	.07477	-.025	-25.2	.00517	.000	1
S2	1.2500	1.1268	-.123	-9.86	.04308	.000	1
S3	2.5000	2.4013	-.099	-3.95	.08900	.002	1
S4	5.0000	4.9409	-.059	-1.18	.18052	.001	1
S5	10.000	10.306	.306	3.06	.37386	.002	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



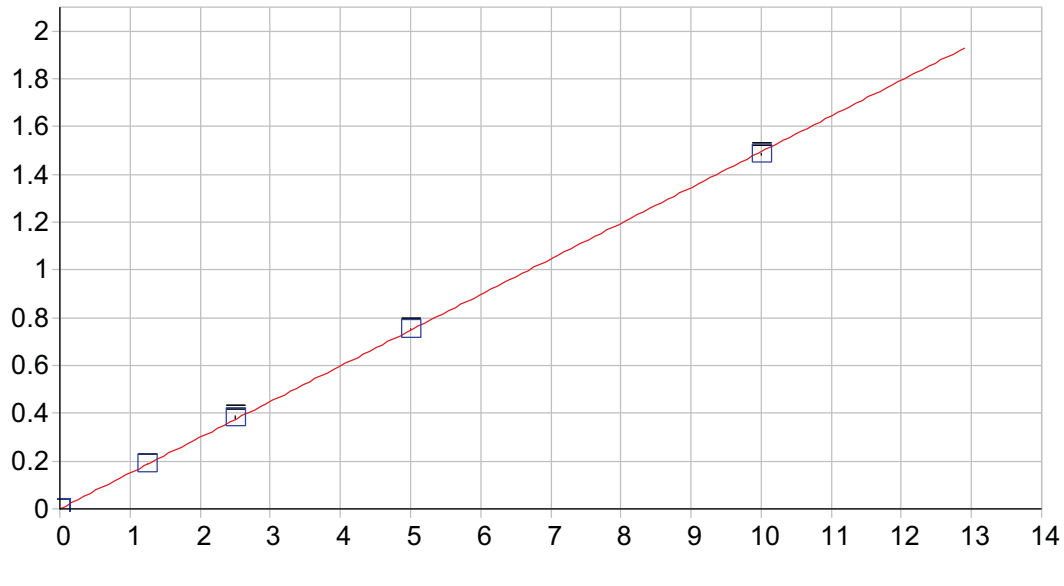
Si 251.611 {134}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000149	Re-Slope:	1.000000
A1 (Gain):	0.014687	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999946	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	0.007336		
Predicted MQL:	0.024454		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00015	.000	1
S1	.10000	.08924	-.011	-10.8	.00146	.000	1
S2	1.2500	1.2694	.019	1.55	.01898	.000	1
S3	2.5000	2.5180	.018	.720	.03751	.000	1
S4	5.0000	5.0301	.030	.602	.07478	.000	1
S5	10.000	9.9432	-.057	-.568	.14768	.000	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



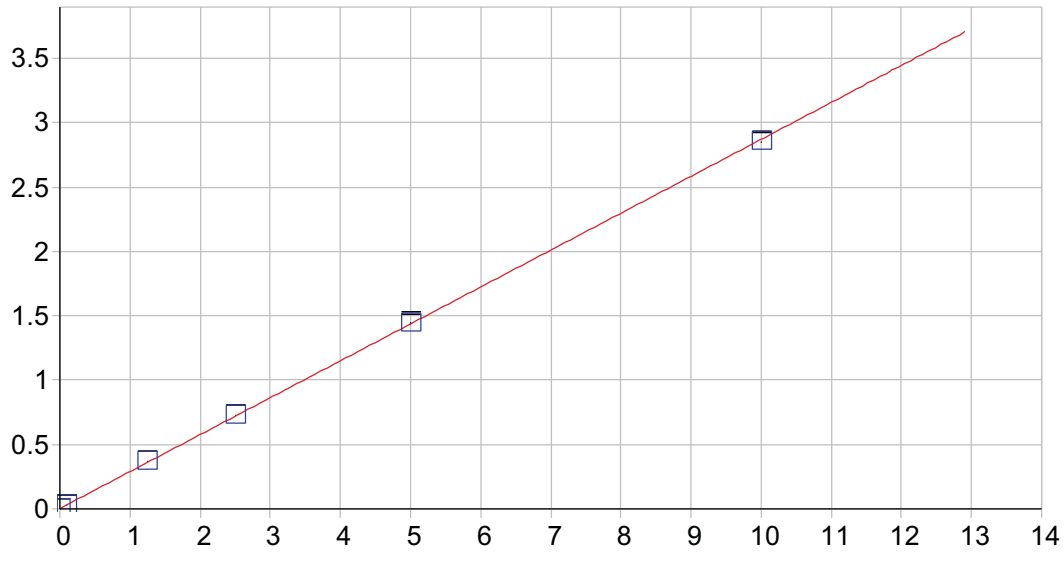
Sn 189.989 {478}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000041	Re-Slope:	1.000000
A1 (Gain):	0.149473	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999929	Status:	OK.
Std Error of Est:	0.000025		
Predicted MDL:	0.000596		
Predicted MQL:	0.001988		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00004	.000	1
S1	.00700	.00532	-.002	-24.0	.00084	.000	1
S2	1.2500	1.2403	-.010	-.776	.18543	.000	1
S3	2.5000	2.5610	.061	2.44	.38285	.008	1
S4	5.0000	5.0253	.025	.505	.75118	.003	1
S5	10.000	9.9251	-.075	-.749	1.4836	.007	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



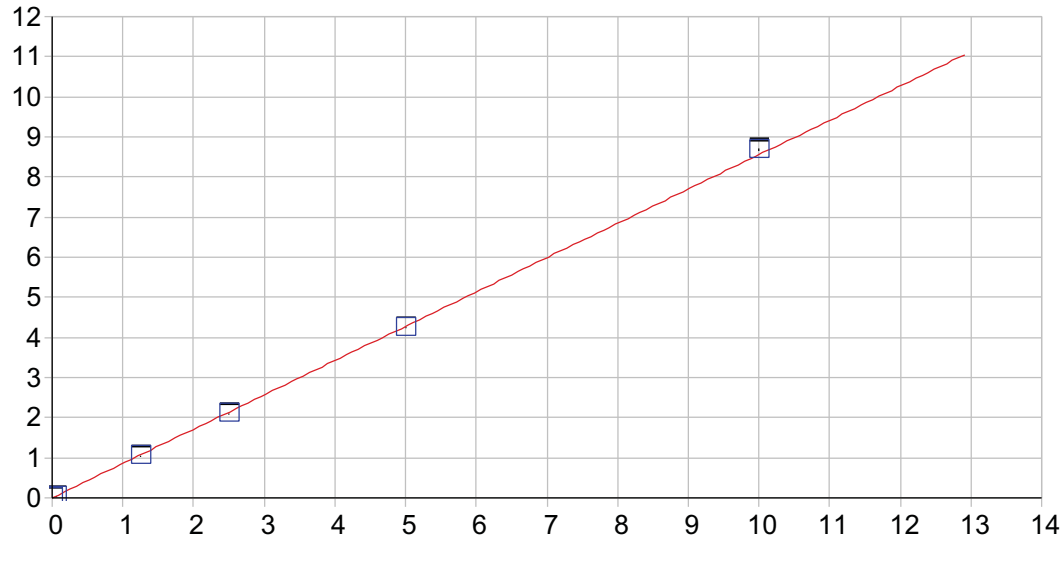
Ti 336.121 {100}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000398	Re-Slope:	1.000000
A1 (Gain):	0.287053	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999957	Status:	OK.
Std Error of Est:	0.000142		
Predicted MDL:	0.000934		
Predicted MQL:	0.003114		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00040	.000	1
S1	.10000	.09860	-.001	-1.40	.02870	.000	1
S2	1.2500	1.2825	.032	2.60	.36854	.002	1
S3	2.5000	2.5210	.021	.839	.72405	.001	1
S4	5.0000	5.0193	.019	.386	1.4412	.009	1
S5	10.000	9.9286	-.071	-.714	2.8504	.009	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



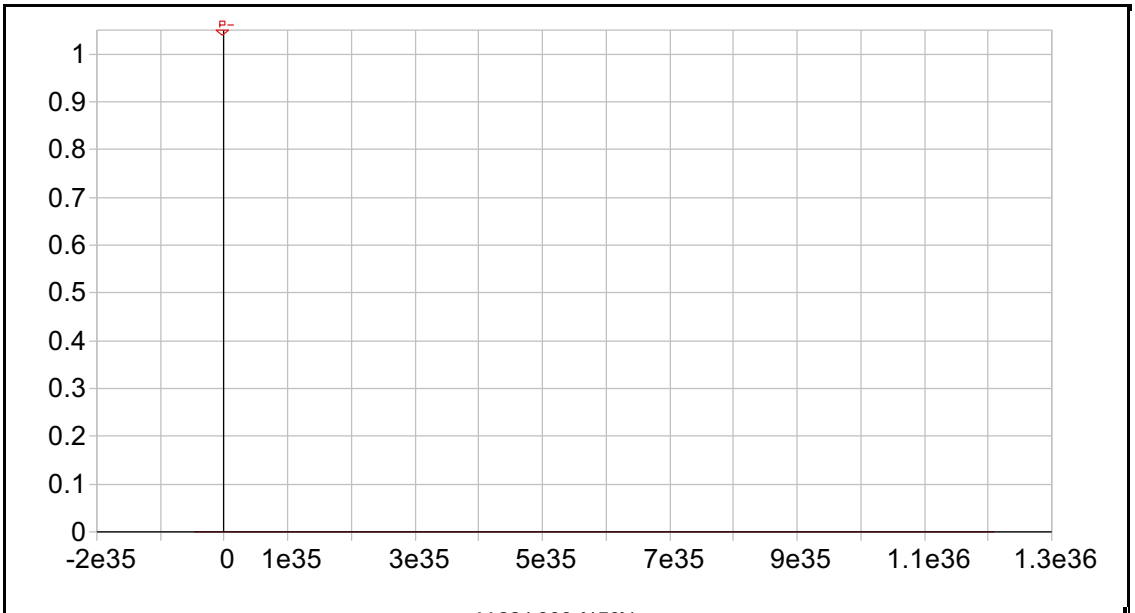
Li 670.784 { 50}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001652	Re-Slope:	1.000000
A1 (Gain):	0.855434	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999869	Status:	OK.
Std Error of Est:	0.000521		
Predicted MDL:	0.001063		
Predicted MQL:	0.003544		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00166	.001	1
S5	10.000	10.137	.137	1.37	8.6728	.027	1
S4	5.0000	4.9623	-.038	-.754	4.2466	.011	1
S3	2.5000	2.4424	-.058	-2.31	2.0909	.002	1
S2	1.2500	1.2131	-.037	-2.95	1.0394	.007	1
S1	.05000	.04566	-.004	-8.69	.04071	.000	1

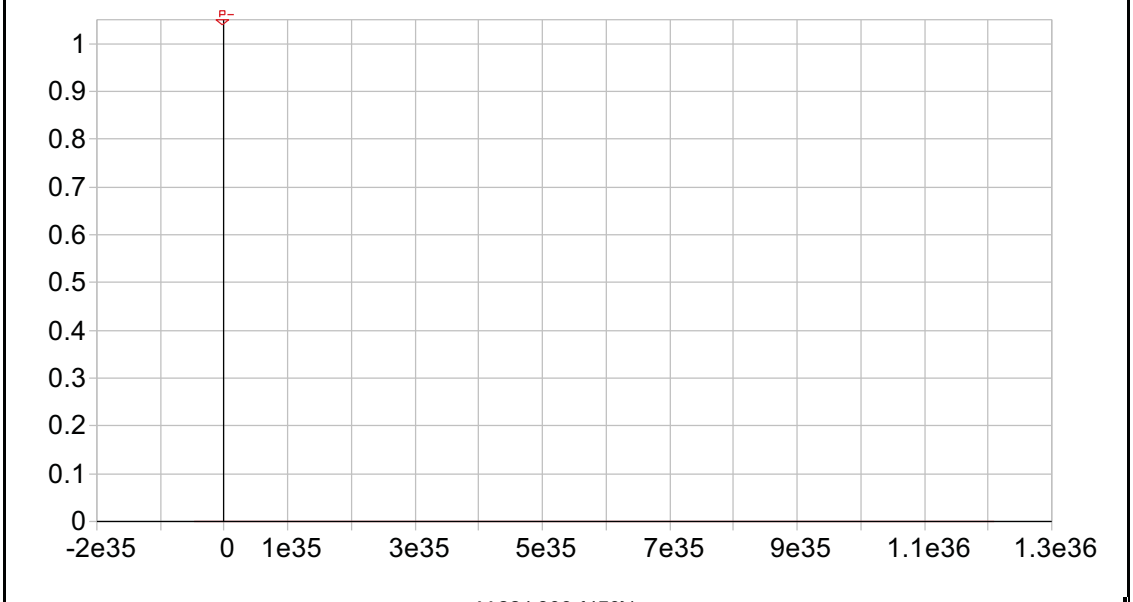
Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



Y 224.306 {150}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000			Status:	Warning	Zero Gain
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



Y 224.306 {450}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	

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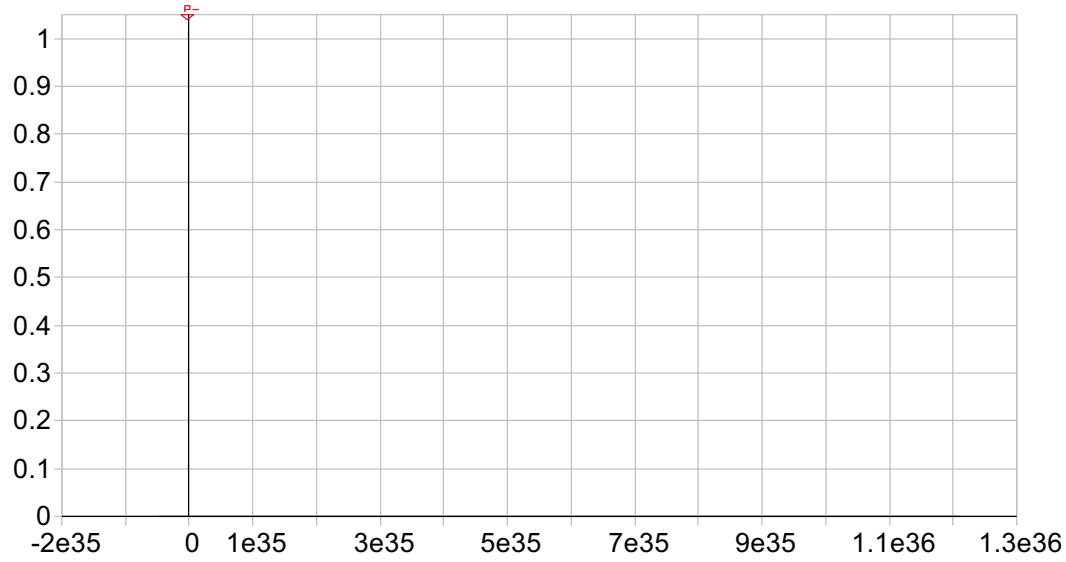
A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

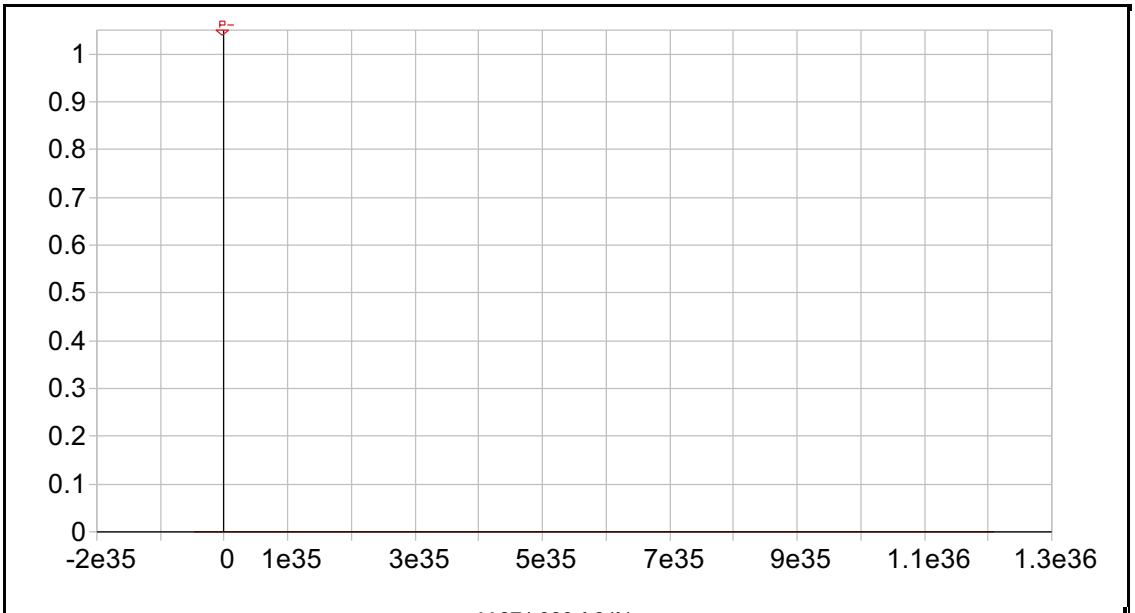


Y 360.073 { 94}*

Date of Fit:	<not fit>		Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):		0.000000		Re-Slope:	1.000000	
A1 (Gain):		0.000000		Y-int:	0.000000	
A2 (Curvature):		0.000000				
n (Exponent):		1.000000				
Correlation:		0.000000		Status:	Warning	Zero Gain
Std Error of Est:		0.000000				
Predicted MDL:		n/a				
Predicted MQL:		n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

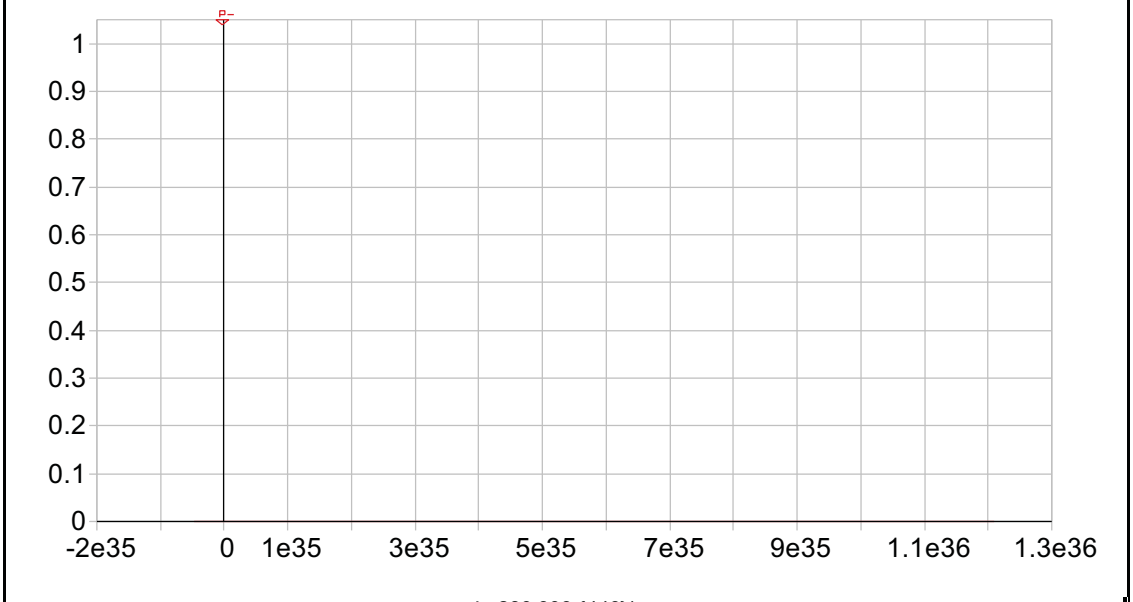
Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5



Y 371.030 { 91}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000			Status:	Warning	Zero Gain
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



In 230.606 {446}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	

Reviewed By:BIN
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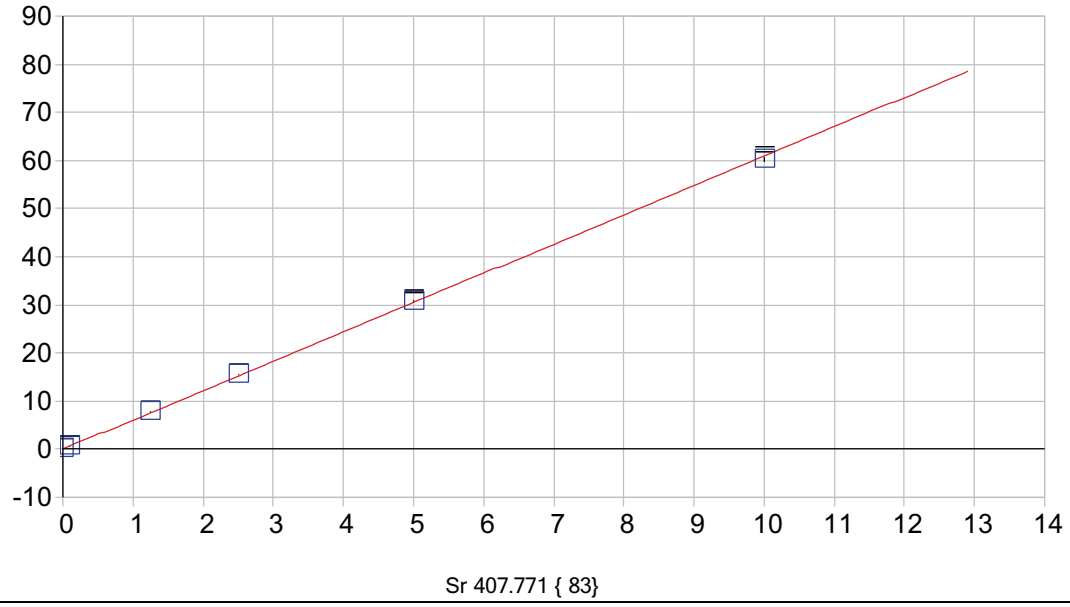
A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



Sr 407.771 { 83}

Date of Fit:	9/19/2014 23:48:17	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001649	Re-Slope:	1.000000
A1 (Gain):	6.090318	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999899	Status:	OK.
Std Error of Est:	0.004598		
Predicted MDL:	0.000064		
Predicted MQL:	0.000212		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	-.00169	.000	1
S1	.10000	.10258	.003	2.58	.62309	.001	1
S2	1.2500	1.2854	.035	2.83	7.8266	.043	1
S3	2.5000	2.5495	.050	1.98	15.526	.017	1
S4	5.0000	5.0352	.035	.705	30.665	.287	1
S5	10.000	9.8773	-.123	-1.23	60.154	.508	1

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S0 Acquired: 9/19/2014 12:12:41 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00010	.00012	.00011	.00016	.00007	.00012	.00042	.00008
Stddev	.00006	.00005	.00009	.00002	.00009	.00025	.00105	.00002
%RSD	55.389	38.910	79.943	14.952	142.58	216.05	250.74	24.585
#1	-.00004	-.00008	-.00022	.00019	.00017	.00015	.00058	-.00011
#2	-.00015	-.00010	-.00006	.00015	.00002	-.00035	-.00033	-.00007
#3	-.00011	-.00017	-.00006	.00015	.00000	-.00015	-.00150	-.00007

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00014	.00123	.00003	.00030	.00079	.00000	.00004	.00007
Stddev	.00008	.00013	.00002	.00007	.00013	.0000	.00009	.00001
%RSD	58.521	10.433	49.221	23.826	16.986	945.84	220.16	19.132
#1	.00005	.00137	-.00003	-.00027	.00093	.00002	.00006	-.00006
#2	.00015	.00111	-.00002	-.00025	.00067	.00002	-.00013	-.00006
#3	.00021	.00121	-.00005	-.00039	.00077	-.00005	-.00005	-.00008

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00038	.00034	.00979	.00001	.00035	.02110	.00244	.00006
Stddev	.00014	.00000	.00030	.00008	.00565	.00057	.00005	.00011
%RSD	35.913	1.2988	3.0695	879.70	1621.9	2.6948	2.0351	164.01
#1	-.00022	-.00035	-.01012	.00003	.00667	.02056	-.00248	.00018
#2	-.00046	-.00034	-.00971	.00004	-.00142	.02169	-.00239	-.00003
#3	-.00045	-.00035	-.00953	-.00010	-.00420	.02104	-.00247	.00005

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00001	.00247	.00015	.00004	.00040	.00166	.00169
Stddev	.00003	.00005	.00006	.00003	.00023	.00121	.00043
%RSD	200.65	2.0919	43.686	61.414	59.067	73.086	25.599
#1	.00001	.00253	.00010	.00004	.00067	.00303	-.00124
#2	-.00001	.00244	.00022	.00007	.00024	.00118	-.00210
#3	-.00004	.00245	.00012	.00002	.00029	.00075	-.00174

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S0 Acquired: 9/19/2014 12:12:41 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	140.43	5895.8	110540.	14532.	6168.5
Stddev	2.02	7.8	183.	89.	11.2
%RSD	1.4384	.13195	.16576	.61316	.18092
#1	138.45	5901.0	110340.	14446.	6181.3
#2	140.37	5899.4	110700.	14527.	6160.9
#3	142.49	5886.8	110580.	14624.	6163.3

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S1 Acquired: 9/19/2014 12:16:50 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00031	.00219	.00169	.00209	.00652	.00933	.65114	.00084
Stddev	.00005	.00007	.00020	.00005	.00003	.00013	.00112	.00005
%RSD	16.421	3.0512	12.071	2.3519	.46105	1.3896	.17132	5.9680
#1	.00030	.00220	.00148	.00209	.00654	.00924	.64987	.00089
#2	.00026	.00226	.00189	.00204	.00649	.00927	.65198	.00079
#3	.00036	.00213	.00169	.00213	.00654	.00947	.65157	.00083

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01152	.23356	.00131	.04058	.00387	.00168	.00468	.03064
Stddev	.00003	.00042	.00002	.00014	.00017	.00019	.00019	.00019
%RSD	.30162	.18155	1.6260	.35444	4.4430	11.071	4.0128	.63194
#1	.01148	.23404	.00132	.04050	.00394	.00184	.00474	.03044
#2	.01152	.23339	.00134	.04050	.00400	.00172	.00483	.03083
#3	.01155	.23324	.00129	.04075	.00368	.00148	.00447	.03064

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02348	.00179	.01478	.00371	.11169	.10307	-.00244	.00041
Stddev	.00012	.00007	.00024	.00014	.00477	.00013	.00004	.00006
%RSD	.49273	3.8354	1.6235	3.8951	4.2681	.12304	1.6040	13.815
#1	.02337	.00185	.01450	.00358	.10624	.10294	-.00239	.00040
#2	.02360	.00180	.01490	.00369	.11509	.10319	-.00247	.00048
#3	.02348	.00171	.01493	.00386	.11374	.10309	-.00245	.00037

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00564	.00517	.00146	.00084	.02870	.04071	.62309
Stddev	.00010	.00010	.00005	.00008	.00025	.00040	.00053
%RSD	1.8495	1.8457	3.4285	9.1975	.88735	.97792	.08437
#1	.00553	.00526	.00147	.00084	.02896	.04057	.62304
#2	.00573	.00516	.00150	.00076	.02845	.04116	.62260
#3	.00567	.00507	.00141	.00091	.02869	.04040	.62364

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S1 Acquired: 9/19/2014 12:16:50 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	139.83	5885.0	110140.	14416.	6027.9
Stddev	.88	7.4	141.	53.	9.6
%RSD	.63063	.12597	.12817	.36855	.15968
#1	139.27	5893.5	110070.	14458.	6034.8
#2	139.37	5879.8	110060.	14433.	6032.1
#3	140.85	5881.8	110310.	14356.	6016.9

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S2 Acquired: 9/19/2014 12:20:56 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.05886	.11559	1.3184	.07213	.14321	1.8805	8.3227	.02276	1.4982
Stddev	.00008	.00024	.0034	.00023	.00047	.0141	.0369	.00011	.0040
%RSD	.12804	.20853	.25788	.31654	.32527	.74946	.44388	.48193	.26332
#1	.05891	.11565	1.3180	.07187	.14274	1.8765	8.2976	.02277	1.5005
#2	.05888	.11533	1.3152	.07225	.14321	1.8688	8.3053	.02264	1.4937
#3	.05877	.11580	1.3219	.07228	.14367	1.8961	8.3651	.02286	1.5005

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.0570	.52860	.54133	.49198	.65811	1.2209	.39568	.38634	.06933
Stddev	.0118	.00070	.00078	.00396	.00185	.0051	.00209	.00033	.00012
%RSD	.38674	.13232	.14476	.80498	.28175	.42042	.52800	.08496	.16596
#1	3.0510	.52839	.54124	.49047	.65730	1.2180	.39536	.38643	.06921
#2	3.0493	.52938	.54060	.48899	.65679	1.2179	.39376	.38598	.06935
#3	3.0706	.52803	.54216	.49647	.66023	1.2268	.39791	.38662	.06944

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.17675	.04660	7.0929	.66010	.07412	.02721	.72343	.04308	.01898
Stddev	.00056	.00033	.0527	.00300	.00026	.00006	.00100	.00005	.00028
%RSD	.31687	.69874	.74264	.45428	.34682	.20982	.13876	.12659	1.4886
#1	.17613	.04671	7.0742	.65808	.07423	.02717	.72260	.04314	.01871
#2	.17690	.04624	7.0522	.65868	.07430	.02719	.72313	.04304	.01895
#3	.17722	.04686	7.1524	.66354	.07383	.02728	.72454	.04305	.01927

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.18543	.36854	1.0394	7.8266
Stddev	.00034	.00229	.0073	.0434
%RSD	.18315	.62062	.70195	.55479
#1	.18566	.36771	1.0357	7.8114
#2	.18504	.36678	1.0347	7.7928
#3	.18559	.37113	1.0478	7.8756

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S2 Acquired: 9/19/2014 12:20:56 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	133.30	5635.8	105550.	14102.	5407.0
Stddev	.80	8.6	112.	41.	4.4
%RSD	.60241	.15237	.10587	.29374	.08153
#1	133.13	5645.8	105430.	14086.	5410.4
#2	134.17	5630.8	105640.	14149.	5408.6
#3	132.59	5630.9	105580.	14071.	5402.0

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S3 Acquired: 9/19/2014 12:24:48 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.12207	.23481	2.7104	.14910	.29875	3.7524	16.560	.04515	3.0752
Stddev	.00220	.00443	.0547	.00357	.00613	.0077	.022	.00024	.0573
%RSD	1.8050	1.8850	2.0177	2.3921	2.0525	.20577	.13124	.53366	1.8625
#1	.12462	.23984	2.7733	.15319	.30581	3.7444	16.559	.04487	3.1411
#2	.12074	.23152	2.6737	.14664	.29478	3.7531	16.539	.04533	3.0375
#3	.12086	.23306	2.6843	.14746	.29566	3.7598	16.583	.04524	3.0470

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6.0174	1.0437	1.1179	.97366	1.2885	2.3934	.78912	.79596	.14099
Stddev	.0052	.0017	.0218	.00109	.0019	.0039	.00260	.01600	.00023
%RSD	.08684	.16393	1.9479	.11234	.14661	.16332	.32978	2.0106	.16410
#1	6.0131	1.0447	1.1429	.97338	1.2904	2.3941	.78803	.81430	.14081
#2	6.0232	1.0446	1.1030	.97274	1.2884	2.3969	.79209	.78487	.14125
#3	6.0158	1.0417	1.1078	.97487	1.2867	2.3892	.78725	.78870	.14091

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.36323	.09222	14.346	1.3021	.15566	.05390	1.4772	.08900	.03751
Stddev	.00198	.00054	.302	.0018	.00318	.00036	.0311	.00161	.00007
%RSD	.54496	.58228	2.1033	.13612	2.0403	.66073	2.1052	1.8037	.19176
#1	.36417	.09182	14.671	1.3018	.15928	.05427	1.5127	.09086	.03750
#2	.36096	.09201	14.074	1.3005	.15337	.05389	1.4548	.08802	.03758
#3	.36458	.09283	14.294	1.3040	.15432	.05356	1.4641	.08813	.03744

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.38285	.72405	2.0909	15.526
Stddev	.00757	.00085	.0016	.017
%RSD	1.9778	.11786	.07707	.10813
#1	.39154	.72450	2.0905	15.517
#2	.37767	.72307	2.0896	15.515
#3	.37933	.72459	2.0927	15.545

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S3 Acquired: 9/19/2014 12:24:48 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	129.51	5368.8	103710.	14093.	5036.4
Stddev	2.49	93.2	301.	39.	87.7
%RSD	1.9190	1.7365	.28982	.27461	1.7407
#1	126.90	5261.8	103360.	14137.	4936.0
#2	131.85	5432.1	103900.	14063.	5097.6
#3	129.78	5412.6	103860.	14079.	5075.6

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S4 Acquired: 9/19/2014 12:28:37 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.24617	.45450	5.3454	.29871	.60232	7.6120	32.806	.08983	5.0025
Stddev	.00121	.00218	.0172	.00170	.00234	.0306	.500	.00030	.0153
%RSD	.48954	.47880	.32225	.56889	.38794	.40134	1.5232	.33093	.25422
#1	.24583	.45356	5.3393	.29746	.60176	7.5792	32.333	.08960	6.0036
#2	.24516	.45294	5.3321	.29802	.60031	7.6171	32.756	.08973	5.9867
#3	.24750	.45698	5.3649	.30064	.60488	7.6397	33.329	.09016	6.0171

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	11.931	2.0292	2.1982	1.9476	2.5261	4.6873	1.5745	1.5592	.28889
Stddev	.042	.0076	.0074	.0051	.0074	.0190	.0067	.0047	.00078
%RSD	.35274	.37613	.33644	.26343	.29457	.40462	.42874	.29864	.26899
#1	11.882	2.0371	2.1947	1.9433	2.5203	4.6672	1.5679	1.5571	.28971
#2	11.959	2.0286	2.1933	1.9461	2.5345	4.7049	1.5814	1.5560	.28817
#3	11.951	2.0219	2.2067	1.9532	2.5236	4.6898	1.5743	1.5645	.28878

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.73513	.18257	29.236	2.6126	.31491	.10725	2.8920	.18052	.07478
Stddev	.00063	.00095	.338	.0058	.00140	.00056	.0111	.00066	.00039
%RSD	.08503	.51945	1.1572	.22358	.44601	.52238	.38409	.36661	.51495
#1	.73452	.18149	28.930	2.6062	.31421	.10684	2.8875	.18001	.07442
#2	.73577	.18296	29.179	2.6139	.31399	.10789	2.8839	.18029	.07472
#3	.73512	.18326	29.599	2.6177	.31652	.10701	2.9047	.18127	.07519

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.75118	1.4412	4.2466	30.665
Stddev	.00284	.0088	.0111	.287
%RSD	.37783	.60966	.26129	.93697
#1	.75043	1.4335	4.2370	30.339
#2	.74880	1.4393	4.2439	30.772
#3	.75432	1.4508	4.2587	30.883

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S4 Acquired: 9/19/2014 12:28:37 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	123.89	5183.4	100840.	14125.	4787.1
Stddev	1.35	16.6	487.	78.	13.5
%RSD	1.0903	.31983	.48259	.55245	.28285
#1	125.40	5179.7	100300.	14209.	4787.4
#2	123.45	5201.5	100960.	14055.	4800.5
#3	122.80	5169.0	101250.	14111.	4773.5

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S5 Acquired: 9/19/2014 12:32:41 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.51506	.88760	10.583	.62132	1.2644	15.289	65.868	.17722	11.728
Stddev	.00460	.00599	.058	.00411	.0104	.041	.949	.00039	.070
%RSD	.89263	.67489	.54846	.66135	.82019	.27088	1.4405	.22231	.59338
#1	.51417	.88528	10.573	.61996	1.2597	15.289	65.384	.17759	11.729
#2	.51098	.88312	10.530	.61806	1.2573	15.331	66.961	.17681	11.657
#3	.52004	.89440	10.645	.62593	1.2763	15.248	65.258	.17726	11.797

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	22.877	3.8136	4.3732	3.8792	4.8762	9.0542	3.0912	3.0932	.59560
Stddev	.274	.0109	.0256	.0121	.0081	.0240	.0082	.0145	.00040
%RSD	1.1963	.28600	.58563	.31304	.16548	.26566	.26480	.46965	.06745
#1	22.839	3.8198	4.3670	3.8810	4.8720	9.0419	3.0837	3.0897	.59600
#2	23.168	3.8199	4.3512	3.8904	4.8856	9.0819	3.0999	3.0808	.59519
#3	22.624	3.8010	4.4013	3.8663	4.8712	9.0387	3.0900	3.1092	.59561

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.4796	.35635	57.827	5.2474	.65245	.21077	5.8260	.37386	.14768
Stddev	.0025	.00104	.296	.0062	.00623	.00063	.0359	.00194	.00048
%RSD	.17134	.29168	.51259	.11716	.95481	.29849	.61688	.51863	.32275
#1	1.4771	.35633	58.078	5.2473	.65071	.21009	5.8198	.37304	.14806
#2	1.4822	.35740	57.903	5.2536	.64727	.21132	5.7935	.37247	.14784
#3	1.4795	.35532	57.500	5.2413	.65936	.21092	5.8646	.37608	.14715

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.4836	2.8504	8.6728	60.154
Stddev	.0067	.0086	.0272	.508
%RSD	.44862	.30174	.31374	.84503
#1	1.4846	2.8555	8.6809	59.942
#2	1.4765	2.8553	8.6951	60.734
#3	1.4896	2.8405	8.6425	59.787

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S5 Acquired: 9/19/2014 12:32:41 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	118.00	4731.3	96979.	14070.	4360.8
Stddev	.41	31.0	223.	55.	17.3
%RSD	.34646	.65498	.23022	.39272	.39767
#1	117.70	4737.8	96795.	14131.	4364.7
#2	117.83	4758.5	96916.	14024.	4375.8
#3	118.46	4697.6	97227.	14056.	4341.8

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: S6 Acquired: 9/19/2014 12:37:02 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	Al3961	Ca3736	Fe2598	Mg2790	Na8183
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	39.023	35.810	12.844	5.0142	4.1326
Stddev	.233	.217	.014	.0054	.0081
%RSD	.59638	.60600	.11233	.10777	.19623
#1	38.757	36.059	12.851	5.0202	4.1261
#2	39.189	35.656	12.854	5.0127	4.1417
#3	39.123	35.717	12.828	5.0097	4.1300

Int. Std.	Y_3710
Units	Cts/S
Avg	13650.
Stddev	5.
%RSD	.03426
#1	13650.
#2	13646.
#3	13655.

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICV54 Acquired: 9/19/2014 12:45:39 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICV54 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9147451	1.051659	.9679958	.9806221	.9050455	2.363567
Stddev	.0039277	.004332	.0031348	.0018114	.0017236	.009356
%RSD	.4293753	.4119255	.3238454	.1847158	.1904432	.3958300
#1	.9121962	1.047114	.9652605	.9789196	.9032390	2.372328
#2	.9127708	1.052123	.9673104	.9804212	.9052254	2.353712
#3	.9192682	1.055741	.9714167	.9825255	.9066721	2.364660

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5103523	.4845480	.4823740	10.28642	.5352262	.4812759
Stddev	.0009362	.0014834	.0026108	.01969	.0028313	.0023813
%RSD	.1834379	.3061394	.5412371	.1913726	.5289876	.4947928
#1	.5113176	.4831959	.4799194	10.27161	.5339255	.4795489
#2	.5094483	.4861347	.4820855	10.27888	.5384742	.4802865
#3	.5102909	.4843133	.4851170	10.30876	.5332791	.4839925

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4968695	5.332903	.5245023	5.843789	.4937248	.4799350
Stddev	.0019794	.022122	.0017629	.035340	.0022017	.0016290
%RSD	.3983800	.4148220	.3361174	.6047500	.4459427	.3394309
#1	.4987605	5.325254	.5241432	5.806831	.4915600	.4790588
#2	.4970360	5.315621	.5229466	5.847283	.4936527	.4818146
#3	.4948121	5.357835	.5264172	5.877252	.4959617	.4789316

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.855091	.5147837	.9677692	9.582701	F 2.119867	F 2.386733
Stddev	.039049	.0036764	.0097791	.011707	.000569	.003878
%RSD	.3962281	.7141743	1.010483	.1221686	.0268398	.1624841
#1	9.893995	.5148100	.9676191	9.596030	2.119224	2.384729
#2	9.855377	.5110942	.9580660	9.574086	2.120071	2.384267
#3	9.815899	.5184470	.9776225	9.577987	2.120306	2.391203

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICV54 Acquired: 9/19/2014 12:45:39 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICV54 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F 2.431182	2.246943	2.543808	F 2.359175	2.456609	2.316550
Stddev	.004667	.016577	.003834	.013392	.005962	.005640
%RSD	.1919510	.7377571	.1507025	.5676708	.2427107	.2434851
#1	2.426841	2.228578	2.546965	2.345704	2.463201	2.323063
#2	2.430587	2.251450	2.544918	2.359335	2.451593	2.313250
#3	2.436117	2.260800	2.539543	2.372487	2.455033	2.313337

Elem	Sr4077
Units	ppm
Avg	.0124572
Stddev	.0000424
%RSD	.3400188
#1	.0124822
#2	.0124810
#3	.0124083

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	139.3363	5906.340	110772.3	14892.33	5901.971
Stddev	1.8139	1.502	603.9	84.25	12.742
%RSD	1.301819	.0254308	.5451464	.5657428	.2158857
#1	140.7311	5904.804	110778.0	14957.08	5915.719
#2	139.9920	5907.805	110165.6	14922.85	5899.634
#3	137.2857	5906.411	111373.3	14797.07	5890.560

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICB54 Acquired: 9/19/2014 12:49:39 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICB54 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001225	.0002537	-.000407	-.000432	.0006379	-.002746
Stddev	.001482	.0009304	.000408	.000542	.0012004	.000391
%RSD	120.9902	366.8027	100.2748	125.7035	188.1870	14.23085
#1	-.001587	.0004396	-.000437	-.001048	-.000320	-.003102
#2	.000405	.0010771	-.000800	-.000029	.000249	-.002328
#3	-.002493	-.000756	.000015	-.000218	.001985	-.002809

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000249	.0003555	-.000021	-.002350	.0000023	.0001476
Stddev	.000276	.0004998	.000050	.007439	.0000453	.0001444
%RSD	110.8142	140.5925	239.6318	316.5969	2011.007	97.87827
#1	-.000512	.0005802	-.000057	.005432	.0000260	.0000173
#2	.000038	.0007036	-.000042	-.003090	.0000308	.0001225
#3	-.000272	-.000217	.000036	-.009391	-.000050	.0003029

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001659	-.001355	.0001200	-.000649	.0000737	-.000044
Stddev	.000647	.004020	.0004717	.013519	.0002121	.000271
%RSD	39.03608	296.5669	393.0330	2083.629	287.7355	616.0453
#1	-.001488	.002237	-.000272	.014422	-.000169	-.000352
#2	-.002374	-.005697	-.000011	-.011705	.000222	.000154
#3	-.001113	-.000606	.000643	-.004664	.000168	.000066

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0451088	-.000052	.0022910	-.018058	-.000434	F .0102027
Stddev	.1430656	.000536	.0001199	.023802	.000724	.0036806
%RSD	317.1563	1025.037	5.232256	131.8120	166.9107	36.07462
#1	-.109773	.000566	.0021645	.008911	-.001211	.0141450
#2	.172313	-.000338	.0024029	-.036133	-.000314	.0068567
#3	.072787	-.000384	.0023056	-.026951	.000223	.0096064

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICB54 Acquired: 9/19/2014 12:49:39 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICB54 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002137	-.024554	-.000868	-.000413	.0005773	.0009891
Stddev	.0002628	.001251	.003592	.000683	.0010013	.0004294
%RSD	122.9724	5.096641	413.8730	165.5288	173.4444	43.40903
#1	.0002799	-.024973	-.002350	.000139	-.000379	.0008086
#2	.0004372	-.025542	.003228	-.000200	.001618	.0006794
#3	-.000076	-.023147	-.003482	-.001177	.000494	.0014792

Elem	Sr4077
Units	ppm
Avg	-.000020
Stddev	.000037
%RSD	183.7847
#1	.000007
#2	-.000005
#3	-.000062

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	140.2062	5964.710	112866.7	14703.74	6228.724
Stddev	1.3547	15.826	446.8	221.27	15.821
%RSD	.9662224	.2653275	.3958906	1.504844	.2540068
#1	138.6500	5978.182	112376.8	14453.40	6239.423
#2	140.8468	5968.668	112971.6	14784.67	6236.199
#3	141.1218	5947.281	113251.8	14873.15	6210.550

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICSA54 Acquired: 9/19/2014 12:58:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSA54 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0032669	-.000304	-.001719	.0113395	.0014258	245.4469
Stddev	.0015379	.000933	.000983	.0012977	.0009521	.5707
%RSD	47.07428	307.0838	57.16504	11.44441	66.77500	.2325212
#1	.0028894	-.000185	-.002406	.0122559	.0014384	245.6816
#2	.0049585	.000564	-.002158	.0098545	.0023716	245.8629
#3	.0019530	-.001291	-.000593	.0119081	.0004675	244.7963

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0071928	.0012962	-.000466	250.8988	.0607731	-.000027
Stddev	.0001700	.0003338	.000099	.6332	.0004645	.000125
%RSD	2.363315	25.75316	21.25009	.2523811	.7643806	458.9877
#1	.0070155	.0011580	-.000544	250.9361	.0609911	.000022
#2	.0073544	.0016769	-.000500	251.5125	.0602397	.000066
#3	.0072085	.0010537	-.000354	250.2477	.0610886	-.000169

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001423	103.2095	.0143842	260.3534	.0031790	-.000016
Stddev	.000927	.1545	.0001653	.8663	.0000559	.000318
%RSD	65.13627	.1496510	1.149385	.3327279	1.758728	1936.752
#1	-.001616	103.0537	.0145711	260.1377	.0031236	.000350
#2	-.000415	103.2122	.0142569	261.3071	.0031781	-.000220
#3	-.002237	103.3626	.0143248	259.6153	.0032354	-.000179

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2211347	.0012170	.0188663	-.109795	.0054222	F .0926685
Stddev	.1172725	.0007150	.0033413	.012119	.0011943	.0044164
%RSD	53.03216	58.75382	17.71063	11.03788	22.02633	4.765770
#1	.2141272	.0012260	.0227049	-.100800	.0066405	.0963819
#2	.3417538	.0019275	.0166102	-.105008	.0053726	.0938387
#3	.1075231	.0004975	.0172837	-.123576	.0042534	.0877849

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICSA54 Acquired: 9/19/2014 12:58:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSA54 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0147780	-.023157	.0089241	F .0249473	.0206542	.0040897
Stddev	.0001021	.004337	.0101856	.0004996	.0007659	.0006387
%RSD	.6910408	18.73006	114.1359	2.002467	3.708149	15.61851
#1	.0148731	-.028158	.0196507	.0253644	.0215353	.0039956
#2	.0146700	-.020900	.0077381	.0250839	.0201477	.0047703
#3	.0147909	-.020414	-.000617	.0243936	.0202796	.0035032

Elem	Sr4077
Units	ppm
Avg	.1050571
Stddev	.0000790
%RSD	.0752105
#1	.1050466
#2	.1051408
#3	.1049838

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	130.1186	5528.712	102268.3	14008.49	5078.696
Stddev	2.1917	6.847	407.7	87.24	7.857
%RSD	1.684363	.1238393	.3986665	.6228006	.1547080
#1	128.4472	5526.975	102295.0	13982.89	5074.719
#2	129.3086	5536.260	102662.1	13936.91	5087.747
#3	132.6000	5522.901	101847.9	14105.68	5073.623

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICSAB54 Acquired: 9/19/2014 13:02:23 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSAB54 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0970634	.1015966	.0492196	.0613989	.5737185	252.3811
Stddev	.0021757	.0011081	.0018856	.0020836	.0032301	.4842
%RSD	2.241532	1.090647	3.830976	3.393455	.5630110	.1918441
#1	.0950949	.1009685	.0479250	.0592488	.5700365	252.0508
#2	.0993995	.1028760	.0513830	.0634088	.5750440	252.9369
#3	.0966958	.1009452	.0483509	.0615391	.5760750	252.1556

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5335637	.5341846	1.036154	257.3777	.6179958	.5098781
Stddev	.0002796	.0019917	.001270	.5689	.0020527	.0006461
%RSD	.0524047	.3728538	.1226026	.2210352	.3321496	.1267163
#1	.5336867	.5336083	1.035660	257.7752	.6183941	.5093574
#2	.5337608	.5364010	1.035204	257.6319	.6198201	.5096757
#3	.5332437	.5325446	1.037597	256.7260	.6157731	.5106012

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5168622	105.7184	.5496696	266.9674	1.027364	.2052652
Stddev	.0032598	.2060	.0021300	.9406	.002233	.0004851
%RSD	.6306936	.1948642	.3875059	.3523271	.2173275	.2363168
#1	.5165164	105.8468	.5515437	267.5342	1.029243	.2050020
#2	.5202811	105.8275	.5501118	267.4863	1.024895	.2049685
#3	.5137890	105.4807	.5473532	265.8817	1.027953	.2058249

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0037030	.5249266	1.028858	-.267968	.0340007	F .0739343
Stddev	.0121666	.0024885	.006633	.023889	.0007994	.0045655
%RSD	328.5584	.4740665	.6446670	8.914962	2.351102	6.175126
#1	.0149619	.5259044	1.021512	-.290929	.0343204	.0778237
#2	-.009203	.5220977	1.034408	-.269728	.0330910	.0689076
#3	.005351	.5267776	1.030654	-.243248	.0345908	.0750715

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: ICSAB54 Acquired: 9/19/2014 13:02:23 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSAB54 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005764	-.017792	.0220311	-.000754	-.001420	.0026410
Stddev	.0000204	.002157	.0022418	.000231	.000815	.0009363
%RSD	3.545197	12.12151	10.17570	30.58267	57.44394	35.45424
#1	.0005911	-.019542	.0199933	-.000909	-.001840	.0021379
#2	.0005530	-.018451	.0244325	-.000489	-.000480	.0020637
#3	.0005849	-.015383	.0216677	-.000865	-.001938	.0037214

Elem	Sr4077
Units	ppm
Avg	.1078306
Stddev	.0002130
%RSD	.1975258
#1	.1075865
#2	.1079788
#3	.1079264

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	128.1444	5431.738	100783.0	13805.51	4994.530
Stddev	.9296	6.173	43.8	51.24	6.460
%RSD	.7254039	.1136539	.0434614	.3711296	.1293461
#1	127.1685	5427.697	100733.0	13748.23	4993.785
#2	128.2455	5438.844	100814.7	13821.35	5001.330
#3	129.0194	5428.673	100801.3	13846.96	4988.474

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV60 Acquired: 9/19/2014 13:06:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV60 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.016730	5.041374	25.35907	4.986625	4.982243	398.0638	10.05366
Stddev	.015547	.013132	.05955	.007851	.016368	6.3931	.12815
%RSD	.3099079	.2604784	.2348225	.1574323	.3285323	1.606041	1.274644
#1	5.004382	5.042593	25.39587	4.978400	4.963512	403.6845	10.20030
#2	5.011619	5.027675	25.29036	4.987437	4.993794	399.3979	9.99750
#3	5.034190	5.053854	25.39097	4.994039	4.989424	391.1089	9.96318

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5205451	2.578998	407.6731	16.06999	2.549169	15.33129	397.3591
Stddev	.0024950	.007536	1.3044	.00089	.003870	.08588	1.0113
%RSD	.4793098	.2922131	.3199709	.0055490	.1518202	.5601344	.2544978
#1	.5234074	2.583387	409.1792	16.07102	2.550744	15.43042	398.5152
#2	.5188302	2.570296	406.9310	16.06944	2.544760	15.28397	396.6390
#3	.5193976	2.583312	406.9089	16.06952	2.552003	15.27949	396.9231

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.08371	400.7726	2.548153	1.291773	385.5146	2.565062	15.38454
Stddev	.06321	2.2465	.004480	.001302	1.4822	.015508	.14262
%RSD	.4190877	.5605436	.1758138	.1007976	.3844821	.6045676	.9270600
#1	15.15223	403.2705	2.551529	1.290740	387.2235	2.582508	15.30154
#2	15.02766	398.9177	2.543070	1.293236	384.5774	2.552844	15.30285
#3	15.07124	400.1295	2.549859	1.291343	384.7429	2.559834	15.54923

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	156.4681	5.032602	5.199033	4.969922	5.154909	5.151883	5.114925
Stddev	.5763	.003892	.031060	.011255	.014230	.017205	.015299
%RSD	.3683113	.0773391	.5974092	.2264718	.2760475	.3339519	.2990953
#1	157.1273	5.033354	5.227600	4.965479	5.141740	5.170036	5.123865
#2	156.2175	5.028388	5.165971	4.961566	5.152983	5.149797	5.097260
#3	156.0596	5.036063	5.203529	4.982721	5.170004	5.135816	5.123650

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV60 Acquired: 9/19/2014 13:06:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV60 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.120651	5.134648	5.080735
Stddev	.015252	.016460	.087998
%RSD	.2978602	.3205629	1.732001
#1	5.138263	5.153575	5.158145
#2	5.111718	5.123690	4.985025
#3	5.111974	5.126678	5.099034

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	119.5739	4935.346	95921.55	13479.05	4437.184
Stddev	.9091	9.229	92.77	102.71	7.463
%RSD	.7602427	.1870035	.0967170	.7619737	.1681983
#1	119.7408	4941.635	95830.86	13360.74	4432.740
#2	120.3879	4939.651	96016.28	13531.06	4445.801
#3	118.5929	4924.750	95917.51	13545.35	4433.013

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB60 Acquired: 9/19/2014 13:10:30 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB60 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000395	.0016266	-.000085	-.000052	-.000154	.0073591	.0007780
Stddev	.000231	.0007353	.000482	.001759	.000339	.0043063	.0000986
%RSD	58.37043	45.20631	566.6385	3371.129	220.6737	58.51637	12.67736
#1	-.000648	.0008899	-.000505	.001914	-.000207	.0024184	.0008840
#2	-.000196	.0016292	-.000191	-.001475	-.000463	.0103157	.0006889
#3	-.000343	.0023605	.000441	-.000595	.000209	.0093431	.0007611

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001980	.0000328	.0132237	.0001659	.0001057	-.001195	.0173267
Stddev	.0003905	.0000129	.0047719	.0002850	.0001084	.000996	.0036112
%RSD	197.2357	39.16743	36.08586	171.7863	102.5682	83.36039	20.84157
#1	-.000085	.0000191	.0186655	-.000061	.0001426	-.000263	.0213892
#2	.000643	.0000349	.0097539	.000486	-.000016	-.001077	.0161092
#3	.000035	.0000446	.0112517	.000073	.000191	-.002244	.0144817

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004351	.0023311	.0001720	.0001507	.0845468	.0002034	.0029416
Stddev	.0002654	.0066638	.0001169	.0001595	.0541582	.0017462	.0046171
%RSD	60.99241	285.8654	67.96283	105.8300	64.05712	858.4284	156.9567
#1	.0006208	-.002856	.0002817	.0002834	.0924760	-.001636	.0070102
#2	.0005534	.009847	.0000491	.0001950	.0268610	.001838	-.002076
#3	.0001312	.000002	.0001853	-.000026	.1343032	.000409	.003891

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1018200	-.000856	.0073652	.0004545	-.023900	-.003096	.0000881
Stddev	.0383233	.000726	.0048277	.0001677	.000876	.006360	.0000200
%RSD	37.63830	84.86250	65.54803	36.89847	3.666961	205.4202	22.67735
#1	.1173040	-.000663	.0025433	.0006390	-.024198	.003428	.0000736
#2	.1299788	-.001660	.0073535	.0003112	-.024588	-.003438	.0000798
#3	.0581773	-.000246	.0121987	.0004133	-.022913	-.009279	.0001109

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB60 Acquired: 9/19/2014 13:10:30 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB60 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0013663	.0021014	.0000615
Stddev	.0005402	.0006765	.0000487
%RSD	39.53942	32.19352	79.07915
#1	.0012459	.0027460	.0001116
#2	.0008964	.0013970	.0000585
#3	.0019565	.0021610	.0000145

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	136.9571	5922.700	109454.0	14044.63	6191.837
Stddev	.1875	12.876	338.7	46.33	16.505
%RSD	.1369295	.2173946	.3094482	.3298766	.2665550
#1	136.9511	5917.834	109289.9	14036.78	6193.072
#2	136.7727	5937.299	109228.6	14002.72	6207.690
#3	137.1476	5912.966	109843.5	14094.38	6174.750

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV61 Acquired: 9/19/2014 14:32:48 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV61 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.042546	5.051921	25.38955	4.928520	4.989821	409.5764	10.21369
Stddev	.013912	.016406	.05566	.005180	.010330	1.6901	.03191
%RSD	.2758913	.3247427	.2192372	.1051098	.2070203	.4126449	.3124670
#1	5.037177	5.057814	25.40035	4.928945	4.983095	408.5554	10.21715
#2	5.032118	5.033383	25.32928	4.923141	4.984653	408.6466	10.18018
#3	5.058342	5.064566	25.43903	4.933475	5.001715	411.5273	10.24373

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5311004	2.593916	416.8405	16.59145	2.553858	15.65290	405.4514
Stddev	.0013358	.007460	.3743	.05608	.006703	.05651	.2088
%RSD	.2515203	.2875917	.0897888	.3379867	.2624472	.3610333	.0515072
#1	.5296375	2.596495	416.7108	16.65043	2.555292	15.59724	405.6921
#2	.5314086	2.585508	417.2624	16.58509	2.546554	15.65123	405.3440
#3	.5322552	2.599744	416.5484	16.53882	2.559726	15.71023	405.3182

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.55148	418.4899	2.520985	1.321890	399.4580	2.589957	15.46370
Stddev	.00279	.6810	.004680	.000890	1.0419	.004569	.16536
%RSD	.0179657	.1627301	.1856326	.0672944	.2608268	.1764285	1.069330
#1	15.55198	417.7389	2.524196	1.321720	398.4718	2.584894	15.27276
#2	15.55399	419.0673	2.515616	1.322853	399.3544	2.593774	15.55990
#3	15.54847	418.6636	2.523143	1.321098	400.5478	2.591203	15.55843

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	157.0971	5.050114	5.308732	4.941410	5.147384	5.234008	5.062802
Stddev	.2880	.015284	.009940	.009637	.010330	.007147	.017562
%RSD	.1833471	.3026448	.1872459	.1950252	.2006809	.1365418	.3468894
#1	156.9012	5.047663	5.299470	4.943729	5.156421	5.228520	5.065465
#2	157.4278	5.036204	5.307491	4.930825	5.136124	5.242089	5.044061
#3	156.9622	5.066476	5.319235	4.949675	5.149608	5.231415	5.078881

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV61 Acquired: 9/19/2014 14:32:48 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV61 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.106724	5.202621	5.223115
Stddev	.006337	.006034	.031449
%RSD	.1240895	.1159886	.6021049
#1	5.099999	5.195795	5.186832
#2	5.112585	5.204823	5.242547
#3	5.107587	5.207246	5.239965

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	118.2584	4990.798	95066.31	13069.22	4522.789
Stddev	1.8360	9.534	274.99	72.62	10.978
%RSD	1.552504	.1910352	.2892633	.5556311	.2427360
#1	120.3537	4994.578	94754.71	13146.78	4521.642
#2	117.4900	4997.864	95169.23	13058.03	4534.296
#3	116.9315	4979.954	95275.00	13002.85	4512.430

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB61 Acquired: 9/19/2014 14:36:57 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB61 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009872	.0015298	-.000682	-.000680	-.001089	.0102252	.0011801
Stddev	.0004062	.0015007	.001313	.000595	.001791	.0045604	.0001879
%RSD	41.15030	98.09237	192.3737	87.49191	164.4854	44.59912	15.91793
#1	.0006580	.0007781	.000368	-.001312	.000071	.0049783	.0013140
#2	.0014412	.0005537	-.000261	-.000594	-.000186	.0132351	.0012610
#3	.0008624	.0032578	-.002154	-.000133	-.003152	.0124623	.0009654

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004100	-.000002	.0098478	.0004647	.0002393	-.000937	.0153921
Stddev	.0002237	.000038	.0038457	.0001233	.0000833	.000600	.0043516
%RSD	54.55585	1665.314	39.05100	26.54265	34.79304	64.04084	28.27189
#1	.0001665	.000041	.0135945	.0004044	.0002992	-.001015	.0186267
#2	.0006064	-.000017	.0100385	.0003831	.0001442	-.001495	.0171049
#3	.0004571	-.000031	.0059103	.0006066	.0002744	-.000302	.0104447

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006255	.0120908	.0001667	.0000706	-.008597	-.000899	.0039652
Stddev	.0003466	.0118739	.0001588	.0000779	.151878	.001604	.0040048
%RSD	55.41989	98.20662	95.25447	110.2608	1766.633	178.4337	100.9975
#1	.0008377	.0221030	.0003078	.0000024	.069812	-.002611	.0011472
#2	.0002255	.0151968	.0001977	.0001555	-.183654	.000568	.0085495
#3	.0008132	-.001028	-.000005	.0000539	.088050	-.000653	.0021990

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0117148	.0002248	.0063063	.0004337	-.024233	.0045582	-.000194
Stddev	.0139617	.0004199	.0048374	.0003708	.001635	.0040947	.000462
%RSD	119.1806	186.7876	76.70727	85.50661	6.746109	89.83079	238.2172
#1	-.002825	-.000258	.0024653	.0006635	-.023466	.0090508	-.000127
#2	.025016	.000501	.0047146	.0006317	-.026111	.0010355	-.000686
#3	.012953	.000432	.0117390	.0000059	-.023123	.0035883	.000231

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB61 Acquired: 9/19/2014 14:36:57 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB61 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0013845	.0013207	.0001896
Stddev	.0011165	.0005819	.0000420
%RSD	80.64168	44.06074	22.12779
#1	.0016022	.0019646	.0001961
#2	.0001752	.0008326	.0002279
#3	.0023762	.0011648	.0001448

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	136.2735	5945.197	109770.5	13712.03	6277.480
Stddev	.8537	16.630	909.9	51.54	20.205
%RSD	.6264963	.2797147	.8289205	.3758412	.3218603
#1	136.9750	5950.406	109527.7	13757.67	6285.180
#2	135.3229	5958.598	110777.1	13722.28	6292.704
#3	136.5227	5926.586	109006.5	13656.14	6254.558

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV62 Acquired: 9/19/2014 16:01:16 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV62 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.125490	5.025788	25.14030	5.025310	5.090213	408.1065	10.38980
Stddev	.035939	.035581	.19414	.033409	.041795	4.0337	.06174
%RSD	.7011777	.7079647	.7722182	.6648182	.8210923	.9884036	.5942158
#1	5.087917	5.002604	25.04679	5.001947	5.055930	403.4960	10.31859
#2	5.129019	5.008006	25.01061	5.010405	5.077938	409.8386	10.42826
#3	5.159535	5.066755	25.36350	5.063577	5.136771	410.9849	10.42256

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5233230	2.547337	409.2530	16.37893	2.539194	15.71262	392.6487
Stddev	.0036375	.019731	2.7757	.06093	.018595	.09862	3.1327
%RSD	.6950674	.7745854	.6782308	.3719993	.7323015	.6276681	.7978398
#1	.5199274	2.537870	407.7770	16.43468	2.530466	15.64874	391.3110
#2	.5271617	2.534123	412.4548	16.38823	2.526569	15.82620	396.2282
#3	.5228799	2.570018	407.5272	16.31389	2.560547	15.66291	390.4070

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.14893	401.6802	2.496298	1.304848	398.7482	2.602013	15.05767
Stddev	.10983	2.2441	.018407	.000754	2.4956	.004679	.30440
%RSD	.7250200	.5586836	.7373821	.0578156	.6258660	.1798306	2.021583
#1	15.08430	400.0204	2.489858	1.304335	397.1076	2.605457	14.72236
#2	15.27575	404.2334	2.481976	1.304495	401.6202	2.596686	15.31664
#3	15.08676	400.7867	2.517060	1.305715	397.5168	2.603897	15.13399

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	159.2452	5.130244	5.159072	4.963239	5.177102	5.185810	4.998097
Stddev	.7508	.036221	.046699	.037587	.046336	.027167	.041962
%RSD	.4714530	.7060275	.9051895	.7573133	.8950260	.5238709	.8395613
#1	158.7906	5.100308	5.126443	4.940226	5.139990	5.173909	4.984286
#2	160.1118	5.119918	5.212566	4.942878	5.162281	5.166624	4.964781
#3	158.8332	5.170507	5.138207	5.006614	5.229036	5.216896	5.045224

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV62 Acquired: 9/19/2014 16:01:16 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV62 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.158408	5.298307	5.239096
Stddev	.030009	.039862	.048844
%RSD	.5817468	.7523559	.9322926
#1	5.144506	5.272041	5.182898
#2	5.192847	5.344175	5.263066
#3	5.137871	5.278704	5.271324

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	117.9182	4944.180	96662.43	13323.35	4527.772
Stddev	2.1312	38.304	154.99	34.38	33.668
%RSD	1.807316	.7747225	.1603398	.2580306	.7435800
#1	120.3500	4974.689	96484.19	13361.65	4543.232
#2	116.3759	4956.658	96765.49	13313.24	4550.932
#3	117.0287	4901.193	96737.61	13295.16	4489.151

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB62 Acquired: 9/19/2014 16:05:28 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB62 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006274	.0015550	-.000206	-.001574	-.000180	.0135894	.0010140
Stddev	.0009295	.0007650	.000248	.001360	.000968	.0037168	.0000452
%RSD	148.1366	49.19160	120.0975	86.45001	537.3853	27.35077	4.459718
#1	.0013806	.0006766	.000077	-.000800	.000886	.0139525	.0009625
#2	-.000411	.0020746	-.000380	-.000776	-.001004	.0171112	.0010325
#3	.000913	.0019138	-.000317	-.003144	-.000422	.0097043	.0010471

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000021	.0000526	.0152057	.0004337	.0002730	-.001612	.0235999
Stddev	.000331	.0000576	.0035802	.0002260	.0001637	.001718	.0040203
%RSD	1597.945	109.5302	23.54530	52.12192	59.95164	106.5453	17.03541
#1	.000333	.0001032	.0141004	.0003315	.0004544	.000004	.0206623
#2	-.000071	-.000010	.0192082	.0006928	.0001362	-.001424	.0219557
#3	-.000324	.000065	.0123084	.0002768	.0002285	-.003417	.0281817

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006697	.0169359	.0003758	-.000016	.0349501	.0003578	-.000538
Stddev	.0001981	.0123839	.0000961	.000127	.1331242	.0015526	.004952
%RSD	29.57832	73.12207	25.55692	808.3860	380.8982	433.9349	920.7921
#1	.0006535	.0050765	.0003390	.000047	.0432469	-.000953	.004925
#2	.0008754	.0297849	.0003037	.000068	.1637318	.002072	-.004731
#3	.0004802	.0159463	.0004849	-.000162	-.102129	-.000046	-.001808

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002051	.0006783	.0064740	.0007796	-.028316	.0020262	-.000414
Stddev	.016232	.0010922	.0036767	.0003880	.001528	.0046315	.000189
%RSD	791.2419	161.0233	56.79167	49.77161	5.396371	228.5765	45.67328
#1	.016687	-.000195	.0058673	.0012117	-.026779	-.003258	-.000613
#2	-.011792	.000326	.0104162	.0006664	-.028334	.003955	-.000392
#3	-.011049	.001903	.0031383	.0004608	-.029835	.005381	-.000236

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB62 Acquired: 9/19/2014 16:05:28 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB62 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0006367	.0020906	.0001515
Stddev	.0010748	.0004229	.0000194
%RSD	168.8001	20.22654	12.78619
#1	.0016069	.0016218	.0001544
#2	-.000519	.0024433	.0001308
#3	.000822	.0022065	.0001692

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	135.4665	5954.260	111786.6	14146.59	6351.955
Stddev	.9156	100.269	497.4	58.98	107.691
%RSD	.6758515	1.683979	.4449867	.4168953	1.695403
#1	134.6135	6069.296	111263.7	14097.63	6476.300
#2	136.4338	5908.094	112253.9	14212.06	6290.871
#3	135.3522	5885.391	111842.3	14130.06	6288.695

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV63 Acquired: 9/19/2014 17:56:43 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV63 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.046280	4.882540	24.23511	4.987435	5.063210	402.0260	10.17259
Stddev	.013072	.017098	.07804	.010004	.007151	2.6950	.15345
%RSD	.2590359	.3501893	.3220089	.2005898	.1412299	.6703521	1.508484
#1	5.031206	4.867770	24.21679	4.985276	5.055371	401.1928	10.13341
#2	5.053137	4.878579	24.16786	4.978687	5.064883	399.8461	10.04253
#3	5.054495	4.901271	24.32068	4.998343	5.069375	405.0392	10.34183

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4958622	2.438426	400.2182	15.73585	2.464542	15.27217	385.0874
Stddev	.0014354	.009087	.5028	.00345	.008528	.03202	.7473
%RSD	.2894696	.3726730	.1256191	.0219525	.3460453	.2096488	.1940585
#1	.4944334	2.434471	400.5741	15.73311	2.459327	15.23941	385.3355
#2	.4973041	2.431986	399.6431	15.73973	2.459915	15.27371	384.2476
#3	.4958490	2.448820	400.4375	15.73471	2.474384	15.30339	385.6792

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.66832	388.7190	2.423073	1.291731	397.5124	2.489112	14.70866
Stddev	.01925	.8302	.005323	.003459	.9974	.000705	.21118
%RSD	.1312344	.2135681	.2196628	.2677855	.2509145	.0283058	1.435742
#1	14.66861	388.4913	2.423497	1.288123	397.6489	2.488681	14.50452
#2	14.64893	388.0264	2.417552	1.295019	396.4537	2.488731	14.69522
#3	14.68743	389.6393	2.428172	1.292052	398.4344	2.489925	14.92624

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	154.3356	5.039917	5.022613	4.873169	5.059207	4.939363	4.831657
Stddev	.2618	.005255	.005199	.008330	.006838	.038192	.016611
%RSD	.1696291	.1042601	.1035199	.1709367	.1351607	.7732085	.3437920
#1	154.0845	5.035239	5.017588	4.869175	5.051312	4.903275	4.824642
#2	154.3154	5.038910	5.022279	4.867588	5.063269	4.979358	4.819704
#3	154.6069	5.045602	5.027971	4.882744	5.063040	4.935457	4.850624

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV63 Acquired: 9/19/2014 17:56:43 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV63 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.976005	5.203342	5.140951
Stddev	.003289	.006336	.054753
%RSD	.0660882	.1217586	1.065039
#1	4.974238	5.196026	5.201760
#2	4.973977	5.206975	5.095560
#3	4.979799	5.207024	5.125535

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	117.4591	4942.194	97725.17	13875.58	4546.473
Stddev	1.4933	6.614	160.54	45.38	12.213
%RSD	1.271327	.1338251	.1642732	.3270674	.2686328
#1	118.6677	4944.611	97910.36	13886.99	4548.364
#2	117.9198	4947.259	97639.73	13914.17	4557.631
#3	115.7897	4934.711	97625.43	13825.58	4533.425

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB63 Acquired: 9/19/2014 18:00:54 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB63 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000317	.0019497	-.000370	.0001733	-.000229	.0278734	.0009234
Stddev	.000348	.0010348	.000866	.0002073	.000697	.0075696	.0003170
%RSD	109.6096	53.07314	234.1337	119.6068	303.9683	27.15722	34.32641
#1	.000084	.0018533	-.001219	.0004084	.000325	.0348595	.0011457
#2	-.000510	.0009665	-.000403	.0000170	-.000002	.0289294	.0010641
#3	-.000527	.0030294	.000513	.0000944	-.001011	.0198312	.0005604

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000042	-.000003	.0256884	.0004232	.0001886	-.002428	.0278924
Stddev	.000190	.000030	.0105666	.0003303	.0001128	.002037	.0096740
%RSD	447.9729	1089.988	41.13383	78.04972	59.78351	83.86498	34.68337
#1	-.000106	-.000037	.0346668	.0007049	.0003184	-.001657	.0367122
#2	-.000192	.000012	.0283542	.0005050	.0001322	-.000890	.0294193
#3	.000171	.000016	.0140442	.0000597	.0001152	-.004738	.0175457

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0010616	.0097972	.0002787	-.000030	.2189746	-.000308	.0041268
Stddev	.0001458	.0051395	.0001415	.000149	.0755010	.001371	.0023578
%RSD	13.73307	52.45936	50.77065	493.9361	34.47932	445.6130	57.13296
#1	.0012120	.0053052	.0002383	.000098	.2563175	-.000556	.0064085
#2	.0010520	.0086845	.0001618	-.000193	.1320791	-.001537	.0016997
#3	.0009209	.0154020	.0004361	.000005	.2685272	.001171	.0042721

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0347494	.0005510	.0096526	.0009384	-.029208	.0068175	-.000332
Stddev	.0062444	.0004529	.0008266	.0003453	.001436	.0040820	.000448
%RSD	17.96975	82.18893	8.563103	36.79190	4.916129	59.87587	134.6029
#1	.0296445	.0006954	.0101576	.0013044	-.027831	.0109629	.000131
#2	.0417117	.0009142	.0101014	.0008921	-.029098	.0028019	-.000365
#3	.0328920	.0000436	.0086987	.0006186	-.030696	.0066877	-.000763

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB63 Acquired: 9/19/2014 18:00:54 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB63 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0006947	.0026254	.0002742
Stddev	.0012184	.0012374	.0000303
%RSD	175.3961	47.13114	11.05156
#1	.0020460	.0037321	.0002903
#2	-.000320	.0028548	.0002930
#3	.000358	.0012894	.0002393

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	137.5520	6051.588	113767.3	14849.87	6452.874
Stddev	.6712	37.124	176.1	20.33	41.085
%RSD	.4879911	.6134549	.1547647	.1369171	.6366950
#1	137.7597	6027.300	113853.6	14828.56	6420.312
#2	138.0948	6033.141	113564.8	14869.05	6439.277
#3	136.8014	6094.321	113883.6	14852.00	6499.035

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-06RE Acquired: 9/19/2014 19:01:49 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AJ9 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0119797	-.002589	.1718071	.0090413	-.001058	12.08829	.1787573
Stddev	.0001953	.001239	.0031534	.0013529	.001036	.02978	.0004633
%RSD	1.629861	47.85003	1.835462	14.96322	97.96166	.2463869	.2591619
#1	.0120696	-.003973	.1682612	.0105035	-.002059	12.08294	.1785254
#2	.0121138	-.002212	.1728629	.0078340	-.001125	12.06155	.1792907
#3	.0117557	-.001583	.1742972	.0087865	.000010	12.12039	.1784558

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0027726	.0003776	4.378570	.0219327	.0120978	.0110633	16.45932
Stddev	.0001517	.0000194	.012033	.0002609	.0001724	.0004121	.02888
%RSD	5.472883	5.152457	.2748088	1.189513	1.424805	3.725005	.1754490
#1	.0029441	.0003925	4.373675	.0217236	.0119159	.0112458	16.44919
#2	.0026558	.0003846	4.369755	.0222250	.0122587	.0105914	16.43688
#3	.0027180	.0003556	4.392278	.0218494	.0121187	.0113526	16.49190

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4645468	.6444051	.0094891	-.000113	.4004565	.0269201	.0591755
Stddev	.0009259	.0050493	.0002001	.000106	.0717036	.0012130	.0027333
%RSD	.1993121	.7835579	2.108817	93.97705	17.90547	4.505788	4.618913
#1	.4638144	.6409804	.0092596	-.000038	.3699637	.0282738	.0605420
#2	.4642384	.6502039	.0096273	-.000235	.3490391	.0265544	.0560284
#3	.4655875	.6420311	.0095805	-.000067	.4823666	.0259320	.0609559

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.104312	.9129714	.0152869	.0023868	3.832635	3.629075	.0074762
Stddev	.029208	.0102729	.0031996	.0001274	.052528	.024842	.0003017
%RSD	28.00097	1.125214	20.93047	5.339247	1.370544	.6845387	4.035949
#1	-.077468	.9011783	.0131317	.0024919	3.772827	3.638520	.0072779
#2	-.135417	.9177616	.0189634	.0024234	3.853793	3.600895	.0073273
#3	-.100052	.9199743	.0137657	.0022451	3.871284	3.647809	.0078235

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-06RE Acquired: 9/19/2014 19:01:49 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AJ9 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2615681	.0030621	.0298907
Stddev	.0018051	.0002177	.0001028
%RSD	.6901140	7.109517	.3437905
#1	.2616356	.0028139	.0299442
#2	.2633386	.0032208	.0297723
#3	.2597302	.0031515	.0299557

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	151.5195	6437.051	124974.3	16290.86	6201.149
Stddev	2.1394	55.331	410.5	113.98	69.473
%RSD	1.411954	.8595771	.3284590	.6996657	1.120326
#1	150.7074	6498.169	124564.5	16231.72	6277.678
#2	153.9461	6422.618	124973.0	16422.25	6183.717
#3	149.9051	6390.367	125385.4	16218.60	6142.052

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-07RE Acquired: 9/19/2014 19:05:55 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0064383	-.003803	.0347845	.0047416	-.000151	8.776819	.1103148
Stddev	.0015553	.000279	.0006060	.0010951	.000695	.071754	.0002585
%RSD	24.15717	7.324435	1.742141	23.09547	459.4462	.8175359	.2343004
#1	.0065147	-.003756	.0353225	.0054466	-.000425	8.772184	.1103279
#2	.0048462	-.003550	.0349032	.0052981	.000639	8.707495	.1100500
#3	.0079541	-.004102	.0341280	.0034800	-.000668	8.850777	.1105665

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0026617	.0004262	9.139332	.0179966	.0105014	.0096577	23.23187
Stddev	.0004611	.0000318	.027098	.0003045	.0001737	.0008955	.04981
%RSD	17.32400	7.470282	.2964966	1.692027	1.654121	9.272743	.2144243
#1	.0028575	.0004058	9.130750	.0178269	.0103013	.0100060	23.27950
#2	.0029927	.0004099	9.117564	.0183481	.0106140	.0103268	23.18012
#3	.0021350	.0004629	9.169681	.0178147	.0105888	.0086404	23.23598

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5155264	.4249547	.0090662	-.000157	.1856868	.0413041	.0688065
Stddev	.0021563	.0138893	.0001850	.000341	.1662493	.0013427	.0028927
%RSD	.4182620	3.268423	2.040513	217.6951	89.53213	3.250764	4.204144
#1	.5148060	.4409350	.0090800	.000237	.1746032	.0426998	.0719091
#2	.5138226	.4181417	.0088746	-.000356	.3572005	.0400215	.0683267
#3	.5179506	.4157874	.0092438	-.000350	.0252565	.0411910	.0661836

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.470604	.4483711	.0213360	.0019596	1.718675	2.582197	.0064585
Stddev	.019012	.0008400	.0026555	.0000475	.006684	.012771	.0005900
%RSD	4.039902	.1873544	12.44607	2.425806	.3888854	.4945938	9.134567
#1	-.465175	.4479938	.0186605	.0019461	1.711594	2.567997	.0062460
#2	-.491740	.4493337	.0213765	.0019202	1.719557	2.585849	.0071253
#3	-.454897	.4477859	.0239711	.0020124	1.724873	2.592744	.0060042

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-07RE Acquired: 9/19/2014 19:05:55 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK0 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1377088	.0014701	.0323931
Stddev	.0003898	.0003258	.0001571
%RSD	.2830586	22.15925	.4850718
#1	.1377148	.0011033	.0323951
#2	.1380955	.0015814	.0322349
#3	.1373160	.0017256	.0325492

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	140.4904	6170.343	119159.9	15373.48	6312.775
Stddev	2.0514	11.464	679.2	134.72	7.371
%RSD	1.460172	.1857887	.5700225	.8763431	.1167617
#1	141.4572	6157.831	119844.6	15359.79	6314.697
#2	141.8797	6180.342	118486.3	15514.53	6318.994
#3	138.1342	6172.855	119148.7	15246.13	6304.633

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-08RE Acquired: 9/19/2014 19:10:02 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0049316	-.000535	.0290708	.0028424	-.000978	6.681963	.0673829
Stddev	.0013453	.000592	.0006065	.0015263	.001287	.011210	.0002256
%RSD	27.27872	110.6933	2.086277	53.69927	131.6735	.1677685	.3348633
#1	.0055437	-.000401	.0297388	.0042491	-.001665	6.671467	.0675950
#2	.0033891	-.000021	.0289191	.0012195	.000507	6.680651	.0671458
#3	.0058620	-.001181	.0285546	.0030585	-.001775	6.693772	.0674080

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0011496	.0000778	2.616023	.0198822	.0068978	.0036477	16.52999
Stddev	.0002904	.0000238	.017043	.0002041	.0000947	.0009614	.03227
%RSD	25.26001	30.65374	.6514945	1.026284	1.372576	26.35533	.1952371
#1	.0012517	.0000862	2.606750	.0199773	.0069426	.0026476	16.54723
#2	.0013752	.0000509	2.635693	.0196479	.0067891	.0037304	16.49276
#3	.0008220	.0000963	2.605628	.0200213	.0069618	.0045649	16.54998

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2576311	.3340893	.0062199	-.000038	.1521154	.0309653	.0518957
Stddev	.0002971	.0179826	.0002530	.000289	.1141394	.0010661	.0019403
%RSD	.1153253	5.382559	4.067158	758.0787	75.03477	3.442916	3.738828
#1	.2579526	.3153739	.0059445	-.000305	.0270298	.0305375	.0497080
#2	.2575743	.3356577	.0064420	-.000080	.2506166	.0301796	.0525709
#3	.2573666	.3512363	.0062732	.000270	.1786997	.0321789	.0534082

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.324903	.3062371	.0199854	.0014507	.4465691	4.411615	.0058054
Stddev	.014964	.0016726	.0016283	.0002892	.0018503	.040450	.0001767
%RSD	4.605717	.5461776	8.147333	19.93745	.4143346	.9168924	3.043373
#1	-.341330	.3051860	.0217849	.0017257	.4457587	4.415426	.0058208
#2	-.312047	.3053593	.0186138	.0014774	.4452622	4.450024	.0059739
#3	-.321333	.3081658	.0195575	.0011491	.4486863	4.369394	.0056215

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-08RE Acquired: 9/19/2014 19:10:02 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.3384487	.0008882	.0139742
Stddev	.0058371	.0005928	.0000706
%RSD	1.724665	66.74392	.5053957
#1	.3340417	.0011754	.0138929
#2	.3362356	.0012827	.0140200
#3	.3450687	.0002065	.0140096

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	137.3421	6099.568	116800.9	15038.06	6374.702
Stddev	1.0582	13.666	268.6	59.61	10.483
%RSD	.7705200	.2240489	.2299891	.3963784	.1644504
#1	138.1304	6102.430	116491.0	15084.94	6382.910
#2	137.7566	6111.576	116943.6	14970.97	6378.304
#3	136.1393	6084.697	116968.1	15058.26	6362.893

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-09RE Acquired: 9/19/2014 19:14:10 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0063510	-.001713	.0287799	.0001623	-.000035	6.136381	.0660394
Stddev	.0012490	.001007	.0004765	.0006248	.000642	.005684	.0002146
%RSD	19.66661	58.80300	1.655779	385.0795	1816.968	.0926303	.3249659
#1	.0073729	-.002690	.0292659	.0007435	-.000596	6.135788	.0657931
#2	.0049587	-.000678	.0283134	.0002419	.000664	6.131017	.0661864
#3	.0067216	-.001772	.0287605	-.000499	-.000174	6.142339	.0661385

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0011838	.0000223	2.665577	.0193323	.0069648	.0046043	16.56962
Stddev	.0001498	.0000368	.005451	.0001590	.0001815	.0005330	.07890
%RSD	12.65382	165.1707	.2045050	.8226055	2.605390	11.57565	.4761486
#1	.0013371	.0000087	2.661037	.0194854	.0071284	.0049725	16.62917
#2	.0010377	-.000006	2.671623	.0191679	.0069963	.0048473	16.48014
#3	.0011767	.000064	2.664071	.0193435	.0067696	.0039932	16.59955

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2601583	.3065095	.0062258	-.000192	.2260726	.0297850	.0494974
Stddev	.0020231	.0021867	.0001812	.000223	.1888136	.0010868	.0038382
%RSD	.7776490	.7134069	2.910985	115.9132	83.51903	3.648807	7.754312
#1	.2602179	.3039850	.0062118	-.000068	.3438901	.0310360	.0451280
#2	.2581061	.3078119	.0060520	-.000449	.3260344	.0290736	.0523248
#3	.2621510	.3077317	.0064136	-.000059	.0082932	.0292454	.0510393

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.347729	.3035486	.0174463	.0013311	.4549107	2.494920	.0060745
Stddev	.011376	.0020060	.0016532	.0002334	.0004516	.014314	.0008186
%RSD	3.271655	.6608545	9.475950	17.53616	.0992778	.5737207	13.47576
#1	-.359864	.3046380	.0191340	.0011767	.4554110	2.509613	.0065394
#2	-.346019	.3012336	.0158299	.0012170	.4547882	2.481018	.0065549
#3	-.337305	.3047743	.0173750	.0015997	.4545330	2.494131	.0051293

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-09RE Acquired: 9/19/2014 19:14:10 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1D Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2611626	.0006578	.0135641
Stddev	.0016820	.0004379	.0000526
%RSD	.6440299	66.57029	.3879799
#1	.2593369	.0001546	.0136041
#2	.2615019	.0008664	.0135838
#3	.2626491	.0009523	.0135045

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	137.7422	6091.207	116327.3	14849.06	6390.986
Stddev	1.6366	5.278	277.3	74.58	4.911
%RSD	1.188189	.0866512	.2383521	.5022706	.0768449
#1	138.0255	6088.931	116009.4	14767.58	6393.768
#2	135.9824	6097.241	116519.6	14913.96	6393.874
#3	139.2187	6087.448	116452.8	14865.62	6385.315

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-10RE Acquired: 9/19/2014 19:18:13 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0848624	.1003960	.0662070	.1024938	.2016318	9.088379	4.835886
Stddev	.0009571	.0032246	.0011514	.0018089	.0041558	.008453	.011991
%RSD	1.127859	3.211841	1.739033	1.764871	2.061096	.0930106	.2479547
#1	.0844306	.0973974	.0655287	.1025471	.1982283	9.084042	4.838879
#2	.0841973	.0999837	.0655558	.1006588	.2004039	9.098121	4.846097
#3	.0859594	.1038068	.0675364	.1042754	.2062633	9.082975	4.822682

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1124511	.1058300	1.833873	.5231546	1.091017	.5856837	13.04875
Stddev	.0002291	.0022613	.008364	.0017756	.024139	.0035739	.02919
%RSD	.2037217	2.136703	.4560819	.3393967	2.212568	.6102044	.2237054
#1	.1124706	.1043834	1.827567	.5242082	1.076465	.5848255	13.04887
#2	.1122128	.1046708	1.843361	.5211046	1.077704	.5896086	13.07789
#3	.1126697	.1084358	1.830691	.5241510	1.118882	.5826171	13.01951

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.399684	.2402687	1.087753	.1047234	.3163431	1.209769	1.083809
Stddev	.002646	.0059128	.024553	.0000400	.0118299	.008410	.005509
%RSD	.1890221	2.460921	2.257246	.0382447	3.739571	.6951604	.5082926
#1	1.396717	.2427458	1.072545	.1047586	.3101846	1.200601	1.084579
#2	1.401797	.2445401	1.074635	.1046798	.3299818	1.211578	1.077955
#3	1.400539	.2335202	1.116079	.1047317	.3088630	1.217127	1.088892

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.303949	.2398296	.0160426	.0008862	.2719861	2.466588	.0065495
Stddev	.030376	.0051540	.0018916	.0001236	.0120053	.019662	.0005897
%RSD	9.993880	2.149022	11.79112	13.94797	4.413941	.7971352	9.004446
#1	-.277336	.2368576	.0162707	.0007584	.2634406	2.445518	.0069567
#2	-.337042	.2368502	.0178099	.0010051	.2668059	2.469799	.0058732
#3	-.297468	.2457809	.0140474	.0008950	.2857118	2.484447	.0068185

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-10RE Acquired: 9/19/2014 19:18:13 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1S Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2606677	.0005728	.0102189
Stddev	.0056858	.0004715	.0000321
%RSD	2.181231	82.31184	.3137651
#1	.2671320	.0007741	.0102420
#2	.2564416	.0000341	.0101823
#3	.2584296	.0009102	.0102326

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	139.5946	6002.669	115779.7	14978.73	6288.310
Stddev	.6792	89.854	669.0	60.97	105.637
%RSD	.4865238	1.496901	.5778084	.4070502	1.679887
#1	139.6149	6051.855	115042.4	15044.22	6348.329
#2	140.2634	6057.193	116347.9	14923.61	6350.264
#3	138.9055	5898.961	115948.8	14968.35	6166.336

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-08LREX5 Acquired: 9/19/2014 19:22:13 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009655	-.000330	.0052452	.0013543	-.001059	1.360582	.0137964
Stddev	.0008067	.000678	.0007155	.0012124	.000620	.005077	.0001958
%RSD	83.54767	205.5182	13.64140	89.51726	58.49505	.3731650	1.419086
#1	.0010745	-.000195	.0044954	.0012094	-.000346	1.355408	.0139422
#2	.0001099	-.001065	.0059207	.0002210	-.001459	1.360781	.0135739
#3	.0017122	.000271	.0053193	.0026326	-.001373	1.365557	.0138732

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001596	-.000010	.5173939	.0039510	.0015184	-.000113	3.304304
Stddev	.0003827	.000030	.0053938	.0003423	.0002065	.000299	.013216
%RSD	239.7965	288.7434	1.042489	8.662878	13.59881	264.5310	.3999718
#1	.0000290	-.000040	.5184332	.0039249	.0015026	.000220	3.290813
#2	.0005905	-.000012	.5221924	.0043055	.0017324	-.000202	3.317227
#3	-.000141	.000021	.5115561	.0036225	.0013203	-.000358	3.304871

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0516971	.0563293	.0016651	.0000945	.1155532	.0079883	.0114245
Stddev	.0004275	.0056700	.0002923	.0001496	.0234446	.0013342	.0026326
%RSD	.8269819	10.06577	17.55263	158.3929	20.28900	16.70227	23.04342
#1	.0520833	.0612728	.0020024	-.000014	.0885161	.0064891	.0099560
#2	.0512377	.0501400	.0015039	.000265	.1278914	.0090454	.0098537
#3	.0517703	.0575750	.0014889	.000032	.1302522	.0084303	.0144637

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.173874	.0633054	.0012643	.0002626	.0695950	.9502792	.0008500
Stddev	.030073	.0001674	.0034375	.0000181	.0008794	.0189093	.0003281
%RSD	17.29588	.2643837	271.8993	6.877896	1.263586	1.989870	38.59501
#1	-.203246	.0631478	-.002195	.0002818	.0687913	.9717015	.0007540
#2	-.175230	.0632875	.004679	.0002601	.0694593	.9359108	.0012154
#3	-.143146	.0634811	.001309	.0002460	.0705343	.9432253	.0005807

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-08LREX5 Acquired: 9/19/2014 19:22:13 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1L Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0694076	-.001665	.0027863
Stddev	.0029140	.001319	.0001125
%RSD	4.198333	79.20624	4.035838
#1	.0660483	-.000321	.0029036
#2	.0712535	-.001716	.0027759
#3	.0709209	-.002957	.0026794

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	136.9766	6061.491	115212.9	14716.16	6366.267
Stddev	.7458	23.563	420.5	19.36	13.564
%RSD	.5444805	.3887267	.3649868	.1315756	.2130575
#1	136.2889	6061.152	114730.2	14694.28	6364.027
#2	137.7694	6085.221	115499.6	14731.07	6380.812
#3	136.8715	6038.100	115409.0	14723.14	6353.964

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV64 Acquired: 9/19/2014 19:26:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV64 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.127926	4.981371	24.87792	5.072167	5.109185	404.3405	10.50208
Stddev	.023677	.044508	.37173	.056515	.034270	20.2928	.46209
%RSD	.4617314	.8934877	1.494230	1.114212	.6707509	5.018746	4.399989
#1	5.114285	4.956479	24.67946	5.048720	5.131521	427.7280	11.03502
#2	5.114228	4.954878	24.64754	5.031150	5.126307	393.8988	10.25815
#3	5.155266	5.032756	25.30677	5.136632	5.069729	391.3947	10.21307

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5158912	2.520909	413.9194	15.97223	2.520333	15.91561	393.5733
Stddev	.0280281	.064240	23.2064	.05960	.028461	.83064	22.3660
%RSD	5.432946	2.548276	5.606494	.3731760	1.129268	5.219038	5.682804
#1	.5482465	2.486704	440.6920	15.90555	2.505419	16.87286	419.3881
#2	.5003670	2.481008	401.5109	15.99080	2.502428	15.48911	381.3248
#3	.4990602	2.595013	399.5552	16.02033	2.553151	15.38486	380.0069

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.29835	401.1321	2.477361	1.314611	408.6184	2.600927	15.12874
Stddev	.84701	22.0006	.036376	.002314	22.4399	.134360	.87924
%RSD	5.536586	5.484624	1.468347	.1759934	5.491647	5.165854	5.811723
#1	16.27615	426.5031	2.455709	1.315476	434.5209	2.755953	16.12179
#2	14.82847	389.5696	2.457016	1.311989	396.2532	2.528691	14.81511
#3	14.79045	387.3237	2.519358	1.316367	395.0811	2.518137	14.44932

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	161.6092	5.137414	5.238347	4.945161	5.156703	5.156709	4.947311
Stddev	9.1184	.041814	.299473	.006565	.047404	.292781	.084316
%RSD	5.642225	.8139108	5.716940	.1327575	.9192725	5.677676	1.704279
#1	172.1376	5.182948	5.582264	4.942129	5.146994	5.492856	4.900527
#2	156.4465	5.100739	5.097611	4.940660	5.114906	5.019858	4.896761
#3	156.2436	5.128556	5.035165	4.952694	5.208211	4.957413	5.044647

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV64 Acquired: 9/19/2014 19:26:20 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV64 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.198654	5.433835	5.291237
Stddev	.297407	.288356	.275468
%RSD	5.720855	5.306683	5.206118
#1	5.541598	5.766688	5.609040
#2	5.042774	5.274899	5.143886
#3	5.011590	5.259918	5.120784

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	116.7775	5052.735	97925.33	13578.98	4628.136
Stddev	6.2945	151.210	153.52	662.18	102.096
%RSD	5.390134	2.992631	.1567681	4.876507	2.205976
#1	109.9000	4961.271	98078.86	12819.17	4569.030
#2	118.1805	4969.664	97925.30	13884.69	4569.353
#3	122.2522	5227.270	97771.83	14033.07	4746.026

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB64 Acquired: 9/19/2014 19:30:31 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB64 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001033	.0022664	.0008913	.0010970	.0002653	.0127147	.0008674
Stddev	.002041	.0006924	.0005158	.0010606	.0006214	.0093154	.0004334
%RSD	197.6572	30.55108	57.87356	96.68074	234.2723	73.26462	49.96856
#1	.001159	.0014690	.0011145	-.000124	-.000320	.0158252	.0011679
#2	-.001377	.0027156	.0012579	.001625	.000198	.0200769	.0003705
#3	-.002880	.0026146	.0003014	.001790	.000918	.0022421	.0010637

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001407	.0000134	.0097027	.0006251	.0002334	-.001543	.0216651
Stddev	.0006870	.0000086	.0021828	.0001220	.0000936	.001246	.0037021
%RSD	488.1442	64.08545	22.49679	19.52305	40.10841	80.79723	17.08765
#1	.0008406	.0000185	.0089803	.0005535	.0003207	-.000438	.0174578
#2	.0001144	.0000183	.0121550	.0007661	.0002450	-.002894	.0231133
#3	-.000533	.0000035	.0079726	.0005559	.0001345	-.001297	.0244241

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007357	.0254073	.0002497	-.000068	.2184297	-.000761	.0018106
Stddev	.0002542	.0087838	.0001963	.000181	.0643263	.001092	.0009974
%RSD	34.55225	34.57213	78.59226	266.2343	29.44943	143.5368	55.08822
#1	.0010026	.0331240	.0001800	-.000053	.1533581	.000224	.0022664
#2	.0007079	.0272494	.0004714	.000105	.2819838	-.000571	.0006667
#3	.0004965	.0158485	.0000979	-.000256	.2199471	-.001936	.0024988

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0123809	.0002171	.0058254	.0010198	-.031671	-.002560	.0000855
Stddev	.0391476	.0004102	.0035902	.0004125	.003217	.003614	.0003815
%RSD	316.1932	188.9222	61.62919	40.44531	10.15689	141.1528	446.2298
#1	.0321792	.0006884	.0059630	.0014788	-.034544	-.002557	-.000342
#2	.0376749	-.000059	.0093448	.0009003	-.032274	.001052	.000392
#3	-.032711	.000022	.0021684	.0006803	-.028196	-.006176	.000206

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB64 Acquired: 9/19/2014 19:30:31 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB64 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0008163	.0015595	.0001747
Stddev	.0005056	.0004870	.0000651
%RSD	61.94798	31.22897	37.26508
#1	.0004752	.0010130	.0002454
#2	.0013972	.0017182	.0001617
#3	.0005764	.0019474	.0001171

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	136.9495	5951.392	112832.8	14590.09	6394.155
Stddev	1.2790	9.897	491.0	24.51	12.021
%RSD	.9339538	.1662976	.4351935	.1680042	.1880053
#1	137.8045	5953.910	113012.4	14578.15	6387.390
#2	137.5648	5959.787	113208.8	14573.84	6408.034
#3	135.4790	5940.479	112277.3	14618.29	6387.040

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-11RE Acquired: 9/19/2014 19:34:37 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0045140	-.001152	.0266470	.0029208	-.000972	7.275181	.0719651
Stddev	.0014161	.000240	.0012428	.0004250	.000557	.015760	.0003203
%RSD	31.37148	20.82852	4.663947	14.55150	57.34136	.2166227	.4450555
#1	.0029878	-.000909	.0262144	.0026894	-.000510	7.260959	.0723311
#2	.0057854	-.001389	.0256784	.0034113	-.000815	7.292124	.0718283
#3	.0047687	-.001159	.0280483	.0026617	-.001591	7.272461	.0717360

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014514	-.000020	1.667439	.0190664	.0090068	.0046780	17.75205
Stddev	.0005405	.000009	.010623	.0001278	.0000087	.0004766	.11727
%RSD	37.24369	44.33230	.6370556	.6701233	.0964587	10.18731	.6605977
#1	.0020621	-.000030	1.658420	.0192130	.0090130	.0041481	17.67482
#2	.0012576	-.000012	1.679148	.0189787	.0090106	.0050714	17.88700
#3	.0010344	-.000018	1.664747	.0190075	.0089969	.0048146	17.69434

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1825571	.3528868	.0063300	-.000143	.3105907	.0286332	.0527558
Stddev	.0009891	.0109719	.0001062	.000204	.0502119	.0010504	.0035925
%RSD	.5417743	3.109194	1.676889	142.5180	16.16656	3.668476	6.809598
#1	.1814544	.3583443	.0063601	-.000302	.2972421	.0288328	.0529744
#2	.1828510	.3600598	.0062121	.000087	.2684021	.0274973	.0490590
#3	.1833659	.3402562	.0064179	-.000214	.3661280	.0295694	.0562339

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.219832	.3464385	.0204430	.0012481	.3521836	2.818471	.0062718
Stddev	.026975	.0020060	.0007654	.0000841	.0029798	.018683	.0004151
%RSD	12.27061	.5790222	3.743928	6.735883	.8460909	.6628621	6.618584
#1	-.235845	.3460494	.0195861	.0013099	.3506946	2.811341	.0062525
#2	-.188688	.3446556	.0210588	.0012820	.3502417	2.839668	.0058667
#3	-.234962	.3486105	.0206840	.0011523	.3556144	2.804403	.0066962

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-11RE Acquired: 9/19/2014 19:34:37 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK2 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.3105853	.0030184	.0100044
Stddev	.0015519	.0007808	.0000720
%RSD	.4996556	25.86885	.7200614
#1	.3101540	.0032309	.0100400
#2	.3123072	.0036710	.0099214
#3	.3092948	.0021533	.0100516

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	139.6837	6059.460	116889.4	15190.95	6389.609
Stddev	.8593	35.071	227.6	106.71	42.474
%RSD	.6151564	.5787847	.1947134	.7024520	.6647304
#1	139.3164	6063.762	116968.2	15310.59	6398.044
#2	139.0691	6092.181	117067.1	15105.59	6427.232
#3	140.6655	6022.436	116632.8	15156.68	6343.551

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-12RE Acquired: 9/19/2014 19:38:43 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0246694	-.003025	.0674886	.0095822	.0017519	26.09101	.2781885
Stddev	.0007999	.000397	.0016116	.0021181	.0004128	.05537	.0009016
%RSD	3.242349	13.12371	2.387904	22.10474	23.56127	.2122116	.3241020
#1	.0253956	-.003322	.0658118	.0109818	.0017670	26.08233	.2782030
#2	.0248006	-.003180	.0690259	.0071454	.0021569	26.04049	.2772798
#3	.0238121	-.002574	.0676279	.0106195	.0013318	26.15020	.2790828

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0045784	.0006538	8.699742	.0457973	.0471183	.0195643	77.07981
Stddev	.0001219	.0000547	.025995	.0001820	.0011068	.0013524	.07218
%RSD	2.662355	8.370513	.2987978	.3973773	2.348905	6.912609	.0936418
#1	.0046234	.0005910	8.685260	.0456083	.0461896	.0207357	77.08468
#2	.0046714	.0006915	8.729752	.0458121	.0483429	.0180842	77.14942
#3	.0044404	.0006787	8.684213	.0459714	.0468224	.0198731	77.00531

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6382624	1.231447	.0243028	-.000216	.5221867	.0877195	.1954617
Stddev	.0015699	.017821	.0006295	.000164	.0703604	.0006845	.0061654
%RSD	.2459666	1.447173	2.590262	75.89785	13.47418	.7803454	3.154280
#1	.6394960	1.211443	.0235926	-.000304	.5454946	.0873253	.2009241
#2	.6387960	1.245629	.0247922	-.000318	.5779355	.0885100	.1887765
#3	.6364953	1.237269	.0245235	-.000027	.4431299	.0873234	.1966846

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4581877	1.516427	.0657017	.0029788	2.677829	3.340708	.0086078
Stddev	.0045200	.032200	.0050194	.0001614	.058645	.030775	.0000347
%RSD	.9864933	2.123424	7.639709	5.418154	2.190013	.9212200	.4030905
#1	.4614329	1.490465	.0705945	.0030139	2.626249	3.317435	.0086479
#2	.4530251	1.552458	.0605646	.0031197	2.741617	3.329088	.0085864
#3	.4601051	1.506357	.0659460	.0028027	2.665620	3.375602	.0085892

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-12RE Acquired: 9/19/2014 19:38:43 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK3 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2373172	.0169054	.0419478
Stddev	.0015861	.0004748	.0001473
%RSD	.6683302	2.808568	.3510470
#1	.2373934	.0173243	.0418082
#2	.2356945	.0170023	.0419336
#3	.2388638	.0163896	.0421017

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	145.4245	6189.440	120940.0	16013.31	6127.939
Stddev	.6768	93.603	186.7	53.12	112.103
%RSD	.4653836	1.512300	.1543345	.3317545	1.829378
#1	146.1826	6250.216	120793.3	15966.57	6210.373
#2	144.8813	6081.649	121150.1	16002.27	6000.290
#3	145.2096	6236.454	120876.5	16071.08	6173.156

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-13RE Acquired: 9/19/2014 19:42:45 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0184507	-.004060	.0893611	.0077675	-.000217	26.41793	.3386732
Stddev	.0009872	.000185	.0008892	.0023892	.000744	.07203	.0004745
%RSD	5.350497	4.557830	.9950033	30.75873	342.5443	.2726568	.1400973
#1	.0191519	-.004236	.0883765	.0087568	-.000964	26.49719	.3392202
#2	.0188785	-.003867	.0901054	.0050426	.000524	26.35647	.3383716
#3	.0173218	-.004078	.0896014	.0095031	-.000211	26.40013	.3384280

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0088012	.0087827	14.56639	.0469334	.0264936	.0255404	51.03762
Stddev	.0004832	.0001137	.04254	.0001718	.0000956	.0015442	.10167
%RSD	5.489623	1.294596	.2920096	.3661325	.3607434	6.045950	.1992004
#1	.0086448	.0088974	14.61014	.0471318	.0264684	.0269530	51.12646
#2	.0093431	.0086701	14.52518	.0468387	.0264131	.0238918	51.05966
#3	.0084156	.0087805	14.56383	.0468298	.0265992	.0257763	50.92674

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5687736	1.183278	.0256254	-.000288	.5044022	.1234891	.2041805
Stddev	.0012563	.009975	.0002420	.000117	.0879923	.0037612	.0029542
%RSD	.2208715	.8429796	.9441738	40.71791	17.44487	3.045750	1.446841
#1	.5695618	1.175009	.0255463	-.000153	.4942722	.1278250	.2063234
#2	.5673249	1.180470	.0254328	-.000343	.5970211	.1215367	.2054075
#3	.5694341	1.194356	.0258969	-.000367	.4219133	.1211056	.2008106

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2322228	1.146707	.0477777	.0033925	4.845719	3.283754	.0068442
Stddev	.0267762	.001205	.0032726	.0001697	.011509	.009676	.0001799
%RSD	11.53039	.1050748	6.849665	5.003211	.2375114	.2946499	2.628664
#1	.2166037	1.147979	.0514886	.0035876	4.851185	3.294624	.0068279
#2	.2169239	1.145582	.0465399	.0033116	4.832495	3.280553	.0070317
#3	.2631407	1.146560	.0453045	.0032784	4.853476	3.276084	.0066730

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-13RE Acquired: 9/19/2014 19:42:45 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK4 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2395903	.0132339	.0635971
Stddev	.0024893	.0008075	.0001410
%RSD	1.038996	6.101553	.2217424
#1	.2394406	.0138941	.0637569
#2	.2371791	.0123336	.0635442
#3	.2421511	.0134738	.0634901

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	152.0219	6433.570	125440.4	16653.31	6182.651
Stddev	.9658	15.660	412.9	77.00	18.574
%RSD	.6352893	.2434083	.3291390	.4623718	.3004266
#1	151.0573	6417.408	125699.4	16564.41	6161.214
#2	152.9888	6448.674	124964.2	16698.72	6192.784
#3	152.0196	6434.630	125657.4	16696.81	6193.955

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-14RE Acquired: 9/19/2014 19:46:48 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0202618	-.003597	.0935154	.0066395	.0004376	54.10201	.4239213
Stddev	.0007198	.001342	.0005880	.0002067	.0011901	.21611	.0002917
%RSD	3.552383	37.32067	.6287832	3.112372	271.9505	.3994520	.0687993
#1	.0200215	-.002056	.0938553	.0065892	.0016674	53.89252	.4240766
#2	.0196929	-.004511	.0928364	.0064626	.0003537	54.32418	.4235849
#3	.0210710	-.004225	.0938545	.0068666	-.000708	54.08932	.4241025

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0048912	-.000143	4.006629	.0834835	.0326395	.0185358	62.95098
Stddev	.0002798	.000026	.004620	.0002015	.0001996	.0010490	.09893
%RSD	5.720494	18.41508	.1152985	.2413940	.6113947	5.659235	.1571472
#1	.0049993	-.000144	4.003149	.0832522	.0327718	.0175498	63.03328
#2	.0045734	-.000169	4.011870	.0836207	.0324100	.0196381	62.84123
#3	.0051007	-.000116	4.004867	.0835777	.0327368	.0184196	62.97845

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3774326	2.505849	.0284193	-.000392	.6204514	.1491242	.1180527
Stddev	.0010115	.026567	.0001646	.000194	.1695618	.0010030	.0059356
%RSD	.2679864	1.060206	.5791887	49.55181	27.32877	.6725682	5.027934
#1	.3768617	2.493689	.0282501	-.000205	.6767719	.1493630	.1246675
#2	.3786005	2.536319	.0284289	-.000379	.4298960	.1499863	.1162989
#3	.3768357	2.487537	.0285789	-.000592	.7546863	.1480234	.1131915

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.378144	1.120542	.0520883	.0055348	1.037121	4.010590	.0083855
Stddev	.021252	.003727	.0045902	.0003441	.002229	.022210	.0004498
%RSD	1.542091	.3326036	8.812266	6.216746	.2149548	.5537954	5.364433
#1	1.402215	1.117474	.0571662	.0058860	1.038071	3.985024	.0078735
#2	1.370242	1.119464	.0482338	.0051983	1.034574	4.021617	.0085659
#3	1.361974	1.124690	.0508650	.0055200	1.038717	4.025128	.0087171

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-14RE Acquired: 9/19/2014 19:46:48 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK5 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.4305639	.0347863	.0380085
Stddev	.0021908	.0003890	.0001293
%RSD	.5088160	1.118363	.3401565
#1	.4285495	.0346655	.0381039
#2	.4302459	.0344720	.0378614
#3	.4328963	.0352214	.0380602

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	145.9632	6307.704	122366.4	16066.73	6121.031
Stddev	1.5478	6.063	360.7	58.37	10.594
%RSD	1.060425	.0961239	.2947409	.3632938	.1730695
#1	144.1848	6310.542	122419.5	16076.37	6122.801
#2	147.0060	6311.828	122697.6	16004.14	6130.628
#3	146.6990	6300.743	121982.1	16119.68	6109.663

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-15RE Acquired: 9/19/2014 19:50:52 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK6 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0468703	-.004772	.0875605	.0143719	.0004800	39.18711	.4772604
Stddev	.0013306	.000641	.0013168	.0007480	.0007642	.08859	.0008934
%RSD	2.838927	13.42728	1.503893	5.204504	159.1902	.2260818	.1871968
#1	.0471363	-.004748	.0880990	.0141404	-.000402	39.10369	.4762796
#2	.0454268	-.005424	.0860598	.0137671	.000923	39.28010	.4774735
#3	.0480479	-.004143	.0885226	.0152083	.000919	39.17754	.4780279

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0070955	.0006576	9.410125	.0693980	.0816024	.0275691	120.1153
Stddev	.0003359	.0000772	.031068	.0001885	.0003319	.0007469	.4902
%RSD	4.733712	11.73588	.3301551	.2716754	.4067804	2.709297	.4080876
#1	.0074120	.0007113	9.374256	.0691806	.0813485	.0269846	119.5960
#2	.0071316	.0006922	9.428543	.0695178	.0814807	.0284106	120.1801
#3	.0067431	.0005691	9.427578	.0694955	.0819780	.0273122	120.5699

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.070999	1.769027	.0362584	.0000081	.4868568	.1231489	.2499569
Stddev	.015308	.028983	.0004602	.0001654	.1758899	.0015585	.0065353
%RSD	.4984757	1.638386	1.269291	2033.865	36.12765	1.265574	2.614574
#1	3.054008	1.747865	.0358385	.0001812	.6313869	.1218444	.2424216
#2	3.075274	1.757154	.0361863	-.000148	.2910177	.1227275	.2540775
#3	3.083715	1.802062	.0367504	-.000008	.5381659	.1248748	.2533716

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7547083	1.898930	.0930330	.0043847	2.953465	4.476495	.0091764
Stddev	.0362212	.009636	.0029271	.0002966	.019012	.005772	.0006228
%RSD	4.799364	.5074622	3.146344	6.764089	.6437351	.1289456	6.787184
#1	.7280652	1.891865	.0911870	.0040809	2.941410	4.469942	.0098947
#2	.7401088	1.895018	.0915040	.0043998	2.943602	4.480828	.0088483
#3	.7959509	1.909907	.0964080	.0046735	2.975382	4.478713	.0087862

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-15RE Acquired: 9/19/2014 19:50:52 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK6 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2642945	.0276767	.0567689
Stddev	.0009303	.0005274	.0000448
%RSD	.3519979	1.905602	.0788537
#1	.2635950	.0270743	.0567913
#2	.2653503	.0280552	.0567981
#3	.2639382	.0279005	.0567174

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	146.1428	6325.898	123240.9	16235.22	6091.585
Stddev	1.0026	12.151	122.8	37.15	9.101
%RSD	.6860272	.1920803	.0996265	.2288052	.1493964
#1	145.1170	6333.392	123134.0	16253.57	6092.834
#2	146.1911	6332.423	123213.7	16192.47	6099.996
#3	147.1204	6311.879	123375.0	16259.62	6081.924

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-16RE Acquired: 9/19/2014 19:54:53 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0183349	-.001335	.0186330	.0071283	.0011715	6.022717	.0660238
Stddev	.0005715	.000640	.0010202	.0010958	.0008885	.017988	.0000309
%RSD	3.116981	47.92650	5.474977	15.37250	75.84456	.2986656	.0467407
#1	.0184375	-.000874	.0182379	.0083937	.0015014	6.028363	.0660595
#2	.0177191	-.002065	.0197916	.0064983	.0001652	6.002584	.0660059
#3	.0188482	-.001065	.0178694	.0064931	.0018480	6.037205	.0660062

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0018060	-.000379	1.797504	.0219269	.0094271	.0168118	66.45555
Stddev	.0004264	.000037	.014495	.0000709	.0000962	.0007345	.30781
%RSD	23.61240	9.752622	.8063807	.3234669	1.020058	4.368891	.4631850
#1	.0013264	-.000349	1.810368	.0219947	.0095166	.0175472	66.75618
#2	.0021426	-.000420	1.781799	.0219327	.0093255	.0160782	66.46945
#3	.0019489	-.000367	1.800346	.0218532	.0094392	.0168100	66.14103

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4885838	.3765643	.0098732	-.000170	.3331678	.0221705	.0913842
Stddev	.0021005	.0055888	.0000449	.000113	.0201363	.0019475	.0001722
%RSD	.4299201	1.484145	.4543399	66.27451	6.043900	8.784378	.1884703
#1	.4900771	.3815130	.0099214	-.000296	.3533361	.0227171	.0911957
#2	.4894923	.3776771	.0098653	-.000138	.3331035	.0237864	.0914234
#3	.4861819	.3705029	.0098328	-.000077	.3130636	.0200081	.0915334

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.363843	.5367118	.0487365	.0020901	.3076509	2.297063	.0076542
Stddev	.014466	.0004622	.0037648	.0000790	.0038275	.024619	.0003656
%RSD	3.975800	.0861105	7.724816	3.779285	1.244090	1.071756	4.776678
#1	-.363193	.5363568	.0525904	.0020830	.3032482	2.272985	.0075484
#2	-.349713	.5365443	.0450676	.0021724	.3095189	2.296014	.0080611
#3	-.378622	.5372344	.0485516	.0020149	.3101858	2.322190	.0073532

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-16RE Acquired: 9/19/2014 19:54:53 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK7 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1555954	.0009568	.0111152
Stddev	.0001364	.0006544	.0000129
%RSD	.0876677	68.39244	.1159783
#1	.1555813	.0002955	.0111300
#2	.1557383	.0009709	.0111090
#3	.1554666	.0016040	.0111066

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	138.6403	6032.660	117059.8	15154.33	6320.723
Stddev	.4048	7.602	460.5	79.93	8.521
%RSD	.2919789	.1260090	.3934182	.5274209	.1348152
#1	138.8972	6041.437	116924.0	15062.19	6330.175
#2	138.8500	6028.187	116682.4	15195.78	6313.630
#3	138.1737	6028.356	117573.0	15205.01	6318.364

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-17RE Acquired: 9/19/2014 19:58:56 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK8 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0634767	-.002165	.0927165	.0101439	.0020629	51.42244	.4767964
Stddev	.0006112	.001176	.0002209	.0005154	.0002945	.22128	.0011818
%RSD	.9628516	54.30216	.2382613	5.081264	14.27580	.4303085	.2478565
#1	.0636514	-.000833	.0924617	.0097859	.0018602	51.25867	.4769274
#2	.0639815	-.002605	.0928542	.0099111	.0024007	51.67417	.4779073
#3	.0627971	-.003058	.0928336	.0107347	.0019278	51.33448	.4755546

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0044209	.0009392	20.84846	.3432234	.0279981	.1958572	58.83164
Stddev	.0005168	.0000494	.00860	.0001793	.0001717	.0011341	.06578
%RSD	11.68900	5.260446	.0412555	.0522303	.6132429	.5790356	.1118103
#1	.0050133	.0009862	20.83867	.3431016	.0279224	.1970777	58.90481
#2	.0040624	.0008877	20.85191	.3431395	.0278772	.1956578	58.81271
#3	.0041871	.0009438	20.85480	.3434293	.0281946	.1948360	58.77740

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4468052	4.102644	.0408483	-.000081	.5349205	.1066659	.6971955
Stddev	.0005472	.008582	.0001869	.000172	.0710971	.0014203	.0086086
%RSD	.1224702	.2091883	.4576294	211.0235	13.29115	1.331549	1.234744
#1	.4466744	4.094026	.0406351	-.000170	.5819316	.1059738	.7063641
#2	.4474060	4.102715	.0409255	.000116	.5697011	.1057243	.6959370
#3	.4463353	4.111190	.0409843	-.000191	.4531289	.1082996	.6892855

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.930442	2.552809	.0610753	.0044497	4.544561	4.614532	.0080996
Stddev	.028659	.004644	.0002954	.0000657	.012250	.014394	.0005675
%RSD	1.484570	.1819135	.4835859	1.476170	.2695632	.3119199	7.006825
#1	1.948500	2.549495	.0610552	.0043764	4.535437	4.598571	.0074683
#2	1.897397	2.550815	.0607905	.0045033	4.539762	4.618497	.0085673
#3	1.945429	2.558117	.0613802	.0044695	4.558484	4.626527	.0082633

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-17RE Acquired: 9/19/2014 19:58:56 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK8 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.6882326	.0337179	.0915611
Stddev	.0019055	.0011972	.0005505
%RSD	.2768712	3.550717	.6012291
#1	.6866872	.0323648	.0914343
#2	.6903617	.0346396	.0921639
#3	.6876490	.0341494	.0910851

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	143.0282	6127.032	118697.5	15650.70	6103.596
Stddev	.8766	5.106	400.0	70.06	15.330
%RSD	.6128947	.0833319	.3369818	.4476792	.2511649
#1	143.4926	6128.668	118337.5	15705.42	6109.817
#2	143.5750	6131.120	119128.1	15674.95	6114.838
#3	142.0171	6121.309	118626.8	15571.73	6086.134

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-18RE Acquired: 9/19/2014 20:02:56 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK9 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0217484	-.002523	.0485883	.0061472	.0000319	27.93656	.2572675
Stddev	.0008978	.001217	.0013253	.0004108	.0008015	.05056	.0008957
%RSD	4.127877	48.25015	2.727581	6.682504	2515.300	.1809924	.3481625
#1	.0215922	-.003406	.0500556	.0059567	-.000800	27.99480	.2582795
#2	.0227140	-.003028	.0474782	.0066186	.000097	27.91109	.2569466
#3	.0209390	-.001134	.0482311	.0058662	.000799	27.90380	.2565764

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0024699	.0002499	8.385033	.1440481	.0195744	.0668175	36.83177
Stddev	.0003803	.0000199	.011875	.0006989	.0000416	.0012187	.09114
%RSD	15.39668	7.956458	.1416267	.4852108	.2126459	1.823859	.2474522
#1	.0020530	.0002593	8.398745	.1448549	.0196163	.0654108	36.83256
#2	.0027979	.0002634	8.378128	.1436604	.0195331	.0675531	36.92251
#3	.0025587	.0002271	8.378225	.1436289	.0195738	.0674885	36.74024

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3226072	2.304225	.0217649	-.000158	.3607802	.0739541	.3417712
Stddev	.0011710	.017511	.0001733	.000054	.1109331	.0017815	.0027407
%RSD	.3629769	.7599621	.7963583	34.20912	30.74811	2.408974	.8019194
#1	.3234476	2.287251	.0215939	-.000135	.4625243	.0760042	.3397455
#2	.3231043	2.322228	.0217605	-.000119	.3773043	.0730769	.3406784
#3	.3212697	2.303195	.0219404	-.000219	.2425119	.0727814	.3448898

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.117188	1.461518	.0346465	.0023633	1.701021	3.931074	.0067883
Stddev	.032588	.007520	.0030859	.0001903	.012626	.007915	.0005084
%RSD	2.916987	.5145079	8.906791	8.052744	.7422739	.2013414	7.489207
#1	1.139660	1.460172	.0356463	.0024386	1.692795	3.932205	.0073628
#2	1.079813	1.454762	.0371086	.0025043	1.694710	3.922654	.0066056
#3	1.132090	1.469619	.0311847	.0021468	1.715559	3.938362	.0063965

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-18RE Acquired: 9/19/2014 20:02:56 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK9 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.5556490	.0177987	.0474384
Stddev	.0013633	.0009609	.0000313
%RSD	.2453537	5.398673	.0660699
#1	.5556228	.0175545	.0474642
#2	.5542989	.0188581	.0474035
#3	.5570251	.0169835	.0474476

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	140.2105	6072.045	117823.0	15410.96	6239.868
Stddev	1.1891	20.873	70.1	46.65	19.299
%RSD	.8481026	.3437557	.0594678	.3026798	.3092848
#1	139.3099	6076.068	117849.2	15366.05	6244.605
#2	141.5584	6090.614	117743.6	15459.17	6256.357
#3	139.7632	6049.454	117876.3	15407.65	6218.641

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-19RE Acquired: 9/19/2014 20:06:57 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AL0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0758184	-.003442	.1423411	.0086104	.0017068	57.26731	.4573645
Stddev	.0017744	.000174	.0005765	.0022949	.0014299	.12288	.0015518
%RSD	2.340336	5.065288	.4049899	26.65244	83.77685	.2145774	.3392942
#1	.0777269	-.003531	.1418889	.0062521	.0000557	57.33943	.4580401
#2	.0742186	-.003555	.1429902	.0087431	.0025242	57.12542	.4584641
#3	.0755098	-.003242	.1421441	.0108361	.0025406	57.33707	.4555895

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0053433	.0002942	5.443612	.1749379	.0341489	.0876871	65.21472
Stddev	.0002708	.0001077	.016027	.0005602	.0004004	.0015846	.13871
%RSD	5.067898	36.61781	.2944246	.3202472	1.172448	1.807069	.2127013
#1	.0050448	.0002550	5.461922	.1752765	.0345018	.0860191	65.36542
#2	.0055731	.0004161	5.436785	.1752459	.0342311	.0891723	65.18636
#3	.0054121	.0002115	5.432128	.1742912	.0337138	.0878700	65.09238

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5147508	2.879326	.0305399	-.000312	.4869427	.1490549	.3375870
Stddev	.0018975	.014189	.0004189	.000030	.0527339	.0010019	.0012449
%RSD	.3686169	.4927894	1.371577	9.600462	10.82959	.6721419	.3687576
#1	.5169218	2.881768	.0307187	-.000347	.4261116	.1488665	.3387265
#2	.5134097	2.864074	.0308397	-.000297	.5197139	.1481607	.3377760
#3	.5139209	2.892135	.0300613	-.000293	.5150025	.1501377	.3362584

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.290992	2.090414	.0566484	.0060924	2.323624	4.329638	.0087332
Stddev	.031955	.014470	.0026821	.0001547	.019066	.007164	.0001138
%RSD	2.475234	.6922080	4.734551	2.538898	.8205444	.1654589	1.303169
#1	1.254165	2.099821	.0596467	.0060070	2.338707	4.330632	.0088548
#2	1.307408	2.097670	.0558205	.0062710	2.329971	4.322029	.0086292
#3	1.311401	2.073752	.0544778	.0059992	2.302193	4.336253	.0087154

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-19RE Acquired: 9/19/2014 20:06:57 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AL0 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.4016368	.0356510	.0457935
Stddev	.0008646	.0002248	.0001413
%RSD	.2152755	.6305932	.3086445
#1	.4023667	.0358402	.0456533
#2	.4006819	.0357103	.0457913
#3	.4018617	.0354025	.0459360

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	146.5421	6301.455	121660.6	16072.92	6169.132
Stddev	.7181	38.091	221.1	82.88	38.875
%RSD	.4900117	.6044813	.1817017	.5156774	.6301468
#1	147.2992	6282.413	121545.6	15977.38	6154.191
#2	146.4563	6276.639	121915.5	16125.47	6139.945
#3	145.8707	6345.312	121520.8	16115.92	6213.261

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-20RE Acquired: 9/19/2014 20:10:57 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AL1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0012536	-.001951	.0108681	.0018806	-.001330	3.094709	.0285918
Stddev	.0008945	.000670	.0006564	.0009343	.000147	.007177	.0001852
%RSD	71.35826	34.34158	6.039840	49.68299	11.02932	.2319142	.6476525
#1	.0006844	-.001531	.0114736	.0008189	-.001399	3.088037	.0286989
#2	.0022846	-.001598	.0109603	.0025775	-.001162	3.093787	.0283780
#3	.0007917	-.002724	.0101705	.0022454	-.001429	3.102302	.0286985

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0004377	-.000005	.9234493	.0110626	.0032399	.0018288	3.337241
Stddev	.0002825	.000015	.0057756	.0000611	.0000846	.0007720	.068337
%RSD	64.54318	284.8309	.6254374	.5526933	2.611679	42.21276	.8196580
#1	.0004524	.000009	.9284835	.0110076	.0032288	.0009471	8.265038
#2	.0001481	-.000022	.9171440	.0110517	.0031614	.0021561	8.345774
#3	.0007125	-.000004	.9247203	.0111284	.0033295	.0023833	8.400910

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1079217	.1691426	.0031156	.0001513	.2874526	.0174535	.0208432
Stddev	.0000883	.0081068	.0001683	.0000464	.1739058	.0024437	.0021553
%RSD	.0817974	4.792880	5.402668	30.64101	60.49896	14.00149	10.34081
#1	.1079055	.1716902	.0032038	.0001909	.4432380	.0157704	.0225877
#2	.1078427	.1756696	.0032215	.0001626	.0998265	.0163335	.0184337
#3	.1080170	.1600680	.0029215	.0001003	.3192933	.0202565	.0215081

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.449645	.1635838	.0086249	.0006530	.1116310	1.591672	.0058216
Stddev	.042965	.0005361	.0033232	.0001380	.0008771	.029046	.0007176
%RSD	9.555216	.3277183	38.53016	21.14150	.7857509	1.824903	12.32647
#1	-.498451	.1637972	.0075765	.0005767	.1126368	1.577997	.0052568
#2	-.417532	.1629739	.0123459	.0008123	.1112311	1.571987	.0055789
#3	-.432952	.1639803	.0059524	.0005699	.1110251	1.625032	.0066291

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-20RE Acquired: 9/19/2014 20:10:57 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AL1 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1805856	-.000773	.0060744
Stddev	.0009278	.000603	.0000081
%RSD	.5137592	78.03922	.1339512
#1	.1796700	-.001424	.0060834
#2	.1815251	-.000233	.0060721
#3	.1805616	-.000662	.0060676

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	137.4619	6057.130	116577.1	15018.37	6421.941
Stddev	1.7705	21.053	400.0	84.67	12.932
%RSD	1.287963	.3475805	.3431175	.5637995	.2013669
#1	139.4595	6050.627	116248.9	15116.13	6420.961
#2	136.0867	6080.668	116459.7	14971.04	6435.335
#3	136.8395	6040.096	117022.6	14967.95	6409.527

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-21RE Acquired: 9/19/2014 20:15:04 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AL2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0125169	-.002165	.1184332	.0066441	.0003375	19.40164	.1611859
Stddev	.0011744	.000740	.0009231	.0012885	.0004346	.02418	.0006585
%RSD	9.382290	34.18934	.7794076	19.39350	128.7948	.1246230	.4085285
#1	.0130995	-.002965	.1174096	.0062906	.0001356	19.38407	.1617487
#2	.0132861	-.002025	.1192024	.0080724	.0008363	19.39163	.1613474
#3	.0111651	-.001505	.1186877	.0055691	.0000405	19.42921	.1604617

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0033784	.0000072	3.215574	.0354561	.0140824	.0110226	42.50128
Stddev	.0001426	.0000311	.005441	.0004220	.0001339	.0011868	.02778
%RSD	4.220727	432.0298	.1692135	1.190091	.9510730	10.76677	.0653672
#1	.0035078	-.000024	3.214050	.0359409	.0139293	.0114576	42.52438
#2	.0032255	.000007	3.211057	.0351723	.0141395	.0119305	42.47045
#3	.0034020	.000038	3.221615	.0352550	.0141782	.0096797	42.50901

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2498052	.8904118	.0124477	-.000191	.3205204	.0711798	.0835527
Stddev	.0009088	.0056859	.0000872	.000120	.0217861	.0018994	.0043662
%RSD	.3638002	.6385726	.7004680	62.69193	6.797103	2.668499	5.225694
#1	.2499519	.8839920	.0123938	-.000086	.2963027	.0732594	.0861197
#2	.2488320	.8948131	.0125483	-.000165	.3267331	.0707437	.0785113
#3	.2506318	.8924302	.0124010	-.000321	.3385252	.0695364	.0860271

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2586476	.8111098	.0358536	.0027149	.9616974	4.170238	.0065353
Stddev	.0034585	.0015249	.0014549	.0000431	.0034496	.007769	.0001993
%RSD	1.337168	.1879983	4.057925	1.587536	.3586952	.1862937	3.049249
#1	.2596966	.8127794	.0360931	.0026652	.9596566	4.163599	.0067649
#2	.2614602	.8097906	.0342937	.0027418	.9597553	4.178782	.0064072
#3	.2547860	.8107596	.0371738	.0027377	.9656802	4.168334	.0064338

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: F3939-21RE Acquired: 9/19/2014 20:15:04 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AL2 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2502991	.0109470	.0367814
Stddev	.0010090	.0000597	.0000380
%RSD	.4031201	.5452998	.1032340
#1	.2491371	.0109532	.0367742
#2	.2508062	.0110033	.0367476
#3	.2509539	.0108844	.0368225

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	142.0960	6189.302	119738.7	15541.07	6307.061
Stddev	.5266	9.879	360.3	6.96	8.716
%RSD	.3705832	.1596096	.3008861	.0447593	.1381915
#1	141.7333	6189.761	119325.9	15549.00	6312.495
#2	142.7000	6198.944	119989.8	15538.20	6311.681
#3	141.8548	6179.202	119900.3	15536.01	6297.008

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV65 Acquired: 9/19/2014 20:55:08 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV65 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.082227	4.867557	24.04328	5.047010	5.150530	398.3402	10.33546
Stddev	.009574	.028189	.11256	.020607	.014940	3.1793	.09327
%RSD	.1883802	.5791149	.4681744	.4082917	.2900727	.7981457	.9024148
#1	5.081349	4.853580	23.93289	5.047489	5.149029	394.6691	10.30937
#2	5.073122	4.849087	24.03905	5.026167	5.136397	400.1565	10.43899
#3	5.092209	4.900003	24.15790	5.067372	5.166164	400.1951	10.25801

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4891626	2.404781	394.9473	15.59984	2.456169	15.32673	373.2574
Stddev	.0029408	.014524	.9176	.04702	.008208	.04857	1.7331
%RSD	.6011832	.6039546	.2323436	.3014190	.3341836	.3169057	.4643246
#1	.4858268	2.391552	393.9893	15.62891	2.450318	15.27523	371.4897
#2	.4902805	2.402470	395.0342	15.62502	2.452638	15.33325	373.3288
#3	.4913805	2.420322	395.8184	15.54559	2.465552	15.37171	374.9537

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.45685	377.7857	2.403639	1.292600	391.7412	2.508020	14.47154
Stddev	.04078	.9274	.012188	.004480	1.2510	.006476	.08303
%RSD	.2820913	.2454766	.5070695	.3465945	.3193422	.2582268	.5737276
#1	14.41638	376.7764	2.391196	1.295397	390.9563	2.508560	14.51799
#2	14.45622	377.9805	2.404164	1.294969	391.0835	2.514210	14.37568
#3	14.49794	378.6002	2.415556	1.287432	393.1839	2.501291	14.52094

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	156.0719	5.091895	4.964060	4.896790	5.057103	4.912915	4.779476
Stddev	.4284	.010938	.030667	.020523	.019327	.010505	.028409
%RSD	.2745007	.2148100	.6177766	.4191193	.3821722	.2138260	.5943960
#1	155.7204	5.089072	4.929418	4.887929	5.047538	4.901359	4.752652
#2	155.9462	5.082646	4.975028	4.882186	5.044423	4.921887	4.776534
#3	156.5491	5.103968	4.987736	4.920255	5.079347	4.915499	4.809242

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCV65 Acquired: 9/19/2014 20:55:08 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV65 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.022434	5.289220	5.240042
Stddev	.015141	.012318	.075680
%RSD	.3014712	.2328804	1.444255
#1	5.011880	5.276922	5.154557
#2	5.039782	5.289181	5.298488
#3	5.015639	5.301557	5.267081

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	120.9022	4948.991	99636.97	14330.05	4587.405
Stddev	.8009	11.016	547.92	42.82	8.261
%RSD	.6624063	.2225823	.5499116	.2988023	.1800734
#1	120.0429	4944.638	99235.93	14373.71	4591.125
#2	121.6277	4961.519	99413.71	14288.12	4593.151
#3	121.0361	4940.818	100261.3	14328.33	4577.938

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB65 Acquired: 9/19/2014 20:59:19 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB65 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000505	.0017663	-.000506	.0005899	-.000401	.0091631	.0004145
Stddev	.000678	.0015819	.000702	.0011071	.000528	.0077954	.0001740
%RSD	134.2856	89.55982	138.9241	187.6665	131.6724	85.07450	41.98577
#1	-.000159	.0035776	.000145	.0013695	-.000960	.0034825	.0002439
#2	-.000070	.0010653	-.000412	.0010776	.000090	.0180504	.0005918
#3	-.001285	.0006561	-.001250	-.000677	-.000334	.0059563	.0004078

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000052	-.000017	-.002124	.0003216	.0002951	-.001304	.0075022
Stddev	.000171	.000073	.004167	.0002121	.0001067	.000850	.0072494
%RSD	326.9471	425.8127	196.1791	65.94834	36.14839	65.19281	96.63044
#1	-.000141	-.000018	-.003595	.0005474	.0003965	-.001482	.0130503
#2	-.000161	.000057	-.005357	.0001265	.0001838	-.000379	-.000700
#3	.000145	-.000090	.002579	.0002910	.0003051	-.002051	.010157

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002168	.0135519	.0002053	-.000150	.3412782	.0001657	.0003483
Stddev	.0001423	.0168235	.0001613	.000110	.0268706	.0024259	.0020104
%RSD	65.63516	124.1411	78.53342	72.92696	7.873533	1463.751	577.2097
#1	.0003662	-.005589	.0002141	-.000247	.3682062	-.001522	.0015127
#2	.0000830	.020248	.0003620	-.000031	.3411631	.002946	-.001973
#3	.0002011	.025997	.0000399	-.000173	.3144652	-.000927	.001505

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.036976	.0008412	.0047787	.0010675	-.033334	.0025529	-.000595
Stddev	.027216	.0009357	.0013010	.0002013	.001245	.0027692	.000580
%RSD	73.60385	111.2401	27.22464	18.85327	3.734060	108.4723	97.44470
#1	-.021823	-.000238	.0033712	.0012981	-.032004	.0012959	-.001229
#2	-.020709	.001337	.0059371	.0009774	-.034471	.0006351	-.000465
#3	-.068395	.001425	.0050278	.0009271	-.033528	.0057276	-.000091

Reviewed By:BIN
On:9/22/2014 3:25:44 PM
Inst Id :P5

Sample Name: CCB65 Acquired: 9/19/2014 20:59:19 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v551) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB65 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0005810	.0016093	.0000844
Stddev	.0004635	.0005597	.0000257
%RSD	79.77321	34.77708	30.43874
#1	.0008788	.0018875	.0000916
#2	.0008174	.0019753	.0000559
#3	.0000470	.0009650	.0001058

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	137.9567	6007.222	115543.2	15094.20	6455.593
Stddev	.8520	19.286	166.4	101.47	32.329
%RSD	.6175905	.3210411	.1440252	.6722305	.5007939
#1	137.9844	6012.434	115732.4	15173.17	6473.548
#2	137.0911	6023.367	115477.9	14979.76	6474.960
#3	138.7945	5985.867	115419.4	15129.67	6418.271

CHEMTECH

Instrument ID: P5

284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Daily Analysis Runlog For Sequence/QCBatch ID # LB72830

Review By BIN Review On 9/22/2014 3:25:44 PM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

Sr#	SampleId	ClientID	QcType	Date	Comment	Status
1	S0	S0	CAL1	09/19/14 12:12		OK
2	S1	S1	CAL2	09/19/14 12:16		OK
3	S2	S2	CAL3	09/19/14 12:20		OK
4	S3	S3	CAL4	09/19/14 12:24		OK
5	S4	S4	CAL5	09/19/14 12:28		OK
6	S5	S5	CAL6	09/19/14 12:32		OK
7	S6	S6	CAL7	09/19/14 12:37		OK
8	ICV54	ICV54	ICV	09/19/14 12:45		OK
9	ICB54	ICB54	ICB	09/19/14 12:49		OK
10	ICSA54	ICSA54	ICSA	09/19/14 12:58		OK
11	ICSAB54	ICSAB54	ICSAB	09/19/14 13:02		OK
12	CCV60	CCV60	CCV	09/19/14 13:06		OK
13	CCB60	CCB60	CCB	09/19/14 13:10		OK
14	DIG BLK1	DIG BLK1	SAM	09/19/14 13:14		OK
15	DIG BLK2	DIG BLK2	SAM	09/19/14 13:18		OK
16	DIG BLK3	DIG BLK3	SAM	09/19/14 13:22		OK
17	DIG BLK4	DIG BLK4	SAM	09/19/14 13:27		OK
18	DIG BLK5	DIG BLK5	SAM	09/19/14 13:31		OK
19	DIG BLK6	DIG BLK6	SAM	09/19/14 13:35		OK
20	DIG BLK7	DIG BLK7	SAM	09/19/14 13:39		OK
21	DIG BLK8	DIG BLK8	SAM	09/19/14 13:43		OK

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Review By	BIN	Review On	9/22/2014 3:25:44 PM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

22	DIG BLK9	DIG BLK9	SAM	09/19/14 13:47		OK
23	DIG BLK10	DIG BLK10	SAM	09/19/14 13:51		OK
24	DIG BLK11	DIG BLK11	SAM	09/19/14 13:55		OK
25	FUNNEL1	FUNNEL1	SAM	09/19/14 13:59		OK
26	FUNNEL2	FUNNEL2	SAM	09/19/14 14:03		OK
27	FUNNEL3	FUNNEL3	SAM	09/19/14 14:08		OK
28	FUNNEL4	FUNNEL4	SAM	09/19/14 14:12		OK
29	FUNNEL5	FUNNEL5	SAM	09/19/14 14:16		OK
30	FILTER DIG1	FILTER DIG1	SAM	09/19/14 14:20		OK
31	FILTER DIG2	FILTER DIG2	SAM	09/19/14 14:24		OK
32	FILTER DIG3	FILTER DIG3	SAM	09/19/14 14:28		OK
33	CCV61	CCV61	CCV	09/19/14 14:32		OK
34	CCB61	CCB61	CCB	09/19/14 14:36		OK
35	PB79028BL	PBS01	MB	09/19/14 14:56		OK
36	PB79028BS	LCS01	LCS	09/19/14 15:00		OK
37	F3847-01	ME42Z2	SAM	09/19/14 15:05	NOT Use	Not Ok
38	F3847-02	ME42Z3	SAM	09/19/14 15:09	NOT Use	Not Ok
39	F3847-03	ME42Z5	SAM	09/19/14 15:13	Fe high	Dilution
40	F3847-04	ME42Z6	SAM	09/19/14 15:17		OK
41	F3847-05	ME42Z7	SAM	09/19/14 15:21	Fe,Ni high	Dilution
42	F3847-06	ME42Z8	SAM	09/19/14 15:25	Ni high	Dilution
43	F3847-07	ME42Z9	SAM	09/19/14 15:29	Fe,Ni high	Dilution
44	F3847-08	ME4300	SAM	09/19/14 15:33		OK

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ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

45	F3847-09	ME4300D	DUP	09/19/14 15:37		OK
46	F3847-10	ME4300S	MS	09/19/14 15:41	MS fail for Sb(Below RL),Mn(4975.83ppb),Ni(2	OK
47	F3847-08L	ME4300L	SD	09/19/14 15:45	SD fail for Cd	OK
48	F3847-11	ME4301	SAM	09/19/14 15:49	NOT Use	Not Ok
49	F3847-12	ME4302	SAM	09/19/14 15:53	NOT Use	Not Ok
50	F3847-13	ME4303	SAM	09/19/14 15:57	Fe,Ni high	Dilution
51	CCV62	CCV62	CCV	09/19/14 16:01		OK
52	CCB62	CCB62	CCB	09/19/14 16:05		OK
53	F3847-14	ME4304	SAM	09/19/14 16:09		OK
54	F3847-15	ME4305	SAM	09/19/14 16:13		OK
55	F3914-01A	MB0AA4A	PS	09/19/14 16:17	PS for Sb,Ba,Cd,Mn,Tl,Ba high	Dilution
56	F3914-01A	MB0AA4A	PS	09/19/14 16:35	Report 10X for Ba	Confirms
57	PB79056BL	PBS01	MB	09/19/14 16:38		OK
58	PB79056BS	LCS01	LCS	09/19/14 16:43		OK
59	F3976-01	MB0AB8	SAM	09/19/14 16:47		OK
60	F3976-02	MB0AB9	SAM	09/19/14 16:51		OK
61	F3976-03	MB0AD6	SAM	09/19/14 16:55		OK
62	F3976-04	MB0AD7	SAM	09/19/14 16:59		OK
63	F3976-05	MB0AD7D	DUP	09/19/14 17:03		OK
64	F3976-06	MB0AD7S	MS	09/19/14 17:07	MS fail for Sb(Below Rl),Mn(743.25ppb)	OK
65	F3976-04L	MB0AD7L	SD	09/19/14 17:11		OK
66	F3976-07	MB0AD8	SAM	09/19/14 17:15		OK
67	F3976-08	MB0AD9	SAM	09/19/14 17:19		OK

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STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

68	F3976-09	MB0AE0	SAM	09/19/14 17:23		OK
69	F3976-10	MB0AE1	SAM	09/19/14 17:27		OK
70	F3976-11	MB0AE2	SAM	09/19/14 17:31		OK
71	F3976-12	MB0AE3	SAM	09/19/14 17:35		OK
72	F3976-13	MB0AE4	SAM	09/19/14 17:39		OK
73	F3961-14A	MB0AF9A	PS	09/19/14 17:43	PS for Sb	OK
74	F3942-12	MC0AH0	SAM	09/19/14 17:47		OK
75	CCV63	CCV63	CCV	09/19/14 17:56		OK
76	CCB63	CCB63	CCB	09/19/14 18:00		OK
77	F3976-14	MB0AE5	SAM	09/19/14 18:05		OK
78	F3976-15	MB0AE6	SAM	09/19/14 18:09		OK
79	F3976-16	MB0AE7	SAM	09/19/14 18:13		OK
80	F3976-17	MB0AE8	SAM	09/19/14 18:17		OK
81	F3976-18	MB0AE9	SAM	09/19/14 18:21		OK
82	F3976-19	MB0AG4	SAM	09/19/14 18:25		OK
83	F3976-20	MB0AG5	SAM	09/19/14 18:29		OK
84	F3976-21	MB0AR0	SAM	09/19/14 18:33		OK
85	F3976-22	MB0AR1	SAM	09/19/14 18:37		OK
86	F3935-01A	MH0608A	PS	09/19/14 18:41	PS for Cr	OK
87	F3941-07A	MC0AF7A	PS	09/19/14 18:45	PS for Sb	OK
88	F3935-05	MH0616	SAM	09/19/14 18:49	Report 10X for Cu	OK
89	F3935-06	MH0596	SAM	09/19/14 18:53	Report 10X for Cu	OK
90	F3935-08	MH0604	SAM	09/19/14 18:57	Report 10X for Cu	OK

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STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

91	F3939-06	MC0AJ9	SAM	09/19/14 19:01		OK
92	F3939-07	MC0AK0	SAM	09/19/14 19:05		OK
93	F3939-08	MC0AK1	SAM	09/19/14 19:10		OK
94	F3939-09	MC0AK1D	DUP	09/19/14 19:14		OK
95	F3939-10	MC0AK1S	MS	09/19/14 19:18	MS fail for Cr(19.88ppb)	OK
96	F3939-08L	MC0AK1L	SD	09/19/14 19:22		OK
97	CCV64	CCV64	CCV	09/19/14 19:26		OK
98	CCB64	CCB64	CCB	09/19/14 19:30		OK
99	F3939-11	MC0AK2	SAM	09/19/14 19:34		OK
100	F3939-12	MC0AK3	SAM	09/19/14 19:38		OK
101	F3939-13	MC0AK4	SAM	09/19/14 19:42		OK
102	F3939-14	MC0AK5	SAM	09/19/14 19:46		OK
103	F3939-15	MC0AK6	SAM	09/19/14 19:50		OK
104	F3939-16	MC0AK7	SAM	09/19/14 19:54		OK
105	F3939-17	MC0AK8	SAM	09/19/14 19:58		OK
106	F3939-18	MC0AK9	SAM	09/19/14 20:02		OK
107	F3939-19	MC0AL0	SAM	09/19/14 20:06		OK
108	F3939-20	MC0AL1	SAM	09/19/14 20:10		OK
109	F3939-21	MC0AL2	SAM	09/19/14 20:15		OK
110	PB79085BL	PBS01	MB	09/19/14 20:19		OK
111	PB79085BS	LCS01	LCS	09/19/14 20:23		OK
112	F3999-01	MHVF46	SAM	09/19/14 20:27		OK
113	F3999-02	MHVF47	SAM	09/19/14 20:31		OK

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Daily Analysis Runlog For Sequence/QCBatch ID # LB72830

Review By	BIN	Review On	9/22/2014 3:25:44 PM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

114	F3999-03	MHVF48	SAM	09/19/14 20:35		OK
115	F3999-04	MHVF49	SAM	09/19/14 20:39		OK
116	F3999-05	MHVF50	SAM	09/19/14 20:43		OK
117	F3999-06	MHVF51	SAM	09/19/14 20:47		OK
118	F3999-07	MHVF51D	DUP	09/19/14 20:51		OK
119	CCV65	CCV65	CCV	09/19/14 20:55		OK
120	CCB65	CCB65	CCB	09/19/14 20:59		OK
121	F3999-08	MHVF51S	MS	09/19/14 21:03		OK
122	F3999-06L	MHVF51L	SD	09/19/14 21:07		OK
123	F3999-09	MHVF52	SAM	09/19/14 21:11		OK
124	F3999-10	MHVF53	SAM	09/19/14 21:15		OK
125	F3999-11	MHVF54	SAM	09/19/14 21:19		OK
126	F3999-12	MHVF55	SAM	09/19/14 21:23		OK
127	F3999-13	MHVF56	SAM	09/19/14 21:27		OK
128	F3999-14	MHVF57	SAM	09/19/14 21:31		OK
129	F3999-15	MHVF58	SAM	09/19/14 21:35		OK
130	F3999-16	MHVF59	SAM	09/19/14 21:39		OK
131	F3999-17	MHVF60	SAM	09/19/14 21:42		OK
132	F3999-18	MHVF61	SAM	09/19/14 21:46		OK
133	F3999-19	MHVF62	SAM	09/19/14 21:50		OK
134	F3999-20	MHVF63	SAM	09/19/14 21:54		OK
135	CCV66	CCV66	CCV	09/19/14 21:58		OK
136	CCB66	CCB66	CCB	09/19/14 22:03		OK

Prep Standard - Chemical Standard Summary

Order ID : F3939

Test : Metals CLP Full

Prepbatch ID : PB78987

Sequence ID/Qc Batch ID: LB72830

Standard ID :
MP23410,MP23642,MP23639,MP23643,MP23655,MP23656,MP23658,MP23654,MP23659,MP23660,MP23661,MP23662,MP23663,MP23664,MP23665,MP23666,MP23667,MP23668,MP23410,MP23639,MP23642,MP23643,MP23654,MP23655,MP23656,MP23658,MP23659,MP23660,MP23661,MP23662,MP23663,MP23664,MP23665,MP23666,MP23667,MP23668,

Chemical ID :
M3245,M3207,M3218,M2942,V1456,M3215,M3047,W1152,M3218,M3227,M3057,M3156,M2988,M2961,M3081,M3187,M3242,M3240,M2782,M3151,M3096,M3099,M3100,M3102,M3115,M3224,M2979,M3112,M3124,M3122,M3110,M3185,M3225,M2975,M2991,M3113,M3118,M3098,M3117,M3106,M3121,M3101,M3097,M3108,M2987,M3111,M3104,M3123,M2962,M3145,M3148,M2782,M2942,M2961,M2962,M2975,M2979,M2987,M2988,M2991,M3047,M3057,M3081,M3096,M3097,M3098,M3099,M3100,M3101,M3102,M3104,M3106,M3108,M3110,M3111,M3112,M3113,M3115,M3117,M3118,M3121,M3122,M3123,M3124,M3145,M3148,M3151,M3156,M3185,M3187,M3207,M3215,M3218,M3224,M3225,M3227,M3240,M3242,M3245,V1456,W1152,

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
169	1:1HNO3	MP23410	09/02/2014	03/02/2015	BHUPENDRA

FROM 1250.000ml of M3215 + 1250.000ml of V1456 = Final Quantity: 2500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23639	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
904	ICP AES ICSA SOLN	MP23642	09/17/2014	09/30/2014	BIN

FROM 25.000ml of M3047 + 225.000ml of MP23639 = Final Quantity: 250.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
905	ICP AES ICSAB SOLN	MP23643	09/17/2014	09/30/2014	BIN

FROM 25.000ml of M3047 + 25.000ml of M3057 + 200.000ml of MP23639 = Final Quantity: 250.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23654	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
903	ICP AES RINSE SOLN	MP23655	09/17/2014	09/30/2014	BIN

FROM 200.000ml of M3227 + 9800.000ml of W1152 = Final Quantity: 10000.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
919	ICP AES INTERNAL STD	MP23656	09/17/2014	09/30/2014	BIN

FROM 1.000ml of M2988 + 10.000ml of M3156 + 1969.000ml of W1152 + 20.000ml of M3227 = Final Quantity: 2000.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
2054	ICV-ICPAES	MP23658	09/17/2014	09/30/2014	BIN

FROM 0.500ml of M2961 + 0.500ml of M3187 + 10.000ml of M3081 + 89.000ml of MP23654 = Final Quantity: 100.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
921	ICPAES SPIKE SOL#6	MP23659	09/17/2014	09/30/2014	BIN

FROM 10.000ml of M3240 + 10.000ml of M3242 + 80.000ml of MP23654 = Final Quantity: 100.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
994	ICPAES ISM01.2 S1 (CONC.)	MP23660	09/17/2014	09/30/2014	BIN

FROM 0.100ml of M3100 + 0.100ml of M3112 + 0.100ml of M3115 + 0.140ml of M2987 + 0.200ml of M2979 + 0.200ml of M2991 + 0.200ml of M3096 + 0.200ml of M3102 + 0.200ml of M3106 + 0.200ml of M3110 + 0.200ml of M3122 + 0.300ml of M2975 + 0.300ml of M3187 + 0.400ml of M2782 + 0.500ml of M3108 + 0.500ml of M3124 + 0.700ml of M3098 + 0.800ml of M3113 + 1.000ml of M3104 + 1.000ml of M3185 + 1.200ml of M3123 + 1.200ml of M3151 + 10.000ml of M3118 + 10.000ml of M3121 + 10.000ml of M3224 + 10.000ml of M3225 + 2.000ml of M3097 + 2.000ml of M3101 + 2.000ml of M3111 + 2.000ml of M3117 + 4.000ml of M3099 + 37.360ml of MP23654 = Final Quantity: 100.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1003	ICPAES ISM01.2 S1	MP23661	09/17/2014	09/18/2014	BIN

FROM 1.000ml of MP23660 + 199.000ml of MP23654 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1004	ICPAES ISM01.2 (S5)	MP23662	09/17/2014	09/30/2014	BIN

FROM 0.375ml of M3100 + 18.750ml of M2975 + 18.750ml of M3118 + 18.750ml of M3121 + 18.750ml of M3123 + 20.625ml of M3124 + 21.750ml of M2782 + 21.750ml of M2979 + 21.750ml of M3122 + 30.000ml of M3110 + 33.750ml of M3224 + 33.750ml of M3225 + 7.500ml of M2962 + 7.500ml of M3097 + 7.500ml of M3101 + 7.500ml of M3145 + 7.500ml of M3148 + 7.500ml of M3151 + 7.500ml of M3185 + 7.500ml of M3187 + 431.250ml of MP23654 = Final Quantity: 750.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1119	ICPAES ISM01.2(CCV)	MP23663	09/17/2014	09/30/2014	BIN

FROM 12.250ml of M2782 + 12.500ml of M3121 + 12.500ml of M3122 + 7.500ml of M3224 + 7.500ml of M3225 + 197.750ml of MP23654 + 250.000ml of MP23662 = Final Quantity: 500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1005	ICPAES ISM01.2(S4)	MP23664	09/17/2014	09/30/2014	BIN

FROM 100.000ml of MP23654 + 100.000ml of MP23662 = Final Quantity: 200.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1007	ICPAES ISM01.2(S3)	MP23665	09/17/2014	09/30/2014	BIN

FROM 150.000ml of MP23654 + 50.000ml of MP23662 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1008	ICPAES ISM01.2(S2)	MP23666	09/17/2014	09/30/2014	BIN

FROM 175.000ml of MP23654 + 25.000ml of MP23662 = Final Quantity: 200.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
2480	ICP AES STD 6 ISM01.3	MP23667	09/17/2014	09/30/2014	BIN

FROM 16.000ml of M2782 + 16.000ml of M3121 + 16.000ml of M3122 + 16.000ml of M3224 + 16.000ml of M3225 + 120.000ml of MP23654 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23668	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Aluminum (Al) 10,000PPM	082812	08/28/2015	12/28/2012 / Janet	12/28/2012 / Janet	M2782

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Labpure	0919120 / Boiling Stones	4368-7F031	08/22/2018	08/22/2013 / bhupendra	08/22/2013 / bhupendra	M2942

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CHEM-QC-4 / CHEM-QC-4, Second Source, 1000 ug/ml, B, Mo, Si, Sn, Ti	F2-MEB452072	10/01/2014	09/03/2013 / aesha	08/26/2013 / aesha	M2961

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	G2-MEB491013	10/01/2014	09/03/2013 / aesha	08/26/2013 / aesha	M2962

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58025 / Manganese, Mn, 500 ml, 1000 PPM	070313	07/03/2016	09/25/2013 / jaswal	09/25/2013 / jaswal	M2975

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58024 / Chromium, Cr, 500 ml, 1000 PPM	072913	07/29/2016	09/25/2013 / jaswal	09/25/2013 / jaswal	M2979

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSNCL1-1 / TIN/HCL 125mL 1000ug/mL	G2-SN02062	11/01/2014	10/21/2013 / BIN	10/18/2013 / BIN	M2987

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	F2-Y02004	11/01/2014	10/21/2013 / BIN	10/18/2013 / BIN	M2988

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57042 / Molybdeum, Mo, 100 ml, 1000 PPM	080913	08/09/2016	10/30/2013 / BIN	09/25/2013 / BIN	M2991

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3047

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3057

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV1-0307	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3081

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGAS1-1 / ARSENIC 125mL 1000ug/mL	G2-AS02102	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3096

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGS1-1 / SULFUR 125mL 1000ug/mL	G2-S02007	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3097

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSE(4)1-1 / SELENIUM 125mL 1000ug/mL	E2-SE02033	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3098

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGBA1-1 / BARIUM 125mL 1000ug/mL	F2-BA02076	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3099

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGBE1-1 / BERYLLIUM 125mL 1000ug/mL	F2-BE02021	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3100

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSR1-1 / Strontium, 125 ml, 1000 PPM	F2-SR02036	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3101

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGB1-1 / BORON 125mL 1000ug/mL	F2-B02109	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3102

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGV1-1 / VANADIUM 125mL 1000ug/mL	G2-V02081	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3104

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGAG1-1 / SILVER 125mL 1000ug/mL	G2-AG03035	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3106

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTL1-1 / THALLIUM 125mL 1000ug/mL	F2-TL02003	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3108

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGPB1-1 / LEAD 125mL 1000ug/mL	G2-PB03044	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3110

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	F2-TI02094	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3111

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCO1-1 / COBALT 125mL 1000ug/mL	F2-CO02052	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3112

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGNI1-1 / NICKEL 125mL 1000ug/mL	G2-NI02086	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3113

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCD1-1 / CADMIUM, 125mL 1000ug/mL	G2-CD02043	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3115

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSI1-1 / SILICON 125mL 1000ug/mL	G2-SI03023	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3117

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGK10-5 / Potassium, 500 ml, 10000 PPM	F2-K03033	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3118

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGNA10-5 / Sodium, 500 ml, 10000 PPM	G2-NA03110	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3121

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGFE10-5 / Iron, 500 ml, 10000 PPM	G2-FE04029	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3122

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGZN1-5 / Zinc, 500 ml, 1000 PPM	F2-ZN02088	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3123

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCU1-5 / Copper, 500 ml, 1000 PPM	F2-CU02147	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3124

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	G2-MEB479124	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3145

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	G2-MEB467069	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3148

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSBF1-1 / Antimony, Sb, 125 ml	G2-SB03021	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3151

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGIN10-1 / INDIUM 125mL 10,000ug/mL	F2-IN01095	04/01/2015	03/07/2014 / jaswal	03/07/2014 / jaswal	M3156

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57003 / Lithium, Li, 100 ml, 1000 PPM	122713	12/27/2016	05/19/2014 / BIN	05/09/2014 / jaswal	M3185

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGP1-1 / Phosphorus, 125 ml	G2-P02048	06/01/2015	09/02/2014 / BIN	05/09/2014 / jaswal	M3187

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-2186-03 / Hydrogen Peroxide (cs/4x4L)	0000064775	05/27/2015	07/15/2014 / bhupendra	07/03/2014 / bhupendra	M3207

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000077192	04/15/2019	08/22/2014 / bhupendra	08/12/2014 / bhupendra	M3215

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	0000075649	03/25/2019	09/02/2014 / BHUPENDRA	08/20/2014 / bhupendra	M3218

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCA10-5 / Calcium, 500 ml, 10000 PPM	G2-CA04095	09/01/2015	09/02/2014 / BIN	08/12/2014 / jaswal	M3224

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGMG10-5 / Magnesium, 500 ml, 10000 PPM	G2-MG03120	09/01/2015	09/02/2014 / BIN	08/12/2014 / jaswal	M3225

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000077192	04/15/2019	09/05/2014 / bhupendra	09/03/2014 / bhupendra	M3227

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-1 / SOIL/WATER SPIKE SOLN 1, 125mL	F2-MEB427123	10/01/2015	09/05/2014 / BIN	09/05/2014 / BIN	M3240

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-5 / CLP Spike Standard 5	G2-MEB474100	10/01/2015	09/05/2014 / BIN	09/05/2014 / BIN	M3242

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000084115	07/01/2019	09/23/2014 / bhupendra	09/12/2014 / BHUPENDRA	M3245

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Res-Kem General water	DIW / DI Water	DAILY	12/31/2019	03/01/2010 / apatel	03/02/2010 / apatel	V1456

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Res-Kem General water	DIW / DI Water	Lab certified	02/23/2015	02/23/2010 /	02/23/2010 / divya	W1152

Absolute Standards, Inc.
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Certified Reference Material CRM

ISO 9001 QS Registered
ISO 17025-34-35-[illegible] Accredited
Scopes: http://Absolute[illegible]andards.com

Standard ID : M2782

CERTIFIED WEIGHT REPORT:

D: 12/28/12
R: 12/28/12

Part Number: 58113
Lot Number: 082812
Description: Aluminum (Al)
Expiration Date: 082815
Storage: 20 °C
Nominal Concentration (µg/mL): 10000
Weight shown below was diluted to (mL): 1999.68

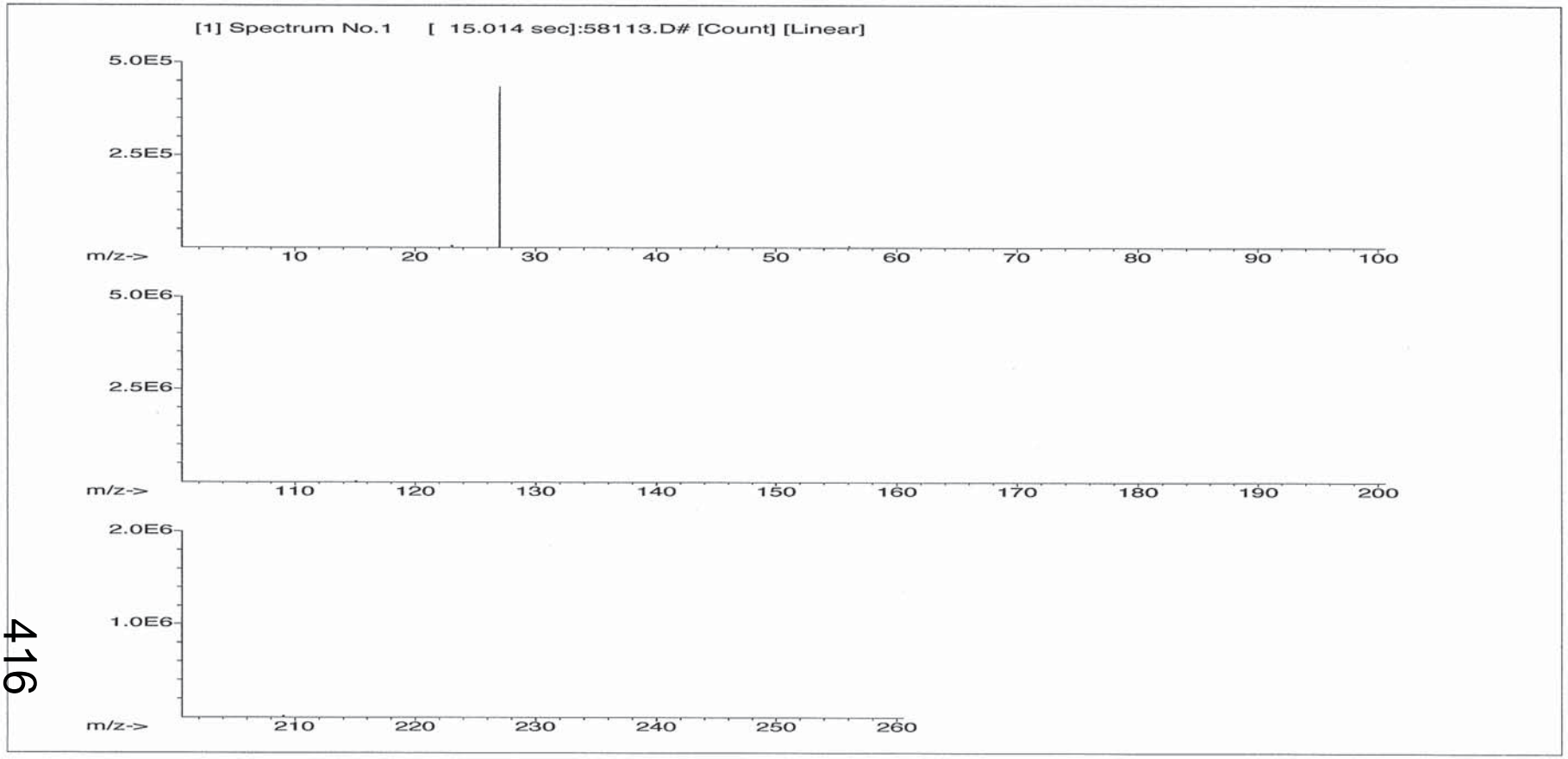
	Lot #		
Solvent:	C142199	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.100 Flask Uncertainty

M2782

Formulated By:	Lawrence Barry	082812
Reviewed By:	Pedro L. Rentas	082812

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity	Uncertainty Purity	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty (+/-)	CAS#	MSDS Information (Solvent Safety Info. On Attached pg.) OSHA PEL (TWA)	LD50	NIST SRM
1. Aluminum Nitrate Nonahydrate (Al)	IN022	D312ALA1	10000.0	99.999	0.10	7.10	281.6484	281.6803	**10001.1**	0.00200	07784-27-2	5 mg/m3	orl-rat 264 mg/kg	3101a



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INORGANIC VENTURES™
Standard ID : M2961
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CERTIFICATE OF ANALYSIS

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M2961

R: 08/26/13

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Custom Second Source Solution**

Catalog No.: CHEM-QC-4

Lot Number: **F2-MEB452072**

Matrix: 3% HNO3(v/v), 2.7% HF(v/v)

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

1,000 µg/mL ea:
B, Mo, Si, Sn, Ti

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Boron, B	1,000 ± 7 µg/mL	Molybdenum, Mo	1,000 ± 6 µg/mL	Silicon, Si	1,000 ± 5 µg/mL
Tin, Sn	1,000 ± 5 µg/mL	Titanium, Ti	1,000 ± 7 µg/mL		

Certified Density: 1.033 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\sum x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2\ [\ \Sigma(s_i)^2\ ]^{½}$ 2 = the coverage factor.

$[\ \Sigma(s_i)^2\ ]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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Standard ID : M2962

CERTIFICATE OF ANALYSIS

M2962

R: 08/26/13

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Custom Solution**

Catalog No.: CHEM-CLP-4

Lot Number: **G2-MEB491013**

Matrix: 3% HNO3(v/v), 2.7% HF(v/v)

1,000 µg/mL ea:
B, Mo, Si, Sn, Ti

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Boron, B	1,000 ± 7 µg/mL	Molybdenum, Mo	1,000 ± 5 µg/mL	Silicon, Si	1,000 ± 7 µg/mL
Tin, Sn	1,001 ± 7 µg/mL	Titanium, Ti	1,000 ± 7 µg/mL		

Certified Density: 1.035 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

RD: 09/25/13
M2975

ISO 9001 QS Registered
ISO 17025-34-35- Accredited
Scopes: http://Absolute ndards.com

Standard ID : M2975

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58025**	C257285	Nitric Acid	
Lot Number:	**070313**			
Description:	**Manganese (Mn)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	070316			
	Storage: 20 °C			
Nominal Concentration (µg/mL):	**1000**			
		5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty	

Gabriel Helland

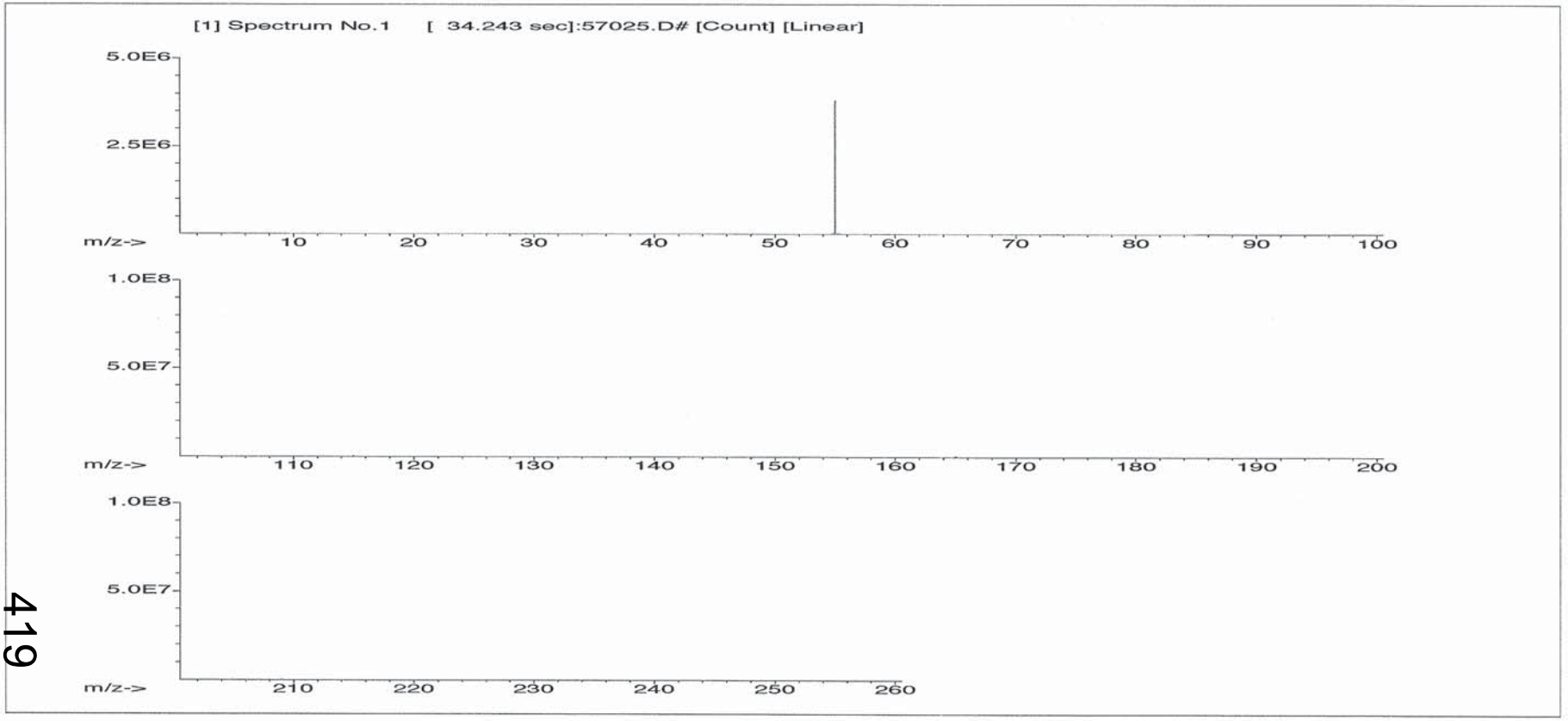
Formulated By:	Gabriel Helland	070313

Pedro Rentas

Reviewed By:	Pedro L. Rentas	070313

MSDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	ty Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Manganese (II) nitrate Hydrate (Mn)	58125	122712	0.1000	200.0	0.013	10000.9	**1000.2**	0.00201	15710-66-4	5 mg/m3	N/A	3132



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Certified Reference Material CRM

RD: 09/25/13
M2979

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ISO 17025-34-35[illegible] Accredited
Scopes: http://Absolute[illegible]andards.com

Standard ID : M2979

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**58024**		C257285	Nitric Acid	
Lot Number:	**072913**				
Description:	**Chromium (Cr)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	072916				
	Storage:	20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty		

Gabriel Helland

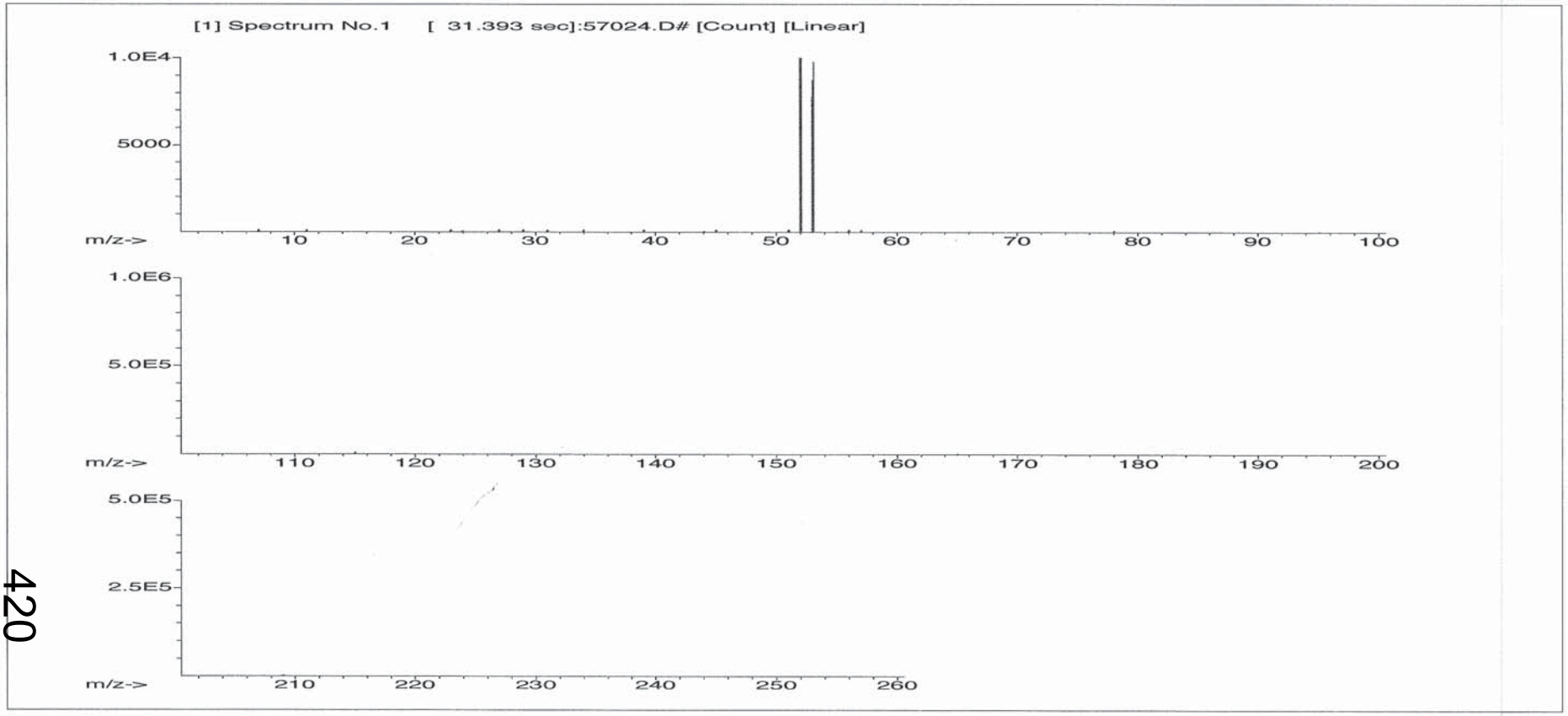
Formulated By:	Gabriel Helland	072913

Pedro Rentas

Reviewed By:	Pedro L. Rentas	072913

MSDS Information
(Solvent Safety Info. On Attached pg.)

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	**Final Conc. (µg/mL)**	Expanded Uncertainty (+/-)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Chromium (III) nitrate nonahydrate (Cr)	58124	022213	0.100	200.0	0.013	10000.9	**1000.2**	0.00201	07789-02-8	0.5 mg(Cr)/m3	orl-rat 3250 mg/kg	3112a



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M2987

RV: 10/18/2013

Standard ID : M2987

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CERTIFICATE OF ANALYSIS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Tin HCl in 20% (v/v) HCl**

Catalog Number:	CGSNCL1-1, CGSNCL1-2, and CGSNCL1-5
Lot Number:	**G2-SN02062**
Starting Material:	Sn shot
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1744
Matrix:	20% (v/v) HCl

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 3 µg/mL -weighted mean-
Certified Density:	1.042 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

RD : 10/18/2013

Standard ID : M2988

INORGANIC VENTURES™

CERTIFICATE OF ANALYSIS

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2.0 **DESCRIPTION OF CRM** **10000 µg/mL Yttrium in 2% (v/v) HNO3**

Catalog Number:	CGY10-1, CGY10-2, and CGY10-5
Lot Number:	**F2-Y02004**
Starting Material:	Y2O3
Starting Material Purity (%):	99.9999
Starting Material Lot No:	0623052
Matrix:	2% (v/v) HNO3

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration:	10,006 ± 53 µg/mL - weighted mean
Certified Density:	1.034 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M2991

RD : 09/25/13

Certified Reference Material CRM

ISO 9001 QS R
ISO 17025 34-35-43 A
Scopes: http:/ soluteStan

Standard ID : M2991

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:
Part Number:	**57042**	Y47057	Ammonium hydroxide
Lot Number:	**080913**		
Description:	**Molybdenum (Mo)**		
		0.5%	10.0 (mL) Ammonium hydroxide
Expiration Date:	080916		
	Storage: 20 °C		
Nominal Concentration (µg/mL):	**1000**		
		5E-05	Balance Uncertainty
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty

Gabriel Helland

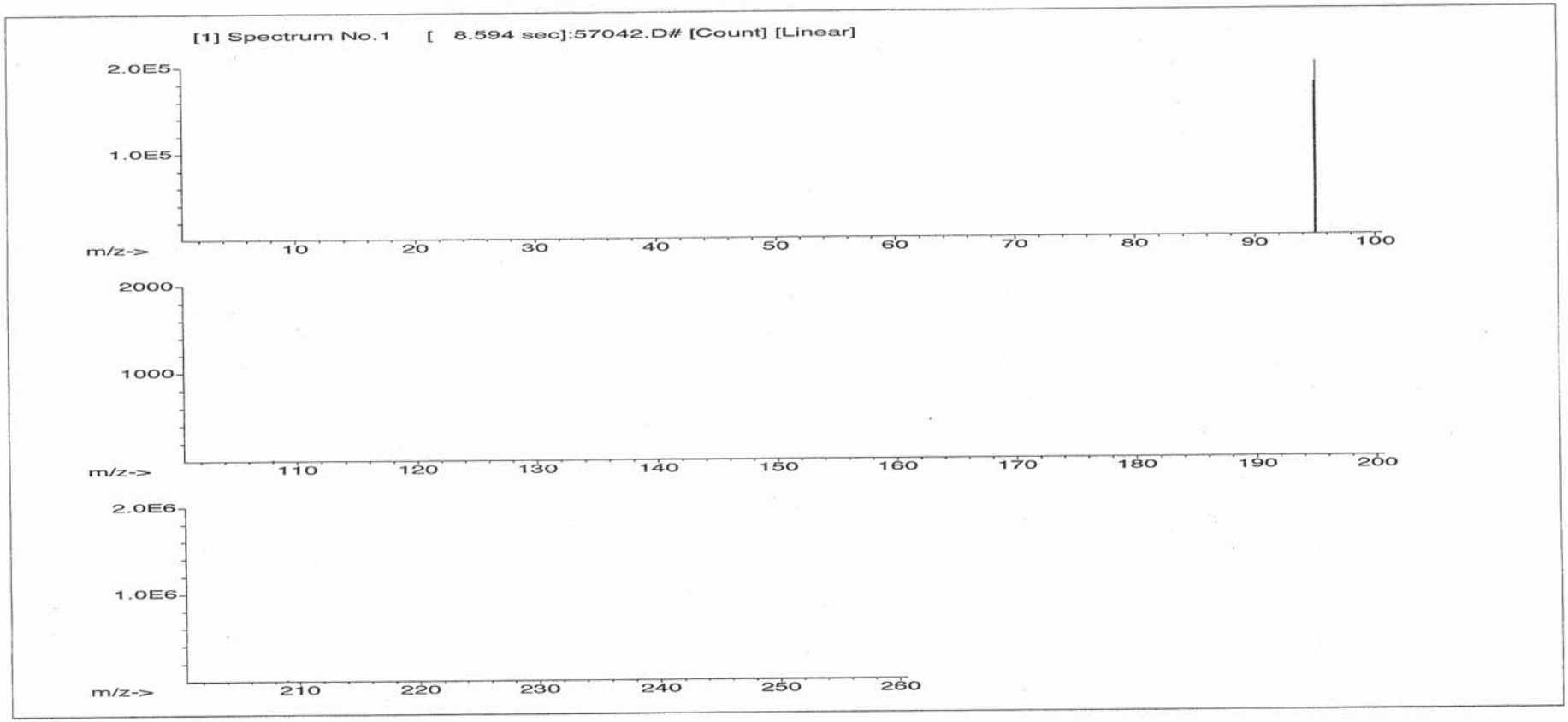
Formulated By:	Gabriel Helland	080913

Pedro Rentas

Reviewed By:	Pedro L. Rentas	080913

MSDS Information
(Solvent Safety Info. On Attached pg.)

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium molybdate (Mo)	58142	072613	0.1000	200.0	0.013	10001.3	**1000.3**	0.00201	12054-85-2	5 mg(Mo)/m3	orl-rat 333 mg/kg	3134



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interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:
ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSA solution by ICP-AES.
ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSAB solution by ICP-AES.

(D) *"CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)*

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB) events, CLP pre-award events, and external referee laboratories.

ICSA M3046 ↓ to M3055

ICSB M3056 ↓ to M3065

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	254900	203920	305880	246800	197440	296160
Sb	60	(0)*	-60	60	618	494	742
As	10	(0)	-10	10	104	83	125
Ba	200	(6)	-194	206	(537)	337	737
Be	5	(0)	-5	5	495	396	594
Cd	5	(1)	-4	6	972	778	1166
Ca	5000	244500	195600	293400	234900	187920	281880
Cr	10	52	42	62	542	434	650
Co	50	(0)	-50	50	476	381	571
Cu	25	(2)	-23	27	511	409	613
Fe	100	100700	80560	120840	99320	79456	119184
Pb	10	(0)	-10	10	(49)	39	59
Mg	5000	255400	204320	306480	248000	198400	297600
Mn	15	(7)	-8	22	507	406	608
Ni	40	(2)	-38	42	954	763	1145
Se	35	(0)	-35	35	(46)	11	81
Ag	10	(0)	-10	10	201	161	241
Tl	25	(0)	-25	25	(108)	83	133
V	50	(0)	-50	50	491	393	589
Zn	60	(0)	-60	60	952	762	1142

* The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 20 percent of the listed certified value.

R: 10/09/13

Standard ID : M3081

(D) *CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS*

M3081 To M3090

ICV1-0307		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2521	504
Sb	994	199
As	999	200
Ba	497	99
Be	495	99
Cd	496	99
Ca	10026	2005
Cr	490	98
Co	499	100
Cu	492	98
Fe	5082	1016
Pb	1002	200
Mg	6074	1215
Mn	499	100
Ni	503	101
K	10021	2004
Se	1029	206
Ag	501	100
Na	10097	2019
Tl	1028	206
V	501	100
Zn	1025	205

ICV5-0508		ICV6-0400	
Element	Concentration (µg/L) (after 100-fold dilution)	Analyte	Concentration (µg/L) (after 100-fold dilution)
Hg	4.0	CN^-	99

Standard ID : M3096

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R: 011717JM

M3096-

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Arsenic in 2% (v/v) HNO3**

Catalog Number:	CGAS1-1, CGAS1-2, and CGAS1-5
Lot Number:	**G2-AS02102**
Starting Material:	As Lump
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1814
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 5 µg/mL -weighted mean-

Certified Density: 1.012 (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2);$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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Standard ID : M3097

CERTIFICATE OF ANALYSIS

R1. 01/17/14

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M3097

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Sulfur in H2O**

Catalog Number:	CGS1-1, CGS1-2, and CGS1-5
Lot Number:	**G2-S02007**
Starting Material:	H2SO4
Starting Material Purity (%):	100.0000
Starting Material Lot No:	H44F03
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,005 ± 5 µg/mL -weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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2.0 DESCRIPTION OF CRM **1000 µg/mL Selenium(+4) in 2% (v/v) HNO3**

Catalog Number:	CGSE(4)1-1, CGSE(4)1-2, and CGSE(4)1-5
Lot Number:	**E2-SE02033**
Starting Material:	Se shot
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1616
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 6 µg/mL - weighted mean

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1	**Assay Method #1**	**1,002 ± 4 µg/mL** ICP Assay NIST SRM 3149 Lot Number: 100901
	Assay Method #2	**1,000 ± 3 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

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CERTIFICATE OF ANALYSIS

R : 01117114

M3099-

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Barium in 0.1%(v/v) HNO3**

Catalog Number:	CGBA1-1, CGBA1-2, and CGBA1-5
Lot Number:	**F2-BA02076**
Starting Material:	Ba(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	BAE42012A1
Matrix:	0.1%(v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	996 ± 5 µg/mL -No weighted mean-
Certified Density:	1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M3100

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Beryllium in 3% (v/v) HNO3**

Catalog Number:	CGBE1-1, CGBE1-2, and CGBE1-5
Lot Number:	**F2-BE02021**
Starting Material:	Be4O(OOCCH3)6
Starting Material Purity (%):	99.9999
Starting Material Lot No:	1772
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,003 ± 4 µg/mL - weighted mean

Certified Density: 1.022 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Strontium in 0.1% (v/v) HNO3**

Catalog Number:	CGSR1-1, CGSR1-2, and CGSR1-5
Lot Number:	**F2-SR02036**
Starting Material:	SrCO3
Starting Material Purity (%):	99.9988
Starting Material Lot No:	1610
Matrix:	0.1% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,000 ± 5 µg/mL - weighted mean

Certified Density: 1.001 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Standard ID : M3102

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Boron in H2O**

Catalog Number:	CGB1-1, CGB1-2, and CGB1-5
Lot Number:	**F2-B02109**
Starting Material:	H3BO3
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1631
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 999 ± 5 µg/mL -weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **1000 µg/mL Vanadium in 2% (v/v) HNO3**

Catalog Number:	CGV1-1, CGV1-2, and CGV1-5
Lot Number:	**G2-V02081**
Starting Material:	V2O5
Starting Material Purity (%):	99.9991
Starting Material Lot No:	1782
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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2.0 DESCRIPTION OF CRM **1000 µg/mL Silver in 5% (v/v) HNO3**

Catalog Number:	CGAG1-1, CGAG1-2, and CGAG1-5
Lot Number:	**G2-AG03035**
Starting Material:	Ag shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1641
Matrix:	5% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,002 ± 6 µg/mL -weighted mean-
Certified Density:	1.026 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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Standard ID : M3108

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M3108

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Thallium in 0.7% (v/v) HNO3**

Catalog Number:	CGTL1-1, CGTL1-2, and CGTL1-5
Lot Number:	**F2-TL02003**
Starting Material:	TlNO3
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1576
Matrix:	0.7% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 5 µg/mL - weighted mean

Certified Density: 1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M3110

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2.0 DESCRIPTION OF CRM **1000 µg/mL Lead in 0.5%(v/v) HNO3**

Catalog Number:	CGPB1-1, CGPB1-2, and CGPB1-5
Lot Number:	**G2-PB03044**
Starting Material:	Pb(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1717
Matrix:	0.5%(v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 3 µg/mL -weighted mean-
Certified Density:	1.002 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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2.0 DESCRIPTION OF CRM **1000 µg/mL Titanium in 2% (v/v) HNO3 / tr. HF**

Catalog Number:	CGTI1-1, CGTI1-2, and CGTI1-5
Lot Number:	**F2-TI02094**
Starting Material:	Ti powder
Starting Material Purity (%):	99.9948
Starting Material Lot No:	1769
Matrix:	2% (v/v) HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 6 µg/mL - weighted mean
Certified Density:	1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Cobalt in 3% (v/v) HNO3**

Catalog Number:	CGCO1-1, CGCO1-2, and CGCO1-5
Lot Number:	**F2-CO02052**
Starting Material:	Co powder
Starting Material Purity (%):	99.9982
Starting Material Lot No:	1749
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,003 ± 5 µg/mL - weighted mean
Certified Density:	1.018 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M3113

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

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2.0 **DESCRIPTION OF CRM** **1000 µg/mL Nickel in 2% (v/v) HNO3**

Catalog Number:	CGNI1-1, CGNI1-2, and CGNI1-5
Lot Number:	**G2-NI02086**
Starting Material:	Ni pieces
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1559
Matrix:	2% (v/v) HNO3

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,002 ± 4 µg/mL -weighted mean-

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **1,001 ± 3 µg/mL**
ICP Assay NIST SRM 3136 Lot Number: 000612

Assay Method #2 **1,002 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

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2.0 DESCRIPTION OF CRM **1000 µg/mL Cadmium in 3% (v/v) HNO3**

Catalog Number:	CGCD1-1, CGCD1-2, and CGCD1-5
Lot Number:	**G2-CD02043**
Starting Material:	Cd shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1714
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,004 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Standard ID : M3117

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2.0 DESCRIPTION OF CRM **1000 µg/mL Silicon in tr. HNO3 / tr. HF**

Catalog Number:	CGSI1-1, CGSI1-2, and CGSI1-5
Lot Number:	**G2-SI03023**
Starting Material:	SiO2
Starting Material Purity (%):	99.9993
Starting Material Lot No:	1551
Matrix:	tr. HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 999 ± 5 µg/mL -weighted mean-

Certified Density: 1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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CERTIFICATE OF ANALYSIS

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M3118

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2.0 DESCRIPTION OF CRM **10000 µg/mL Potassium in 2% (v/v) HNO3**

Catalog Number:	CGK10-1, CGK10-2, and CGK10-5
Lot Number:	**F2-K03033**
Starting Material:	KNO3
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1727
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 10,022 ± 60 µg/mL - weighted mean

Certified Density: 1.025 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **10000 µg/mL Sodium in 2% (v/v) HNO3**

Catalog Number:	CGNA10-1, CGNA10-2, and CGNA10-5
Lot Number:	**G2-NA03110**
Starting Material:	Na2CO3
Starting Material Purity (%):	99.9992
Starting Material Lot No:	1628
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,008 ± 17 µg/mL -weighted mean-
Certified Density:	1.033 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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2.0 DESCRIPTION OF CRM **10000 µg/mL Iron in 5 % (v/v) HNO3**

Catalog Number:	CGFE10-1, CGFE10-2, and CGFE10-5
Lot Number:	**G2-FE04029**
Starting Material:	Fe pieces
Starting Material Purity (%):	99.9977
Starting Material Lot No:	1762
Matrix:	5 % (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	9,977 ± 24 µg/mL -weighted mean-
Certified Density:	1.035 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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2.0 DESCRIPTION OF CRM **1000 µg/mL Zinc in 2% (v/v) HNO3**

Catalog Number:	CGZN1-1, CGZN1-2, and CGZN1-5
Lot Number:	**F2-ZN02088**
Starting Material:	Zn shot
Starting Material Purity (%):	99.9999
Starting Material Lot No:	1689
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	998 ± 5 µg/mL -weighted mean-
Certified Density:	1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	**Characterization of CRM by one method**
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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2.0 DESCRIPTION OF CRM **1000 µg/mL Copper in 3% (v/v) HNO3**

Catalog Number:	CGCU1-1, CGCU1-2, and CGCU1-5
Lot Number:	**F2-CU02147**
Starting Material:	Cu shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1718
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 **DESCRIPTION OF CRM** **Stock Solution**

Catalog No.: CLPP-CAL-1

Lot Number: **G2-MEB479124**

Matrix: 5% HNO3(v/v)

5,000 µg/mL ea:
Ca, K, Mg, Na,

2,000 µg/mL ea:
Al, Ba,

1,000 µg/mL ea:
Fe,

500 µg/mL ea:
Co, Mn, Ni, V, Zn,

250 µg/mL ea:
Ag, Cu,

200 µg/mL ea:
Cr3,

50 µg/mL ea:
Be

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	2,002 ± 13 µg/mL	Barium, Ba	2,002 ± 13 µg/mL	Beryllium, Be	50.03 ± 0.28 µg/mL
Calcium, Ca	5,004 ± 35 µg/mL	Chromium+3, Cr3	200.2 ± 1.3 µg/mL	Cobalt, Co	500.5 ± 3.3 µg/mL
Copper, Cu	250.2 ± 1.6 µg/mL	Iron, Fe	1,001 ± 6 µg/mL	Magnesium, Mg	5,004 ± 33 µg/mL
Manganese, Mn	500.4 ± 3.2 µg/mL	Nickel, Ni	500.5 ± 3.3 µg/mL	Potassium, K	5,004 ± 22 µg/mL
Silver, Ag	250.2 ± 1.6 µg/mL	Sodium, Na	5,004 ± 33 µg/mL	Vanadium, V	500.4 ± 3.4 µg/mL
Zinc, Zn	500.4 ± 3.3 µg/mL				

Certified Density: 1.117 g/mL (measured at 20 ± 1° C)

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2.0 **DESCRIPTION OF CRM**

	Stock Solution
Catalog No.:	CLPP-CAL-3
Lot Number:	**G2-MEB467069**
Matrix:	7% HNO3(v/v)

1,000 µg/mL ea:
As, Pb, Se, Tl,

500 µg/mL ea:
Cd

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Arsenic, As	1,000 ± 7 µg/mL	Cadmium, Cd	500.0 ± 3.2 µg/mL	Lead, Pb	1,000 ± 7 µg/mL
Selenium, Se	1,000 ± 7 µg/mL	Thallium, Tl	1,000 ± 7 µg/mL		

Certified Density: 1.043 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

Standard ID : M3151

R: 2/22/14

CERTIFICATE OF ANALYSIS

M3151

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

M3151

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Antimony in HF in 2% (v/v) HNO3 / tr. HF**

Catalog Number:	CGSBF1-1, CGSBF1-2, and CGSBF1-5
Lot Number:	**G2-SB03021**
Starting Material:	Sb shot
Starting Material Purity (%):	99.9997
Starting Material Lot No:	1647
Matrix:	2% (v/v) HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,006 ± 5 µg/mL -No weighted mean-
Certified Density:	1.010 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. **w_a and w_b** = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

INORGANIC VENTURES™
300 Technology Drive
...urg, VA 24073 · USA
inorganicventures.com

R: 03/07/14

CERTIFICATE OF ANALYSIS

Standard ID : M3156

M3156 TO M3160

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Indium in 5% (v/v) HNO3**

Catalog Number:	CGIN10-1, CGIN10-2, and CGIN10-5
Lot Number:	**F2-IN01095**
Starting Material:	In shot
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1775, 1777
Matrix:	5% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,050 ± 51 µg/mL -weighted mean-
Certified Density:	1.033 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M3185

R : 05/08/14

ISO 9001 QS Registered
ISO 17025-34-35-43 Accredited
Scopes: http://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**57003**		C363101	Nitric Acid	
Lot Number:	**122713**				
Description:	**Lithium (Li)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	122716				
		Storage: 20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05 Balance Uncertainty			
Volume shown below was diluted to (mL):	1999.98	0.090 Flask Uncertainty			

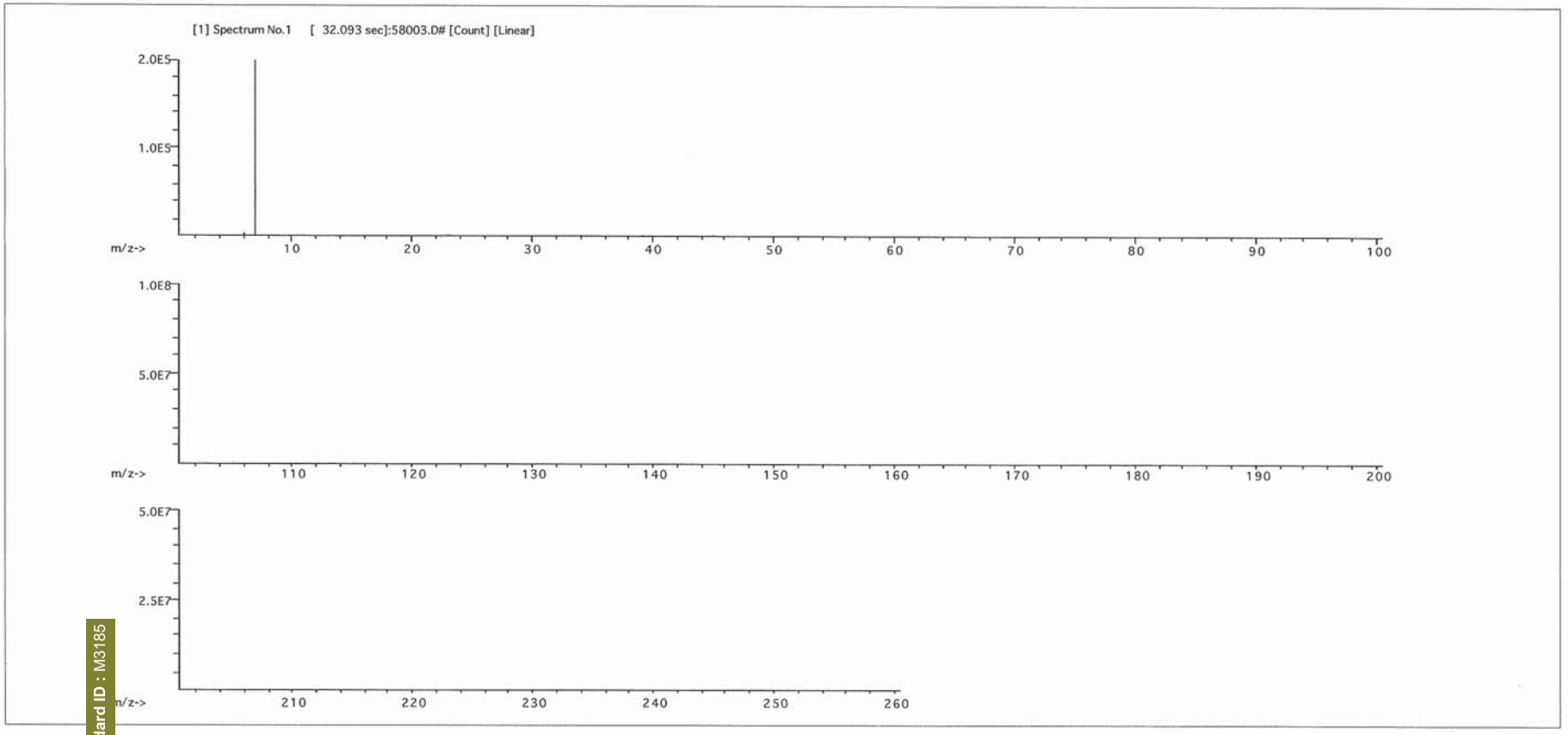
Gabriel Helland

Formulated By:	Gabriel Helland	122713

Pedro Rentas

Reviewed By:	Pedro L. Rentas	122713

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	**Final Conc. (µg/mL)**	Expanded Uncertainty (+/-)	MSDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lithium nitrate (Li)	58103	111412	0.1000	200.0	0.013	10001.5	**1000.2**	0.00201	07790-69-4	5 mg/m3	N/A	N/A



Standard ID : M3185

INORGANIC VENTURES™

Standard ID : M3187

R: 05/09/19

CERTIFICATE OF ANALYSIS

M3187

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Phosphorus in H2O**

Catalog Number:	CGP1-1, CGP1-2, and CGP1-5
Lot Number:	**G2-P02048**
Starting Material:	H3PO4
Starting Material Purity (%):	99.9997
Starting Material Lot No:	1704
Matrix:	H2O

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration:	1,001 ± 4 µg/mL -weighted mean-
Certified Density:	1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	**Characterization of CRM by one method**
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$ CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$ $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results: X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$ $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

Standard ID : M3207

Hydrogen Peroxide, 30%
BAKER ANALYZED® A.C.S. Reagent
(Stabilized)

M3207.
Received Date 7/3/14
Exp. Date 5/27/15 7/3/14.

Material No.: 2186-03
Batch No.: 0000064775
Manufactured Date: 2013/11/26
Expiration Date: 2015/05/27

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay (H_2O_2)	30.0 - 32.0 %	31.7
Color (APHA)	<= 10	5
Residue after Evaporation	<= 0.0020 %	0.0002
Titrable Acid (meq/g)	<= 0.0006	< 0.0001
Chloride (Cl)	<= 3 ppm	< 1
Nitrate (NO_3)	<= 2 ppm	< 2
Phosphate (PO_4)	<= 2 ppm	< 1
ACS - Sulfate (SO_4)	<= 5 ppm	< 3
Ammonium (NH_4)	<= 5 ppm	< 3
Trace Impurities - Copper (Cu)	<= 50.0 ppb	< 1.0
Trace Impurities - Iron (Fe)	<= 100.0 ppb	4.1
Heavy Metals (as Pb)	<= 1000 ppb	< 250
Trace Impurities - Lead (Pb)	<= 100.0 ppb	< 10.0
Trace Impurities - Nickel (Ni)	<= 50.0 ppb	< 5.0

For Laboratory, Research or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs

Country of Origin: US
Packaging Site: Paris Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Nitric Acid, 69.0-70.0%
Standard ID : M3215 ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

M 3215
Received D. 08/12/14
Exp. D. 04/15/19.

Material No.: 9598-34
Batch No.: 0000077192
Manufactured Date: 2014/04/16
Retest Date: 2019/04/15

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.7
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.419
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	< 0.7
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.3
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	2.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	< 1.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000077192

Test	Specification	Result
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	< 1.0
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.3
Trace Impurities - Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities - Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities - Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities - Silicon (Si)	<= 20.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 200.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Standard ID : M3218

Hydrochloric Acid, 36.5-38.0%
[illegible] ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

M 3218
Received d. 8/20/14
Exp. D. 25/03/19
By

Material No.: 9530-33
Batch No.: 0000075649
Manufactured Date: 2014/03/26
Retest Date: 2019/03/25

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	< 1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.190
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	< 1
ACS - Free Chlorine (as Cl_2)	<= 0.5 ppm	< 0.5
Phosphate (PO_4)	<= 0.05 ppm	< 0.03
Sulfate (SO_4)	<= 0.5 ppm	< 0.3
Sulfite (SO_3)	<= 0.8 ppm	0.2
Ammonium (NH_4)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	9.3
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9530-33
Batch No.: 0000075649

Test	Specification	Result
Trace Impurities - Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 15.0 ppb	< 1.0
Trace Impurities - Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 10.0 ppb	0.2
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.1
Trace Impurities - Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities - Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.2
Trace Impurities - Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities - Selenium (Se), For Information Only	ppb	1.0
Trace Impurities - Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Titanium (Ti)	<= 1.0 ppb	0.5
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

INORGANIC VENTURES

Standard ID : M3224

CERTIFICATE OF ANALYSIS

M3224

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number (010105).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.03

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGCA10
Lot Number:	G2-CA04095
Matrix:	2% (v/v) HNO3
Value/Analyte(s):	10,000 µg/mL Calcium
Starting Material:	CaO
Starting Material Lot#:	Multiple Lots
Starting Material Purity:	99.9990%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10,027 ± 23 µg/mL weighted mean

Certified Density: 1.040 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	**10031 ± 41 µg/mL** ICP Assay NIST SRM 3109a Lot Number: 050825
Assay Method #2	**10025 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

INORGANIC VENTURES

Standard ID : M3225

CERTIFICATE OF ANALYSIS

M3225

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number (010105).

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGMG10
Lot Number:	G2-MG03120
Matrix:	2% (v/v) HNO3
Value/Analyte(s):	10,000 µg/mL Magnesium
Starting Material:	Mg chips
Starting Material Lot#:	1484
Starting Material Purity:	99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value:	9,973 ± 20 µg/mL -weighted mean-
Certified Density:	1.053 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	**9,955 ± 29 µg/mL** ICP Assay NIST SRM 3131a Lot Number: 050302
Assay Method #2	**9,986 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Standard ID : M3227 0-70.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

SEIDLER CHEMICAL COMPANY
537 Raymond Boulevard
Newark, NJ 07105

Material No.: 9598-34
Batch No.: 0000077192
Manufactured Date: 2014/04/16
Retest Date: 2019/04/15

M3227.
Received D. 9/3/14
Expired d. 4/15/19.
B 9/3/14.

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.7
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.419
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	< 0.7
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.3
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	2.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	< 1.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000077192

Test	Specification	Result
Trace Impurities – Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities – Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities – Magnesium (Mg)	<= 7.0 ppb	< 1.0
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities – Mercury (Hg)	<= 0.5 ppb	0.3
Trace Impurities – Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities – Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities – Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities – Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities – Silicon (Si)	<= 20.0 ppb	< 10.0
Trace Impurities – Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities – Sodium (Na)	<= 200.0 ppb	< 5.0
Trace Impurities – Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities – Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities – Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities – Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities – Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities – Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities – Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600

Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

INORGANIC VENTURES

CERTIFICATE OF ANALYSIS

Standard ID : M3240

M3240 R:09/05/14

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM**

	Stock Solution
Catalog No.:	CLPP-SPK-1
Lot Number:	**F2-MEB427123**
Matrix:	7% HNO3(v/v)

2,000 µg/mL ea:
Al, Ba,

1,000 µg/mL ea:
Fe,

500 µg/mL ea:
Co, Mn, Ni, V, Zn,

250 µg/mL ea:
Cu,

200 µg/mL ea:
Cr3,

50 µg/mL ea:
Ag, Be

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	2,000 ± 14 µg/mL	Barium, Ba	2,000 ± 13 µg/mL	Beryllium, Be	50.01 ± 0.34 µg/mL
Chromium+3, Cr3	200.0 ± 1.4 µg/mL	Cobalt, Co	500.0 ± 3.2 µg/mL	Copper, Cu	250.1 ± 1.6 µg/mL
Iron, Fe	1,000 ± 7 µg/mL	Manganese, Mn	500.0 ± 3.2 µg/mL	Nickel, Ni	499.9 ± 3.3 µg/mL
Silver, Ag	50.02 ± 0.32 µg/mL	Vanadium, V	500.0 ± 3.5 µg/mL	Zinc, Zn	500.0 ± 3.2 µg/mL

Certified Density: 1.070 g/mL (measured at 20 ± 1° C)

M3242 R: 09/05/14

INORGANIC VENTURES™
Standard ID : M3242
[redacted] gy Drive
Christiansburg, VA 24073 · USA
inorganicventures.com
tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Stock Solution**

Catalog No.: CLPP-SPK-5

Lot Number: **G2-MEB474100**

Matrix: 5% HNO3(v/v)

100 µg/mL ea:
Sb,

50 µg/mL ea:
Cd, Se, Tl,

40 µg/mL ea:
As,

20 µg/mL ea:
Pb

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Antimony, Sb	100.0 ± 0.8 µg/mL	Arsenic, As	40.01 ± 0.27 µg/mL	Cadmium, Cd	50.03 ± 0.32 µg/mL
Lead, Pb	20.00 ± 0.13 µg/mL	Selenium, Se	50.02 ± 0.33 µg/mL	Thallium, Tl	49.96 ± 0.33 µg/mL

Certified Density: 1.025 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

Standard ID : M3245 -70.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

M3245
Received 9/12/14
Exp. 07/01/19.
BS

Material No.: 9598-34
Batch No.: 0000084115
Manufactured Date: 2014/07/02
Retest Date: 2019/07/01

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.5
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	< 1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.420
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	0.5
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	0.8
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.0
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	3.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 0.2
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	0.5

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000084115

Test	Specification	Result
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	0.2
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	< 0.1
Trace Impurities - Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities - Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities - Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities - Silicon (Si)	<= 20.0 ppb	2.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 200.0 ppb	< 0.5
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	0.2

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

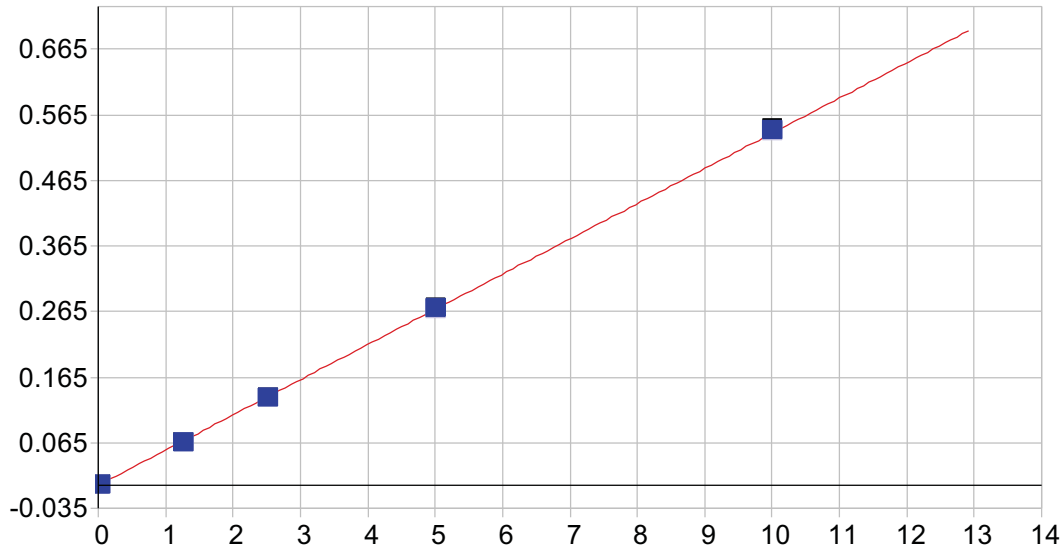
ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600

Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



As 189.042 {479}

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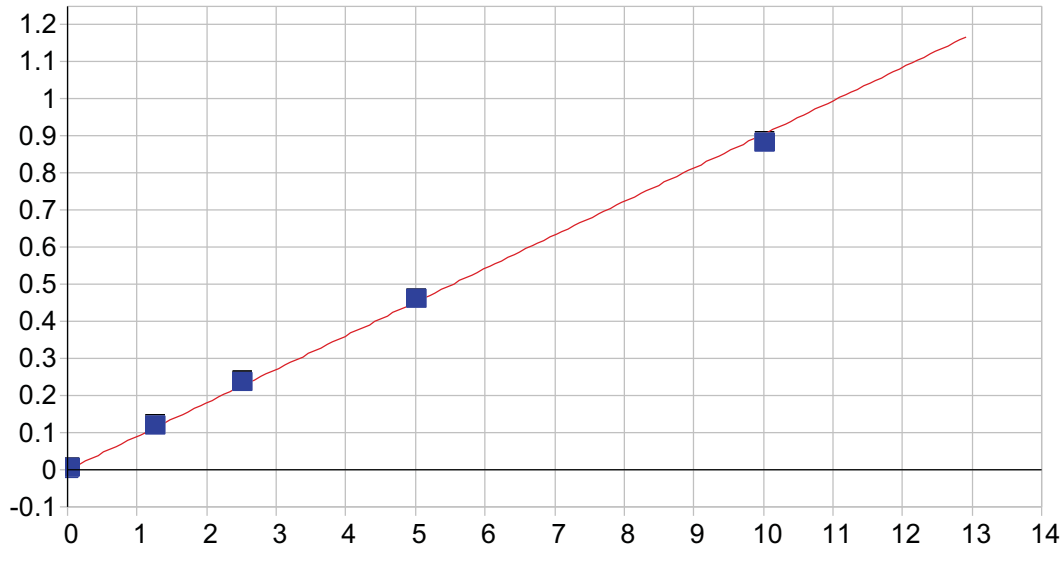
A1 (Gain):	0.053689	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999929	Status:	OK.
Std Error of Est:	0.000011		
Predicted MDL:	0.001806		
Predicted MQL:	0.006021		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00007	.000	1
S1	.01000	.00745	-.003	-25.5	.00033	.000	1
S2	1.2500	1.2145	-.035	-2.84	.06503	.000	1
S3	2.5000	2.4646	-.035	-1.42	.13204	.001	1
S4	5.0000	5.0041	.004	.083	.26816	.001	1
S5	10.000	10.069	.069	.693	.53967	.002	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



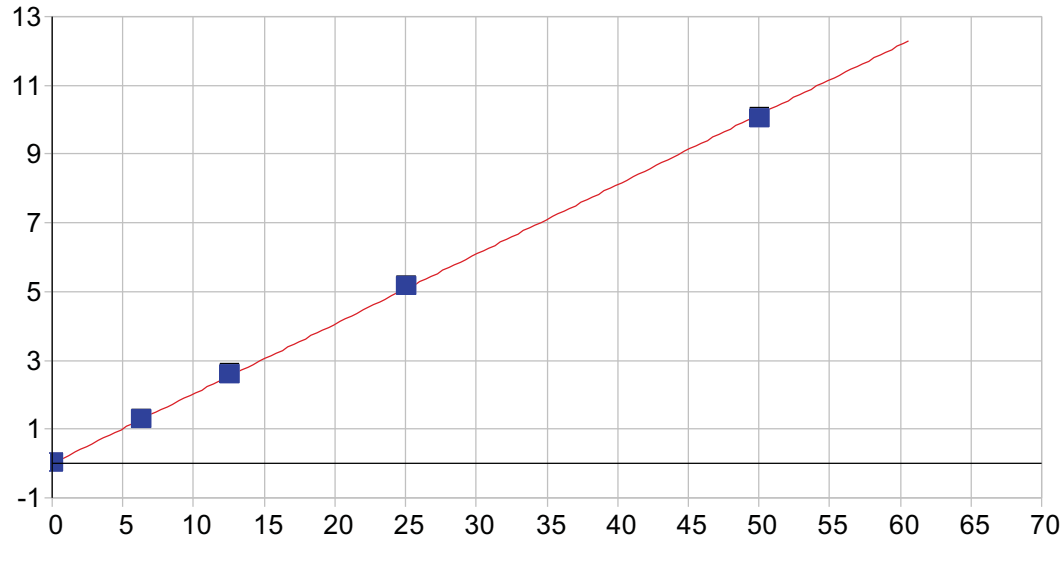
Tl 190.856 {477}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000076	Re-Slope:	1.000000
A1 (Gain):	0.090462	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999564	Status:	OK.
Std Error of Est:	0.000071		
Predicted MDL:	0.001158		
Predicted MQL:	0.003860		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00008	.000	1
S1	.02500	.02447	-.001	-2.12	.00213	.000	1
S2	1.2500	1.3185	.068	5.48	.11913	.000	1
S3	2.5000	2.6070	.107	4.28	.23562	.002	1
S4	5.0000	5.0827	.083	1.65	.45945	.000	1
S5	10.000	9.7424	-.258	-2.58	.88070	.002	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



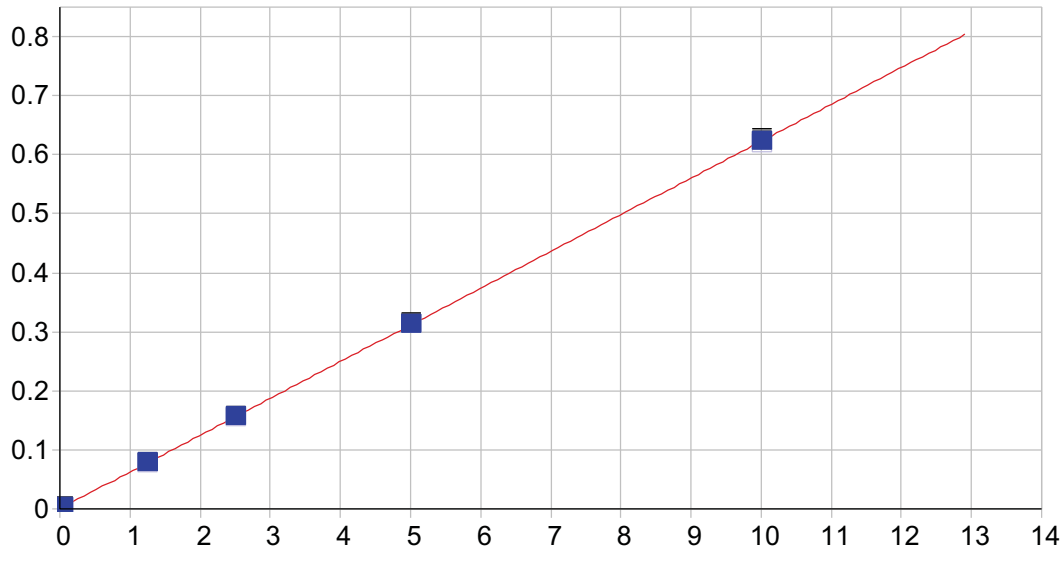
Pb 220.353 {453}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000193	Re-Slope:	1.000000
A1 (Gain):	0.202871	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999909	Status:	OK.
Std Error of Est:	0.000102		
Predicted MDL:	0.001159		
Predicted MQL:	0.003862		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00019	.000	1
S1	.01000	.00934	-.001	-6.56	.00169	.000	1
S2	6.2500	6.3323	.082	1.32	1.2840	.003	1
S3	12.500	12.714	.214	1.71	2.5782	.015	1
S4	25.000	25.330	.330	1.32	5.1369	.003	1
S5	50.000	49.374	-.626	-1.25	10.013	.027	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



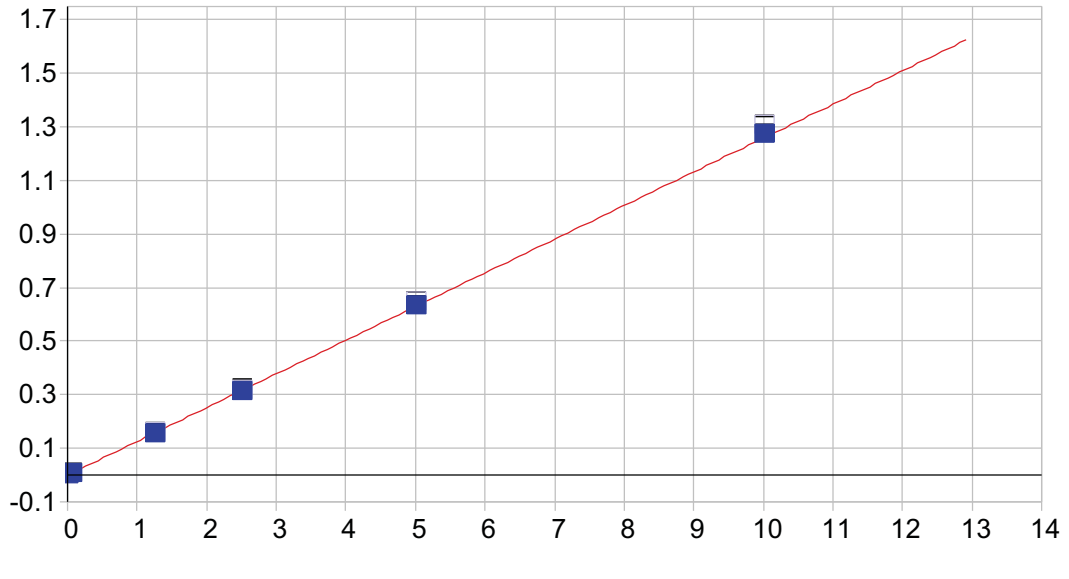
Se 196.090 {472}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000216	Re-Slope:	1.000000
A1 (Gain):	0.062266	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999984	Status:	OK.
Std Error of Est:	0.000011		
Predicted MDL:	0.002181		
Predicted MQL:	0.007270		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00022	.000	1
S1	.03500	.03219	-.003	-8.04	.00222	.000	1
S2	1.2500	1.2356	-.014	-1.15	.07665	.000	1
S3	2.5000	2.4877	-.012	-.491	.15412	.001	1
S4	5.0000	5.0272	.027	.544	.31125	.001	1
S5	10.000	10.002	.002	.023	.61903	.003	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



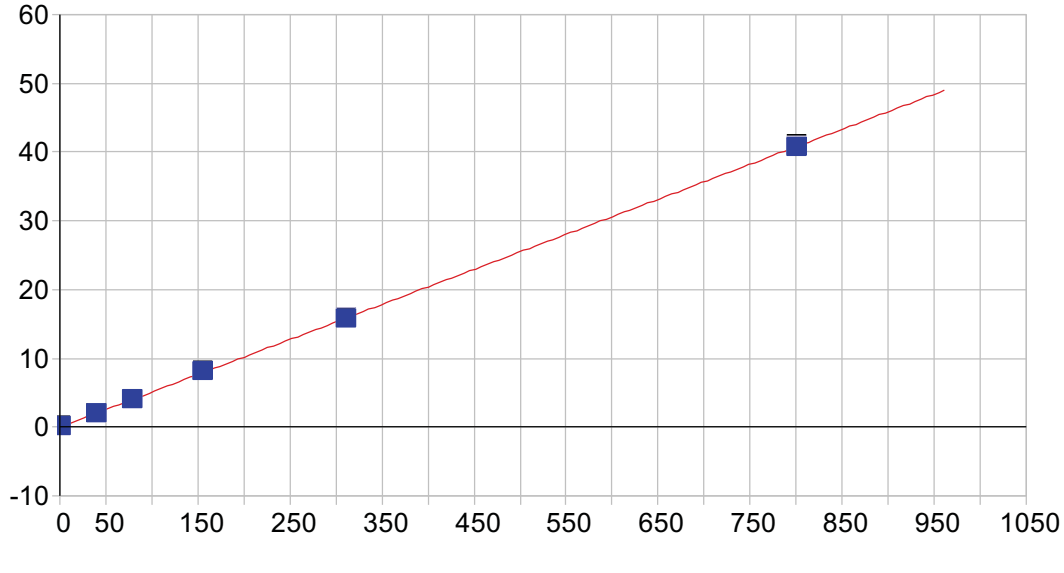
Sb 206.833 {463}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000077	Re-Slope:	1.000000
A1 (Gain):	0.125834	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999908	Status:	OK.
Std Error of Est:	0.000072		
Predicted MDL:	0.001316		
Predicted MQL:	0.004388		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00008	.000	1
S1	.06000	.05403	-.006	-9.95	.00688	.000	1
S2	1.2500	1.2085	-.042	-3.32	.15628	.000	1
S3	2.5000	2.4546	-.045	-1.82	.31723	.002	1
S4	5.0000	5.0008	.001	.015	.64590	.001	1
S5	10.000	10.092	.092	.920	1.3031	.004	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



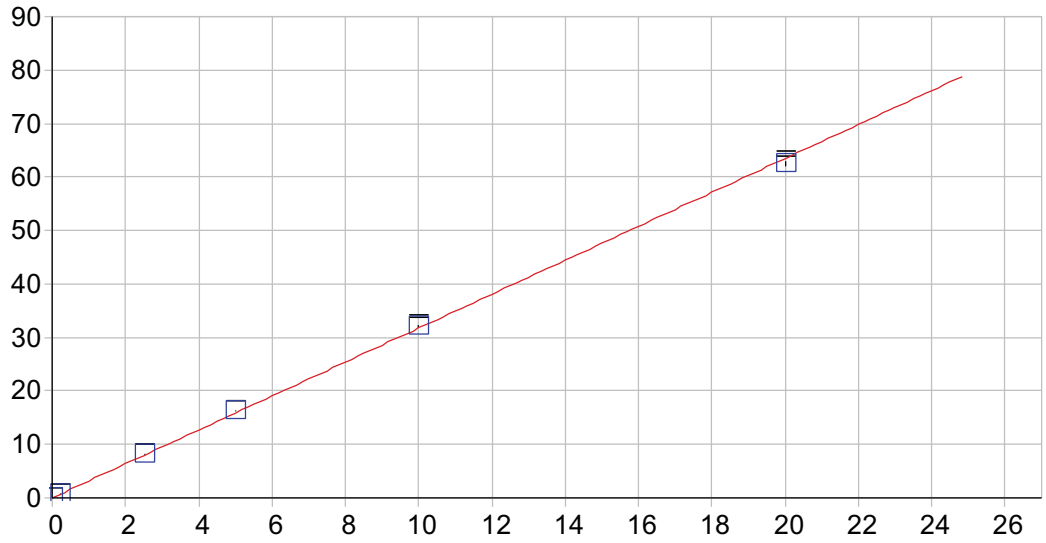
Al 396.152 { 85}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000176	Re-Slope:	1.000000
A1 (Gain):	0.050977	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999988	Status:	OK.
Std Error of Est:	0.000156		
Predicted MDL:	0.010465		
Predicted MQL:	0.034882		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00003	.000	.000	.00018	.000	1
S1	.20000	.16716	-.033	-16.4	.00967	.000	1
S2	38.750	38.977	.227	.587	2.0015	.004	1
S3	77.500	77.681	.181	.234	3.9888	.012	1
S4	155.00	156.79	1.79	1.16	8.0504	.016	1
S5	310.00	308.84	-1.16	-.376	15.858	.037	1
S6	800.00	798.99	-1.01	-.126	40.882	.199	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



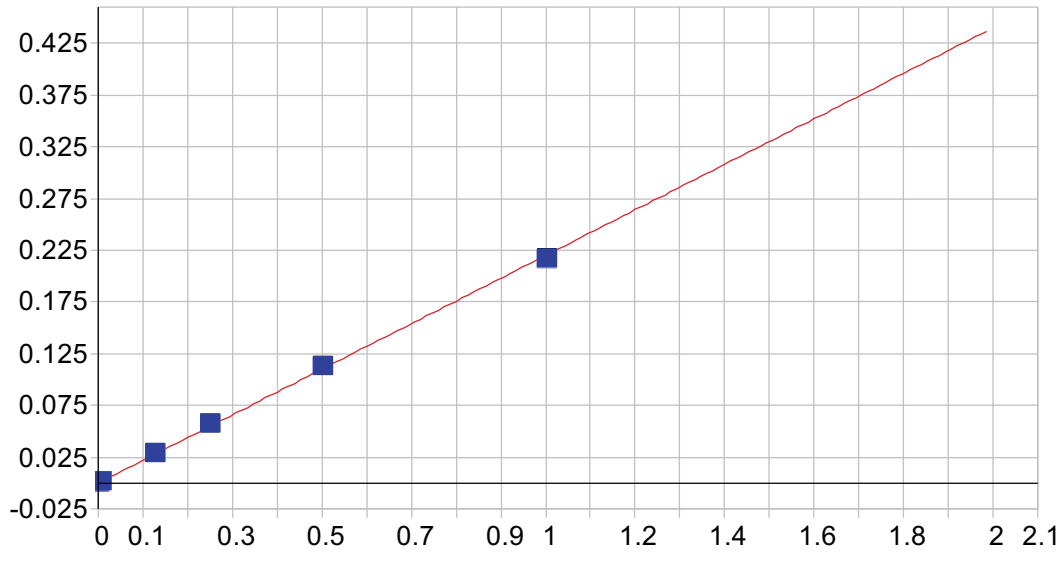
Ba 493.409 { 68}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.009137	Re-Slope:	1.000000
A1 (Gain):	3.173006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999840	Status:	OK.
Std Error of Est:	0.006034		
Predicted MDL:	0.000417		
Predicted MQL:	0.001391		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	.00911	.001	1
S1	.20000	.19756	-.002	-1.22	.63600	.004	1
S2	2.5000	2.5779	.078	3.12	8.1890	.014	1
S3	5.0000	5.1325	.132	2.65	16.294	.064	1
S4	10.000	10.107	.107	1.07	32.078	.152	1
S5	20.000	19.685	-.315	-1.57	62.470	.385	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



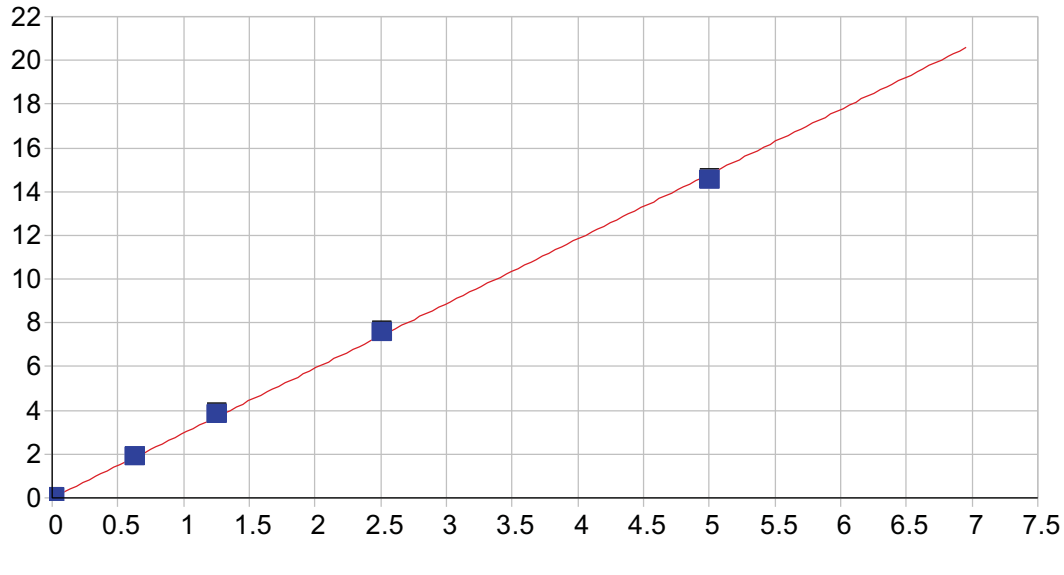
Be 234.861 {144}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000017	Re-Slope:	1.000000
A1 (Gain):	0.220009	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999791	Status:	OK.
Std Error of Est:	0.000017		
Predicted MDL:	0.000568		
Predicted MQL:	0.001895		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00002	.000	1
S1	.00500	.00503	.000	.690	.00109	.000	1
S2	.12500	.12784	.003	2.27	.02806	.000	1
S3	.25000	.25547	.005	2.19	.05610	.000	1
S4	.50000	.51077	.011	2.15	.11217	.001	1
S5	1.0000	.98089	-.019	-1.91	.21541	.000	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

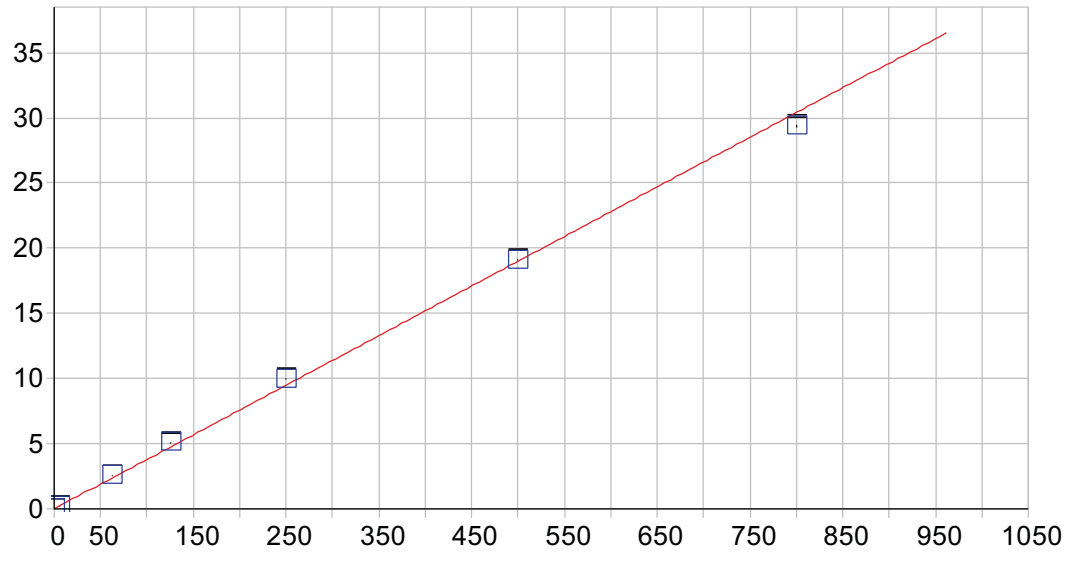


Cd 214.438 {457}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000258			Re-Slope:	1.000000	
A1 (Gain):	2.959463			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.999768		Status:	OK.		
Std Error of Est:	0.000535					
Predicted MDL:	0.000054					
Predicted MQL:	0.000179					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00026	.000	1
S1	.00500	.00464	.000	-7.16	.01401	.000	1
S2	.62500	.63882	.014	2.21	1.8944	.006	1
S3	1.2500	1.2858	.036	2.86	3.8126	.020	1
S4	2.5000	2.5505	.050	2.02	7.5625	.021	1
S5	5.0000	4.9003	-.100	-1.99	14.531	.027	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



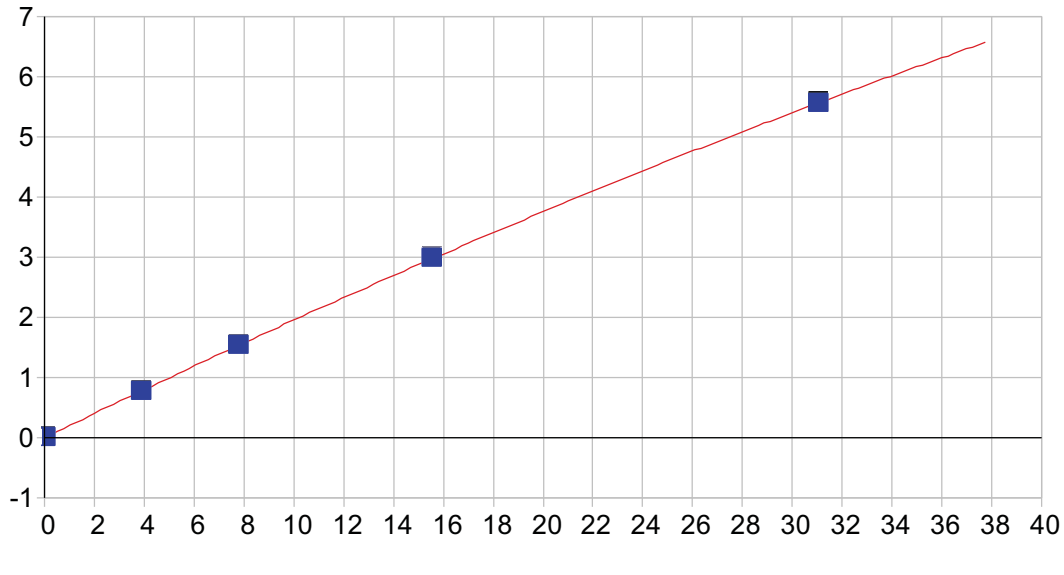
Ca 373.690 { 90}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002177	Re-Slope:	1.000000
A1 (Gain):	0.037990	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999301	Status:	OK.
Std Error of Est:	0.004959		
Predicted MDL:	0.011107		
Predicted MQL:	0.037023		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00086	-.001	.000	.00214	.000	1
S1	5.0000	5.0359	.036	.717	.19349	.001	1
S2	62.500	67.587	5.09	8.14	2.5698	.003	1
S3	125.00	133.14	8.14	6.51	5.0600	.007	1
S4	250.00	262.00	12.0	4.80	9.9554	.023	1
S5	500.00	501.74	1.74	.348	19.063	.048	1
S6	800.00	773.00	-27.0	-3.37	29.369	.129	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



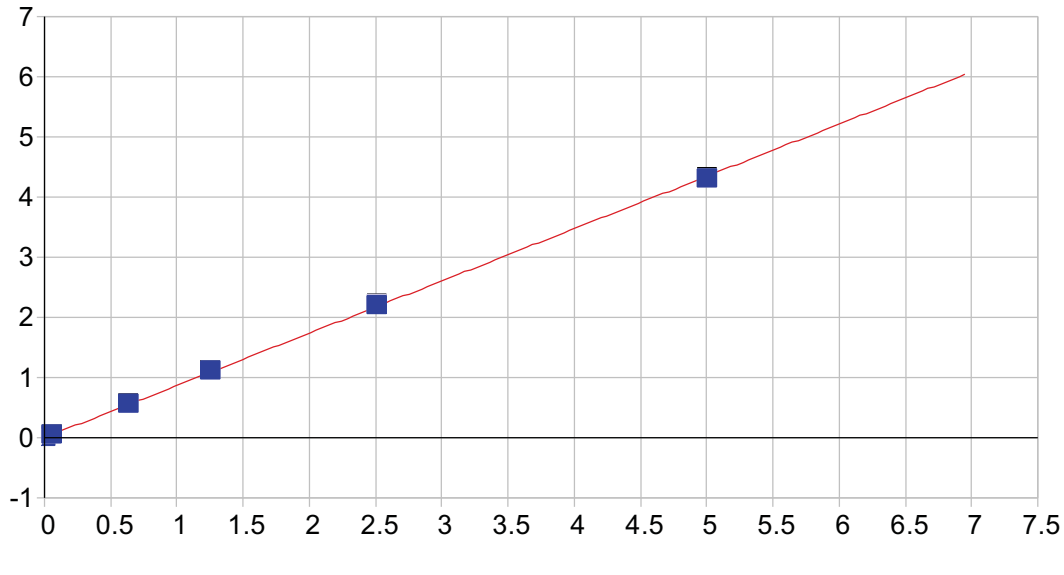
Cr 267.716 {126}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	-0.000039	Re-Slope:	1.000000
A1 (Gain):	0.203220	Y-int:	0.000000
A2 (Curvature):	-0.000772		
n (Exponent):	1.000000		
Correlation:	0.999984	Status:	OK.
Std Error of Est:	0.000036		
Predicted MDL:	0.000309		
Predicted MQL:	0.001031		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00004	.000	1
S1	.01000	.00913	-.001	-8.71	.00182	.000	1
S2	3.8750	3.8343	-.041	-1.05	.76803	.002	1
S3	7.7500	7.7165	-.034	-.433	1.5226	.005	1
S4	15.500	15.634	.134	.866	2.9894	.017	1
S5	31.000	30.939	-.061	-.195	5.5507	.023	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



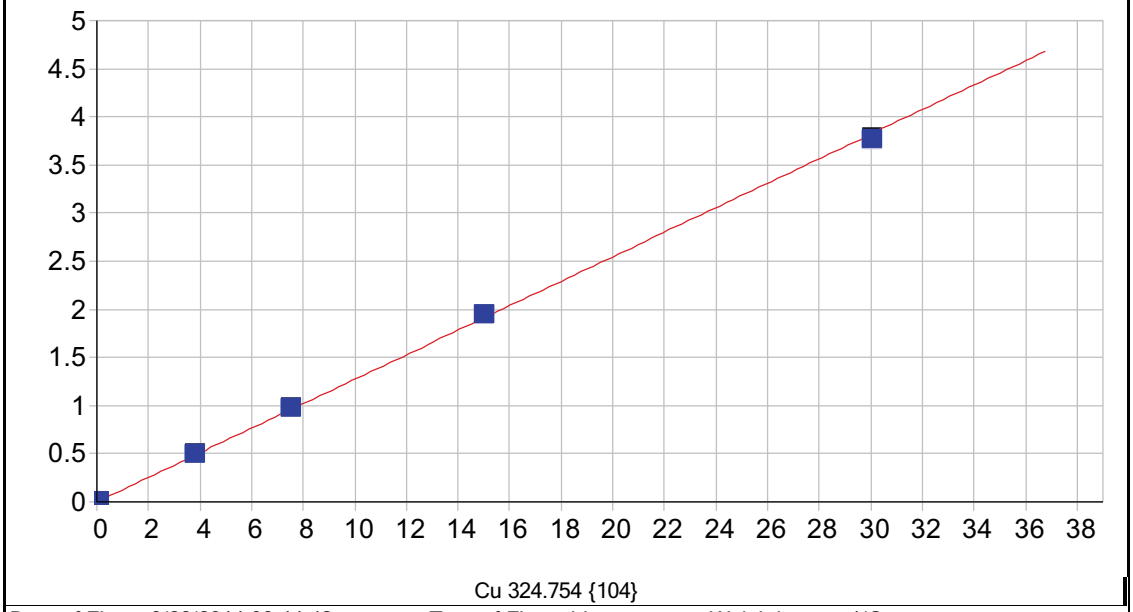
Co 228.616 {448}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000080	Re-Slope:	1.000000
A1 (Gain):	0.868845	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999895	Status:	OK.
Std Error of Est:	0.000335		
Predicted MDL:	0.000186		
Predicted MQL:	0.000620		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00008	.000	1
S1	.05000	.04591	-.004	-8.18	.03996	.000	1
S2	.62500	.63153	.007	1.05	.54951	.002	1
S3	1.2500	1.2733	.023	1.87	1.1080	.006	1
S4	2.5000	2.5335	.033	1.34	2.2047	.004	1
S5	5.0000	4.9407	-.059	-1.19	4.2997	.010	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



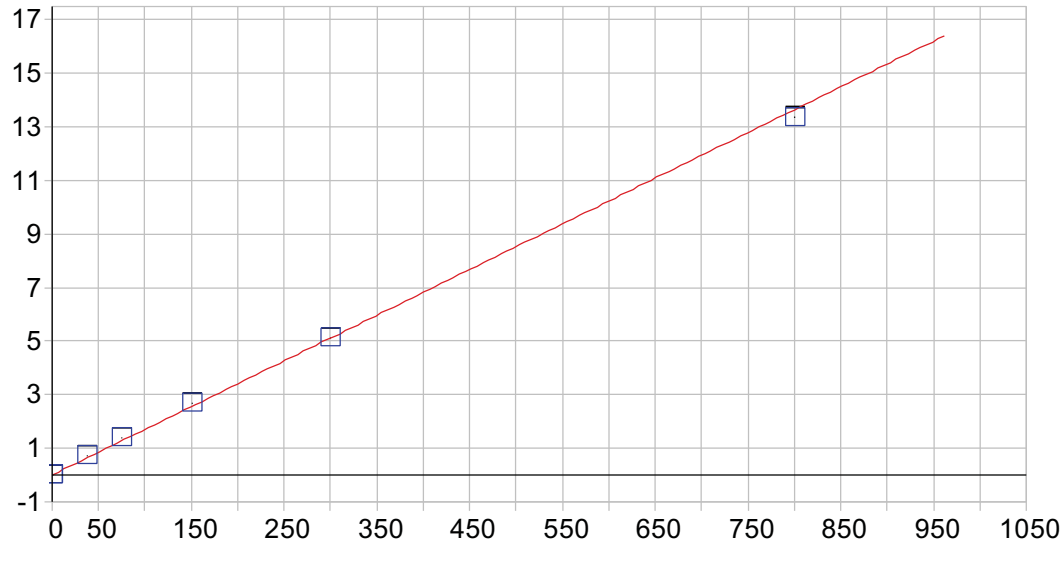
Cu 324.754 {104}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000587	Re-Slope:	1.000000
A1 (Gain):	0.127323	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999862	Status:	OK.
Std Error of Est:	0.000097		
Predicted MDL:	0.002568		
Predicted MQL:	0.008560		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00059	.000	1
S1	.02500	.02427	-.001	-2.94	.00367	.000	1
S2	3.7500	3.8366	.087	2.31	.48843	.000	1
S3	7.5000	7.6544	.154	2.06	.97387	.002	1
S4	15.000	15.219	.219	1.46	1.9358	.005	1
S5	30.000	29.540	-.460	-1.53	3.7565	.009	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



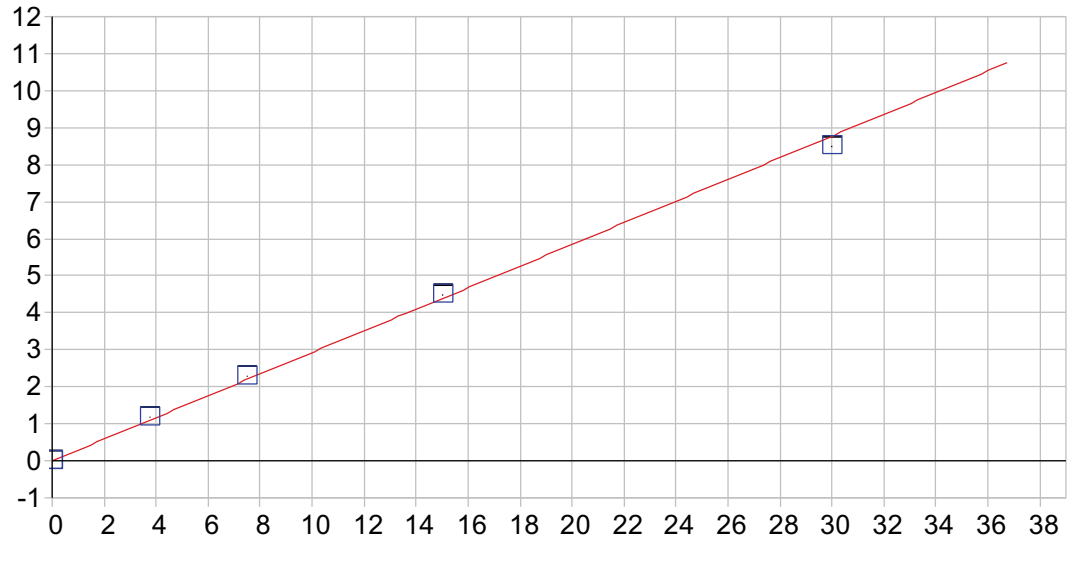
Fe 259.837 {130}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000026	Re-Slope:	1.000000
A1 (Gain):	0.017059	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999403	Status:	OK.
Std Error of Est:	0.000257		
Predicted MDL:	0.009441		
Predicted MQL:	0.031470		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00002	.000	.000	-.00003	.000	1
S1	.10000	.10269	.003	2.69	.00173	.000	1
S2	37.500	41.315	3.81	10.2	.70476	.002	1
S3	75.000	80.979	5.98	7.97	1.3814	.003	1
S4	150.00	157.89	7.89	5.26	2.6934	.004	1
S5	300.00	298.92	-1.08	-.360	5.0992	.004	1
S6	800.00	783.39	-16.6	-2.08	13.364	.033	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



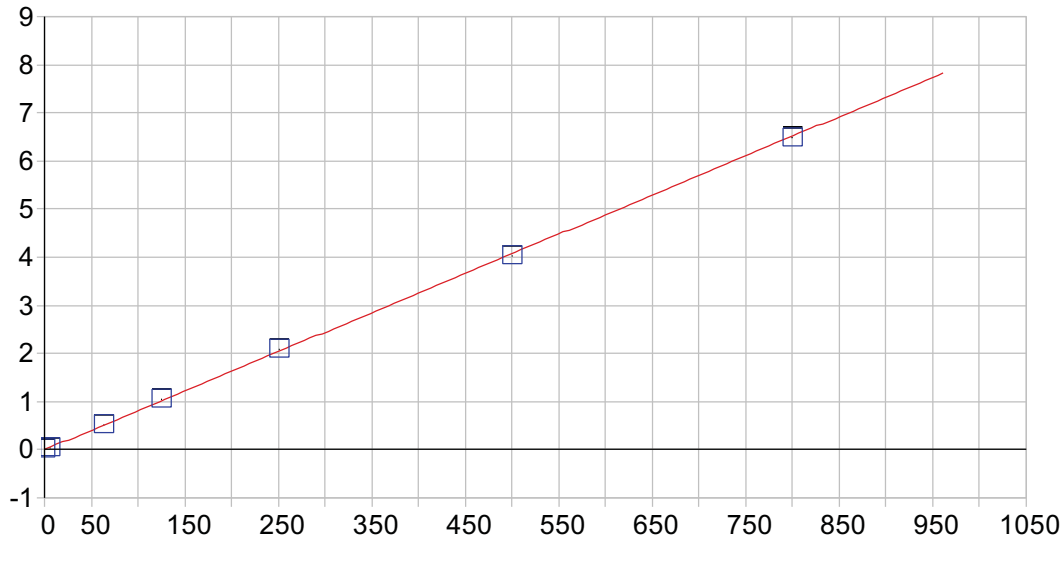
Mn 257.610 {131}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000044	Re-Slope:	1.000000
A1 (Gain):	0.292427	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999352	Status:	OK.
Std Error of Est:	0.000375		
Predicted MDL:	0.000546		
Predicted MQL:	0.001821		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00004	.000	1
S1	.01500	.01516	.000	1.07	.00439	.000	1
S2	3.7500	4.0206	.271	7.22	1.1757	.004	1
S3	7.5000	7.8476	.348	4.63	2.2948	.006	1
S4	15.000	15.331	.331	2.21	4.4832	.015	1
S5	30.000	29.051	-.949	-3.16	8.4951	.025	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



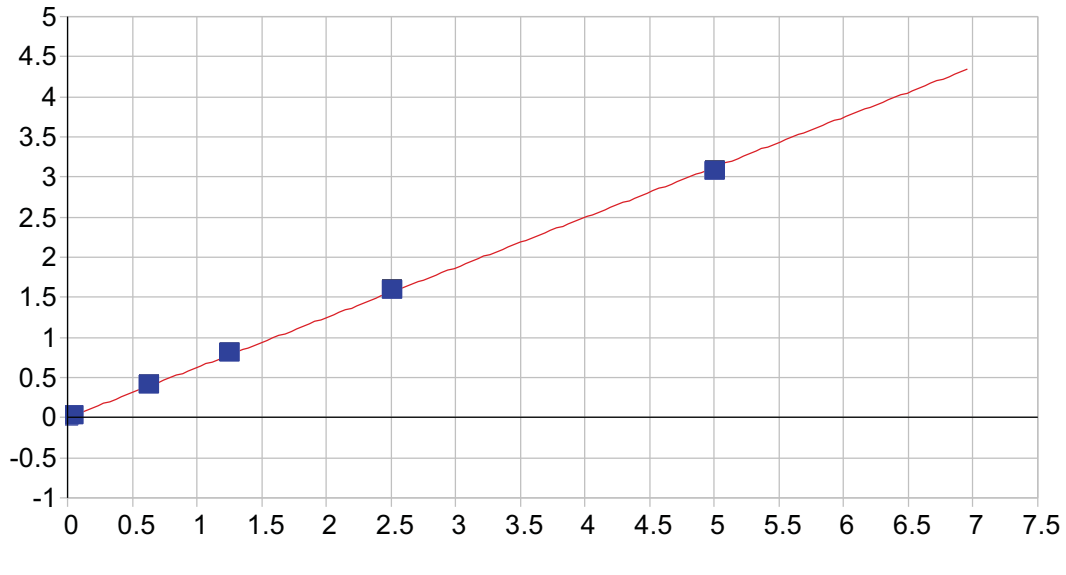
Mg 279.079 {121}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000127	Re-Slope:	1.000000
A1 (Gain):	0.008143	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999910	Status:	OK.
Std Error of Est:	0.000381		
Predicted MDL:	0.024995		
Predicted MQL:	0.083316		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00019	.000	.000	-.00013	.000	1
S1	5.0000	4.9221	-.078	-1.56	.03995	.000	1
S2	62.500	64.166	1.67	2.67	.52239	.003	1
S3	125.00	128.04	3.04	2.43	1.0425	.000	1
S4	250.00	255.04	5.04	2.02	2.0767	.002	1
S5	500.00	493.78	-6.22	-1.24	4.0208	.007	1
S6	800.00	796.55	-3.45	-.431	6.4863	.024	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



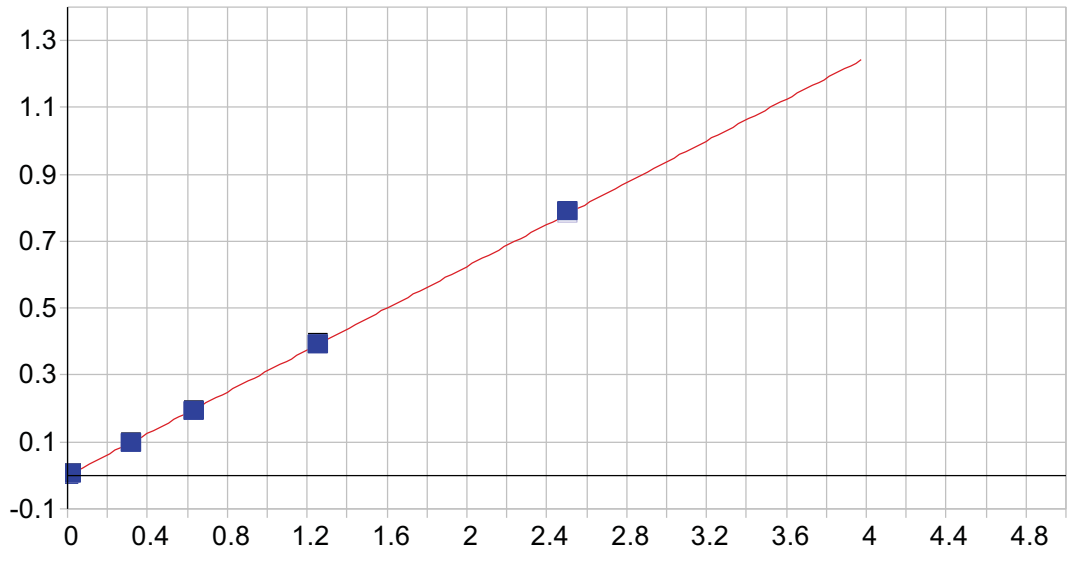
Ni 231.604 {446}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000232	Re-Slope:	1.000000
A1 (Gain):	0.624302	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999834	Status:	OK.
Std Error of Est:	0.000270		
Predicted MDL:	0.000294		
Predicted MQL:	0.000979		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00023	.000	1
S1	.04000	.03757	-.002	-6.07	.02322	.000	1
S2	.62500	.63738	.012	1.98	.39757	.001	1
S3	1.2500	1.2814	.031	2.51	.79954	.005	1
S4	2.5000	2.5397	.040	1.59	1.5848	.003	1
S5	5.0000	4.9189	-.081	-1.62	3.0698	.006	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



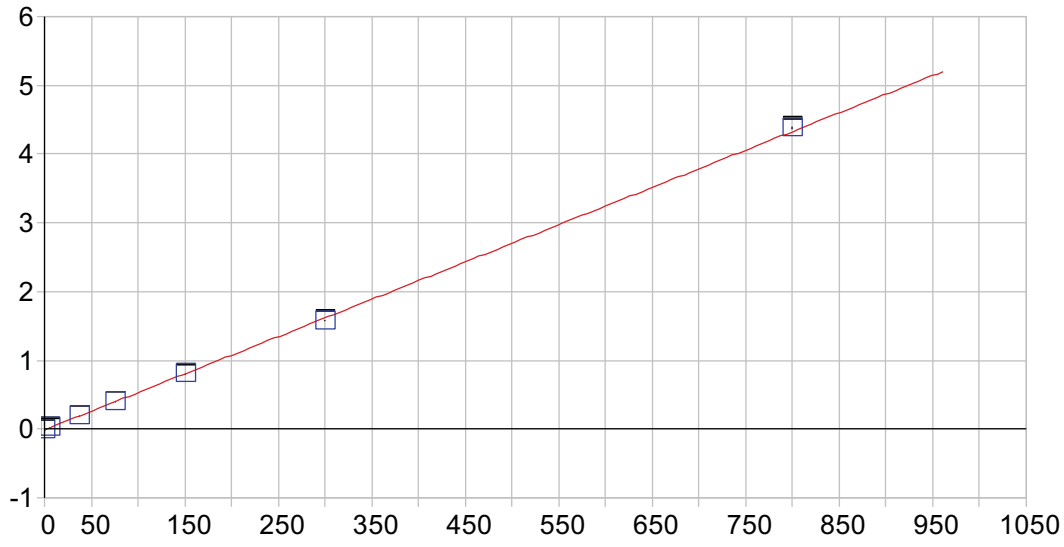
Ag 328.068 {103}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000711	Re-Slope:	1.000000
A1 (Gain):	0.312718	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999932	Status:	OK.
Std Error of Est:	0.000030		
Predicted MDL:	0.000340		
Predicted MQL:	0.001134		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00071	.000	1
S1	.01000	.00927	-.001	-7.29	.00217	.000	1
S2	.31250	.30347	-.009	-2.89	.09331	.000	1
S3	.62500	.61411	-.011	-1.74	.18957	.000	1
S4	1.2500	1.2545	.004	.358	.38807	.001	1
S5	2.5000	2.5162	.016	.647	.77911	.000	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



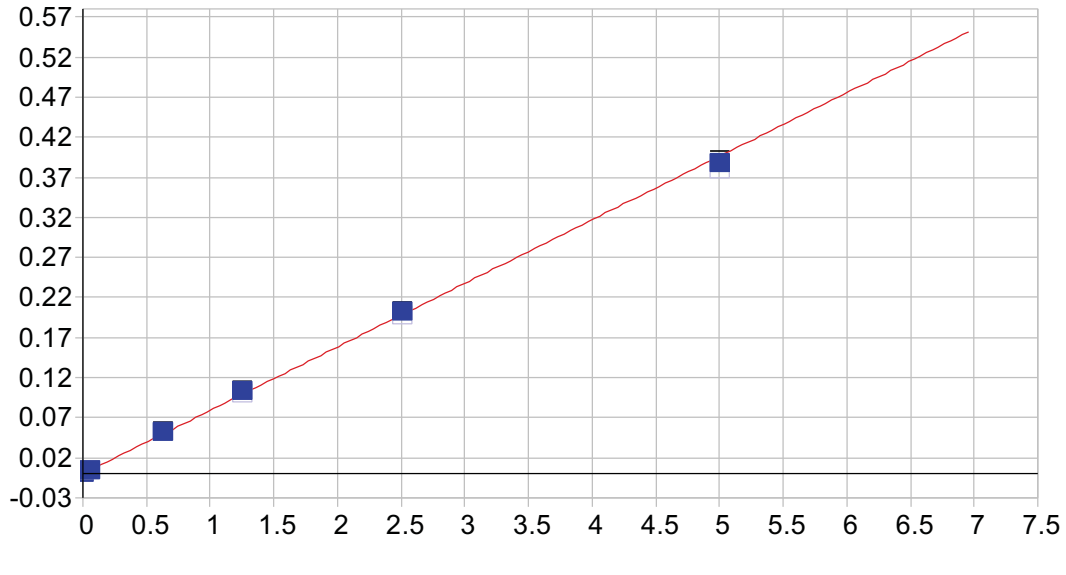
Na 818.326 { 41}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.011032	Re-Slope:	1.000000
A1 (Gain):	0.005426	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999877	Status:	OK.
Std Error of Est:	0.000263		
Predicted MDL:	0.212168		
Predicted MQL:	0.707228		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00029	.000	.000	-.01103	.001	1
S1	5.0000	4.8135	-.186	-3.73	.01509	.001	1
S2	37.500	37.565	.065	.173	.19279	.001	1
S3	75.000	74.910	-.090	-.120	.39543	.001	1
S4	150.00	149.27	-.733	-.489	.79889	.003	1
S5	300.00	291.84	-8.16	-2.72	1.5725	.006	1
S6	800.00	809.10	9.10	1.14	4.3791	.011	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

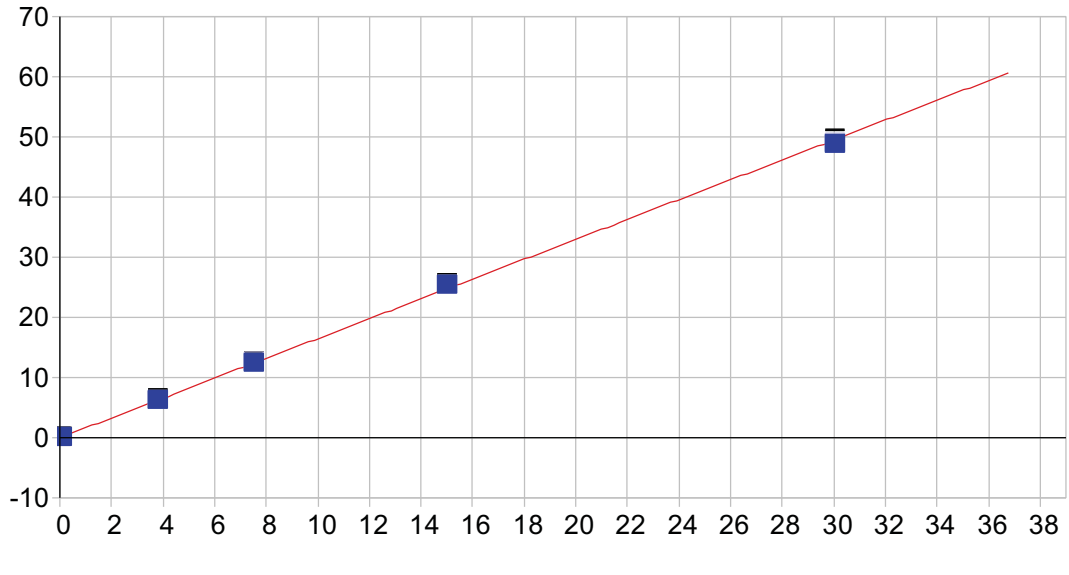


Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000118	Re-Slope:	1.000000
A1 (Gain):	0.079265	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999671	Status:	OK.
Std Error of Est:	0.000053		
Predicted MDL:	0.002921		
Predicted MQL:	0.009736		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	-.00012	.000	1
S1	.05000	.05261	.003	5.21	.00405	.000	1
S2	.62500	.65607	.031	4.97	.05090	.000	1
S3	1.2500	1.2897	.040	3.18	.10014	.000	1
S4	2.5000	2.5375	.038	1.50	.19707	.001	1
S5	5.0000	4.8890	-.111	-2.22	.37952	.002	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



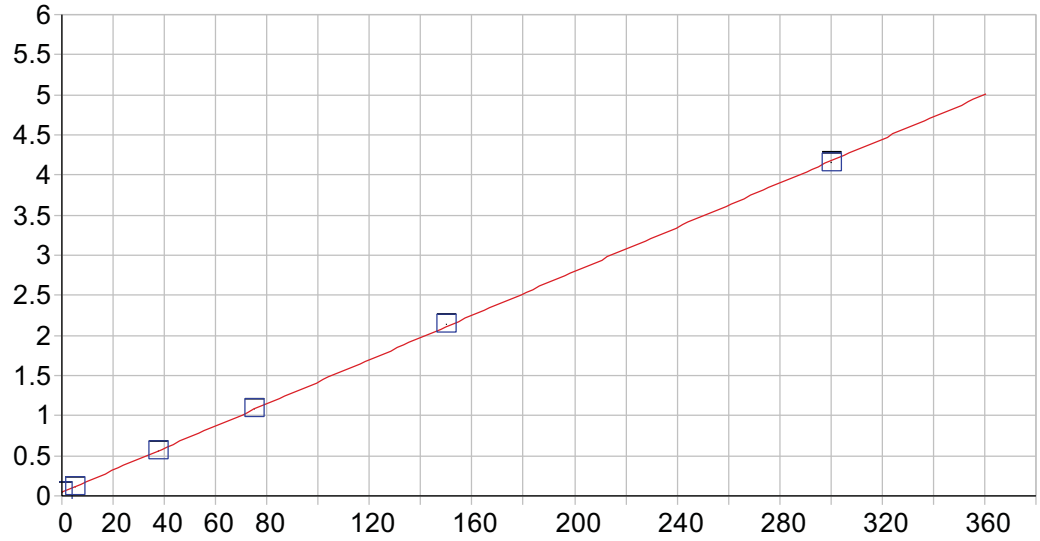
Zn 213.856 {158}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001470	Re-Slope:	1.000000
A1 (Gain):	1.649306	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999854	Status:	OK.
Std Error of Est:	0.002010		
Predicted MDL:	0.006327		
Predicted MQL:	0.021089		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00147	.014	1
S1	.06000	.05589	-.004	-6.85	.09103	.006	1
S2	3.7500	3.7682	.018	.486	6.2236	.125	1
S3	7.5000	7.5393	.039	.524	12.453	.104	1
S4	15.000	15.381	.381	2.54	25.406	.115	1
S5	30.000	29.566	-.434	-1.45	48.843	.652	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



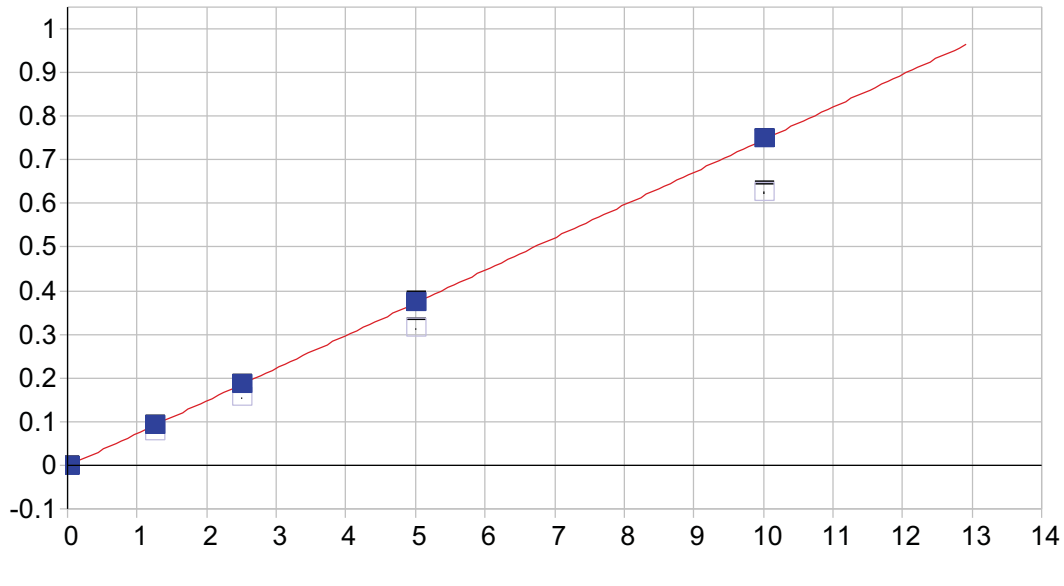
K 769.896 { 44}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.045588	Re-Slope:	1.000000
A1 (Gain):	0.013763	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999926	Status:	OK.
Std Error of Est:	0.000344		
Predicted MDL:	0.067143		
Predicted MQL:	0.223808		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00048	.000	.000	.04559	.000	1
S1	5.0000	4.4883	-.512	-10.2	.10736	.001	1
S2	37.500	37.406	-.094	-.252	.56038	.003	1
S3	75.000	75.083	.083	.111	1.0789	.001	1
S4	150.00	151.91	1.91	1.28	2.1363	.006	1
S5	300.00	298.61	-1.39	-.464	4.1552	.007	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



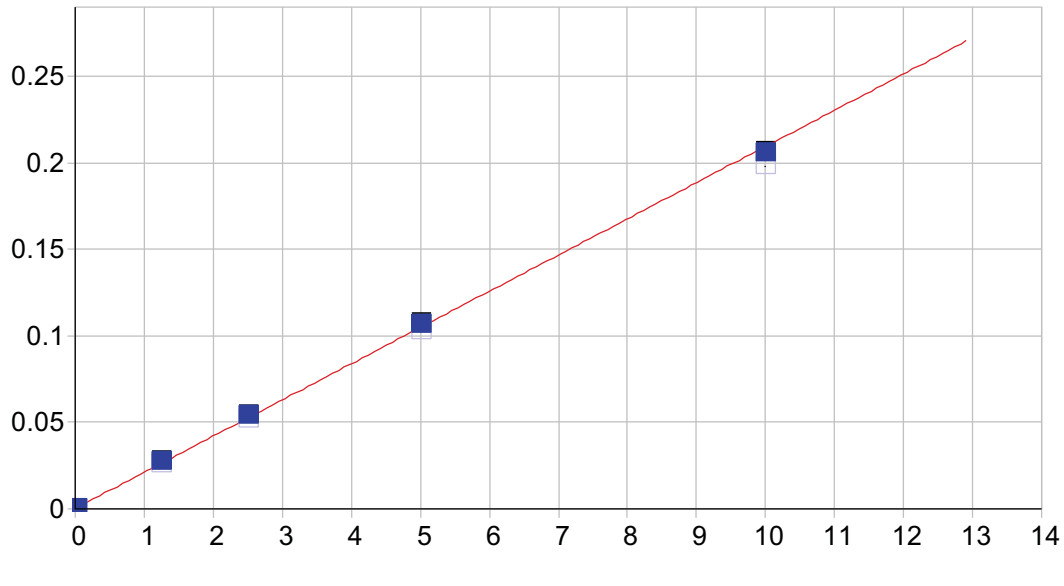
P 177.495 {490}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.002179	Re-Slope:	1.000000
A1 (Gain):	0.074813	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999551	Status:	OK.
Std Error of Est:	0.000039		
Predicted MDL:	0.001384		
Predicted MQL:	0.004613		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	-.00218	.000	1
S1	.01500	.00187	-.013	-87.5	-.00213	.000	1
S2	1.2500	1.2348	-.015	-1.22	.07499	.000	1
S3	2.5000	2.4934	-.007	-.262	.15394	.001	1
S4	5.0000	5.0227	.023	.453	.31274	.001	1
S5	10.000	10.013	.013	.134	.62527	.002	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



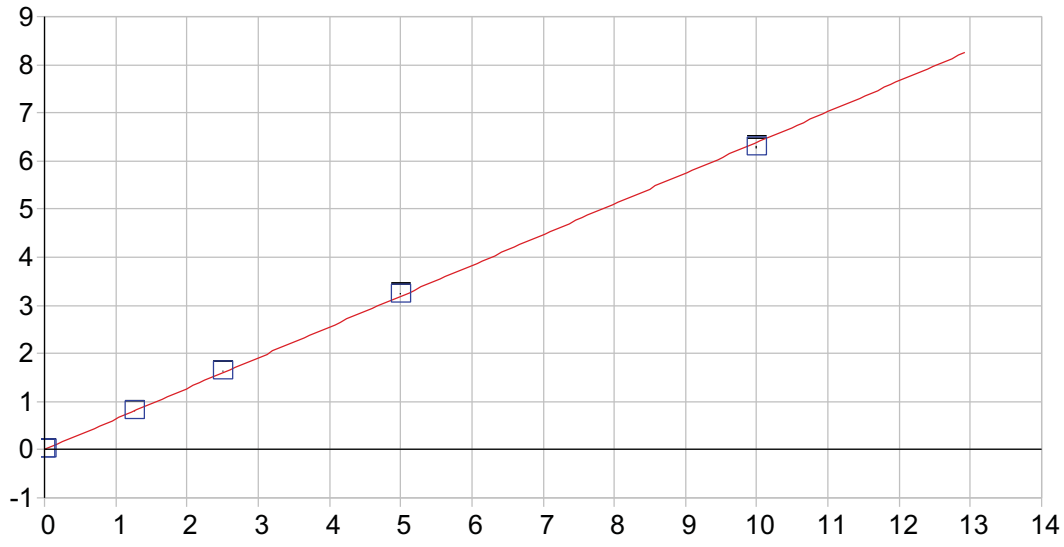
B 249.678 {135}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000195	Re-Slope:	1.000000
A1 (Gain):	0.020929	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999669	Status:	OK.
Std Error of Est:	0.000009		
Predicted MDL:	0.007211		
Predicted MQL:	0.024038		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00020	.000	1
S1	.01000	.00356	-.006	-64.4	.00027	.000	1
S2	1.2500	1.2855	.036	2.84	.02613	.000	1
S3	2.5000	2.5622	.062	2.49	.05189	.000	1
S4	5.0000	5.0890	.089	1.78	.10283	.001	1
S5	10.000	9.8199	-.180	-1.80	.19798	.000	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



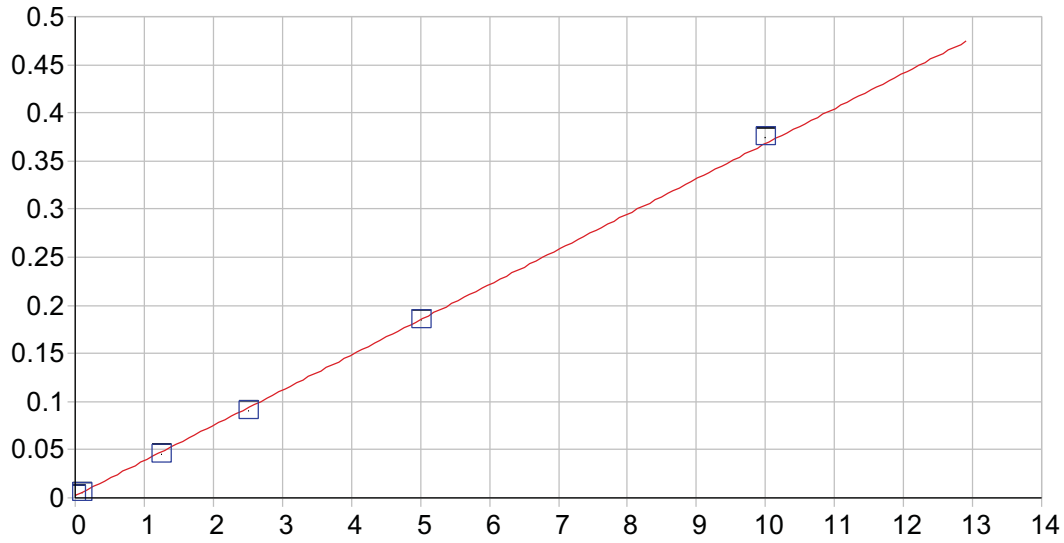
Mo 202.030 {467}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000031	Re-Slope:	1.000000
A1 (Gain):	0.638440	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999866	Status:	OK.
Std Error of Est:	0.000175		
Predicted MDL:	0.000234		
Predicted MQL:	0.000782		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00003	.000	1
S1	.01000	.00978	.000	-2.19	.00621	.000	1
S2	1.2500	1.2813	.031	2.50	.81799	.003	1
S3	2.5000	2.5513	.051	2.05	1.6288	.008	1
S4	5.0000	5.0680	.068	1.36	3.2356	.013	1
S5	10.000	9.8496	-.150	-1.50	6.2884	.022	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



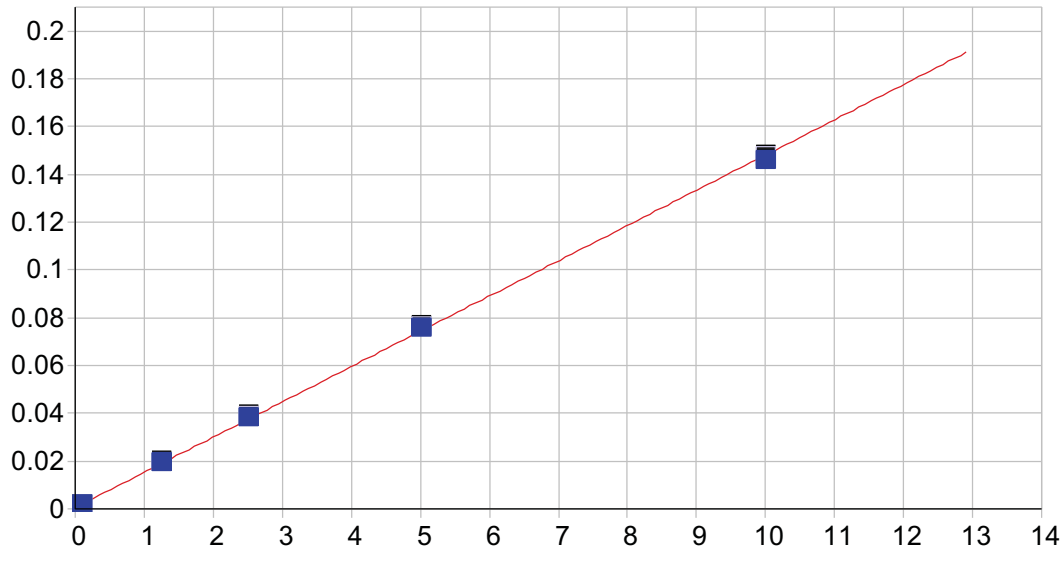
S 182.034 {485}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002077	Re-Slope:	1.000000
A1 (Gain):	0.036588	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999602	Status:	OK.
Std Error of Est:	0.000055		
Predicted MDL:	0.002371		
Predicted MQL:	0.007905		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00003	.000	.000	.00208	.000	1
S1	.10000	.08188	-.018	-18.1	.00507	.000	1
S2	1.2500	1.1653	-.085	-6.77	.04471	.000	1
S3	2.5000	2.4168	-.083	-3.33	.09050	.000	1
S4	5.0000	5.0065	.007	.130	.18525	.000	1
S5	10.000	10.179	.179	1.79	.37452	.001	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



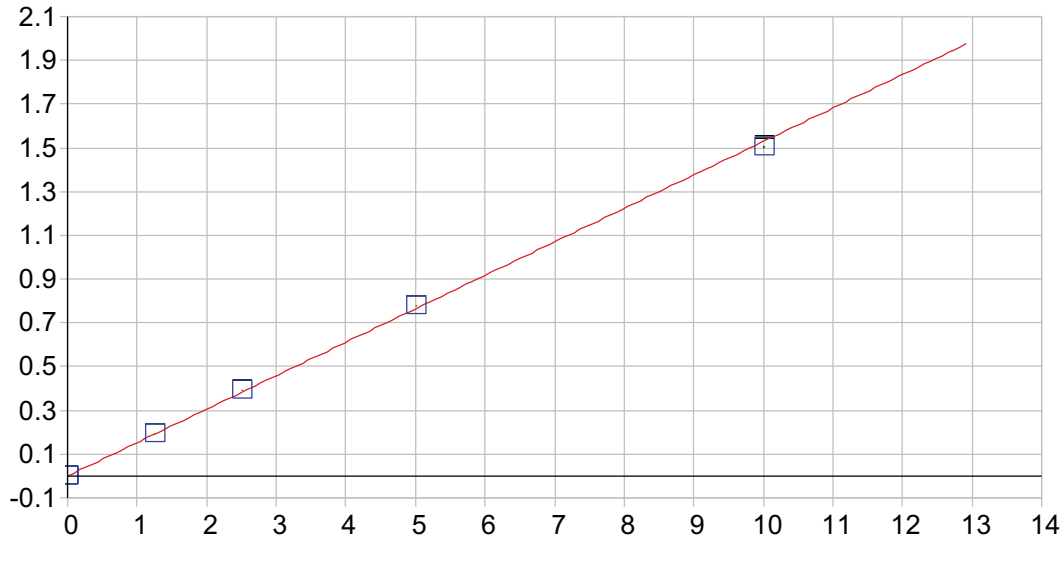
Si 251.611 {134}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000513	Re-Slope:	1.000000
A1 (Gain):	0.014760	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999791	Status:	OK.
Std Error of Est:	0.000016		
Predicted MDL:	0.009976		
Predicted MQL:	0.033253		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00051	.000	1
S1	.10000	.08300	-.017	-17.0	.00174	.000	1
S2	1.2500	1.2733	.023	1.86	.01949	.000	1
S3	2.5000	2.5555	.055	2.22	.03861	.000	1
S4	5.0000	5.0831	.083	1.66	.07629	.000	1
S5	10.000	9.8550	-.145	-1.45	.14748	.000	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



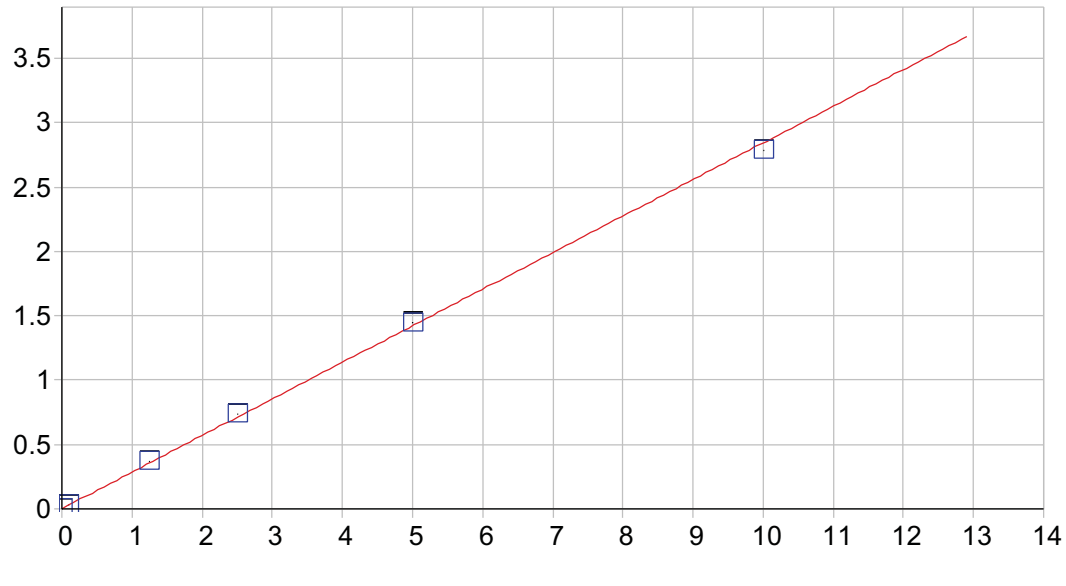
Sn 189.989 {478}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000065	Re-Slope:	1.000000
A1 (Gain):	0.152903	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999840	Status:	OK.
Std Error of Est:	0.000038		
Predicted MDL:	0.000589		
Predicted MQL:	0.001962		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00006	.000	1
S1	.00700	.00658	.000	-5.95	.00094	.000	1
S2	1.2500	1.2681	.018	1.45	.19383	.001	1
S3	2.5000	2.5599	.060	2.39	.39135	.002	1
S4	5.0000	5.0878	.088	1.76	.77788	.001	1
S5	10.000	9.8346	-.165	-1.65	1.5037	.004	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



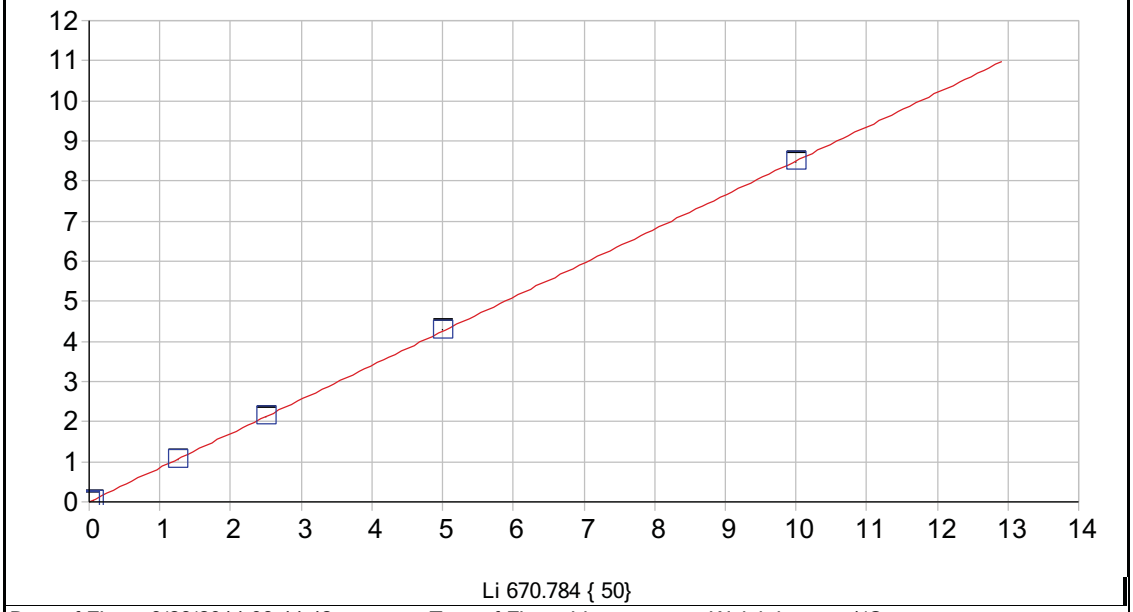
Ti 336.121 {100}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001073	Re-Slope:	1.000000
A1 (Gain):	0.284408	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999741	Status:	OK.
Std Error of Est:	0.000344		
Predicted MDL:	0.001225		
Predicted MQL:	0.004083		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00107	.000	1
S1	.10000	.09782	-.002	-2.18	.02889	.000	1
S2	1.2500	1.2969	.047	3.75	.36991	.002	1
S3	2.5000	2.5752	.075	3.01	.73349	.002	1
S4	5.0000	5.0855	.086	1.71	1.4474	.001	1
S5	10.000	9.7945	-.205	-2.05	2.7867	.001	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



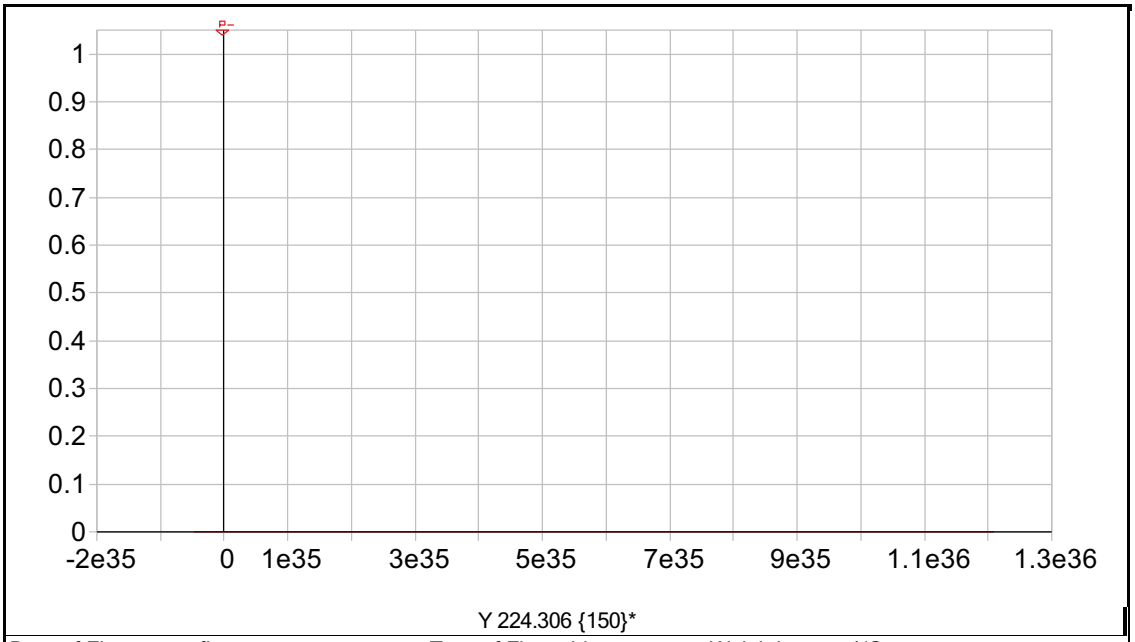
Li 670.784 { 50}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002640	Re-Slope:	1.000000
A1 (Gain):	0.849735	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999982	Status:	OK.
Std Error of Est:	0.000191		
Predicted MDL:	0.001432		
Predicted MQL:	0.004773		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00264	.001	1
S5	10.000	9.9787	-.021	-.213	8.4819	.022	1
S4	5.0000	5.0394	.039	.787	4.2848	.009	1
S3	2.5000	2.4950	-.005	-.201	2.1227	.006	1
S2	1.2500	1.2404	-.010	-.767	1.0567	.002	1
S1	.05000	.04657	-.003	-6.86	.04221	.001	1

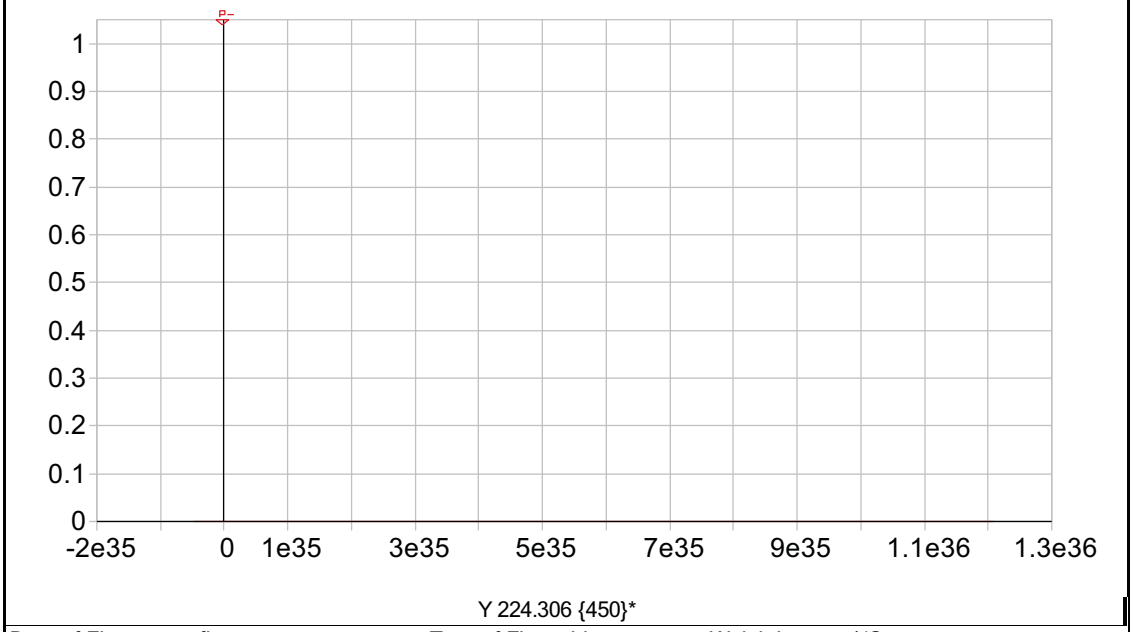
Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



Y 224.306 {150}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000			Status:	Warning	Zero Gain
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



Y 224.306 {450}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
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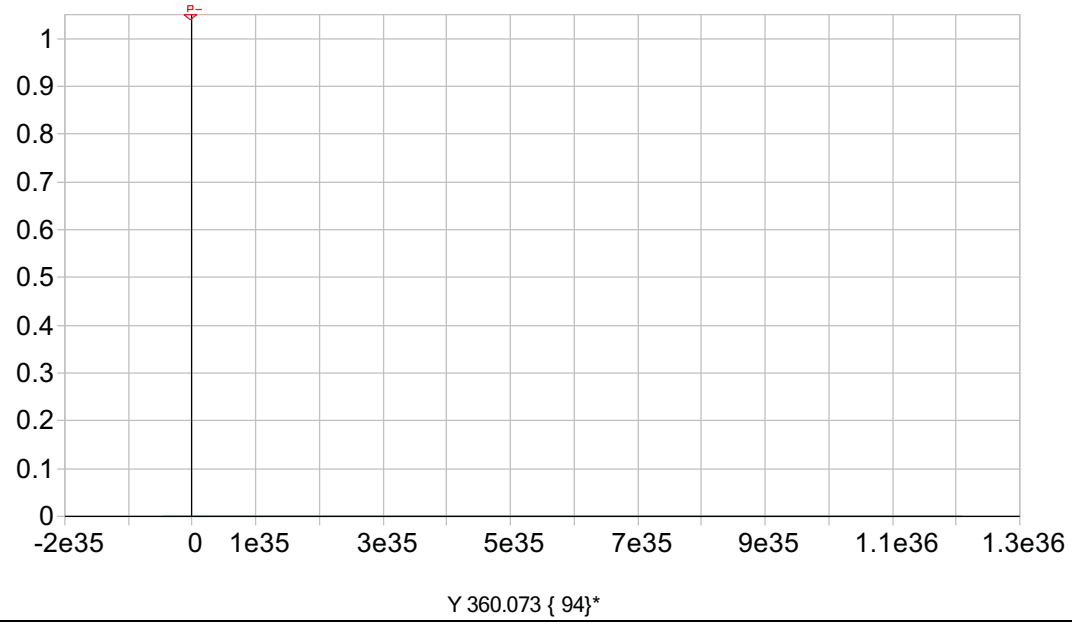
A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

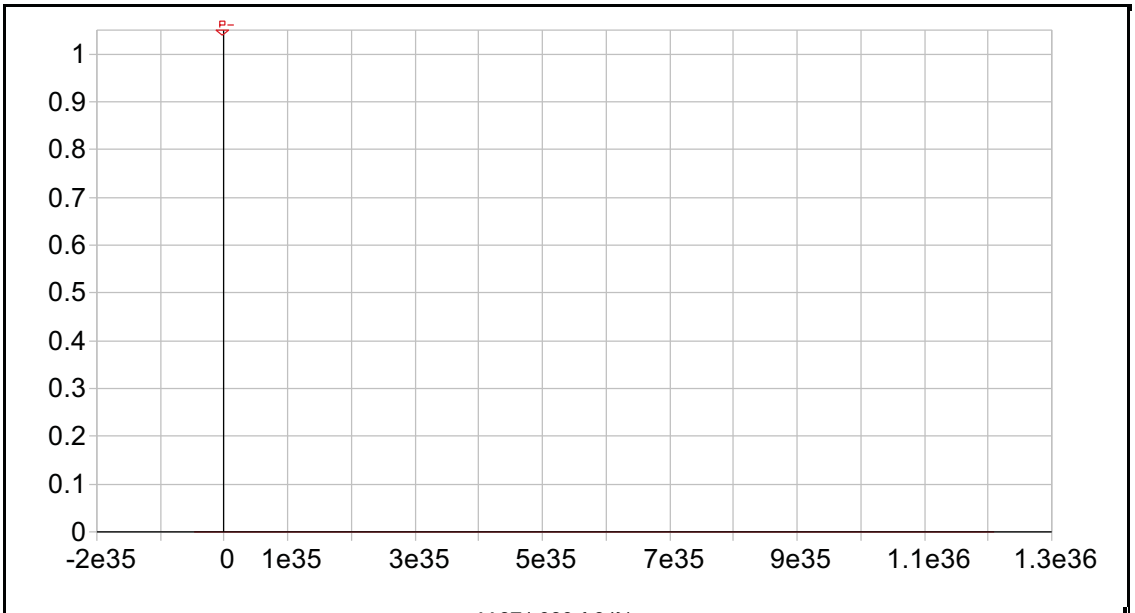


Y 360.073 { 94}*

Date of Fit:	<not fit>		Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):		0.000000			Re-Slope:	1.000000	
A1 (Gain):		0.000000			Y-int:	0.000000	
A2 (Curvature):		0.000000					
n (Exponent):		1.000000					
Correlation:		0.000000		Status:	Warning	Zero Gain	
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

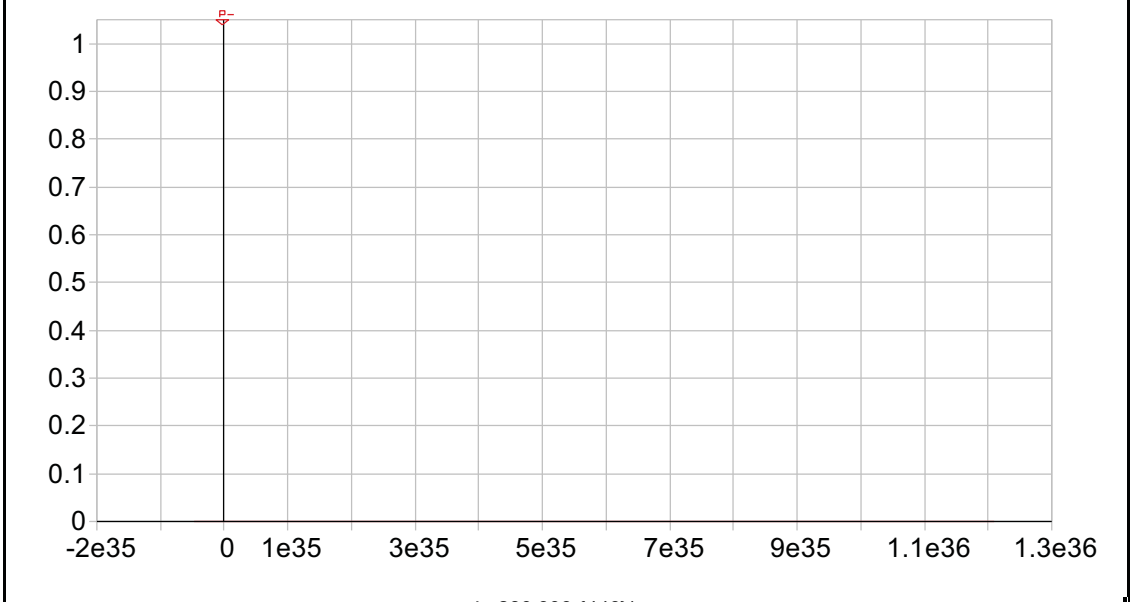
Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5



Y 371.030 { 91}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000			Status:	Warning	Zero Gain
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



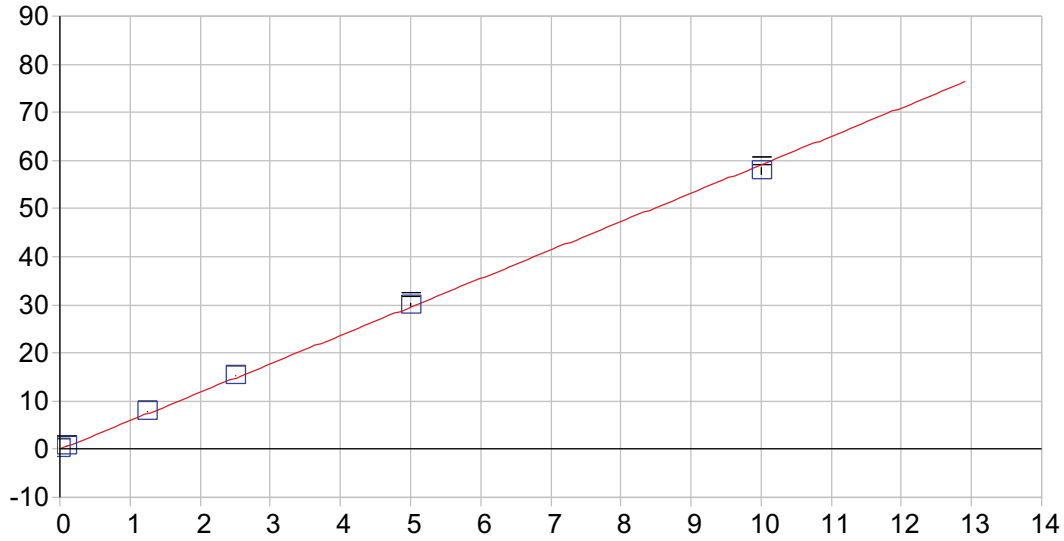
ln 230.606 {446}*

Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000			Re-Slope:	1.000000	
A1 (Gain):	0.000000			Y-int:	0.000000	

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000	Status:	Warning	Zero Gain	
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



Sr 407.771 { 83}

Date of Fit:	9/23/2014 03:44:42	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000811	Re-Slope:	1.000000
A1 (Gain):	5.912577	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999701	Status:	OK.
Std Error of Est:	0.007688		
Predicted MDL:	0.000086		
Predicted MQL:	0.000285		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	.000	.000	-.00086	.001	1
S1	.10000	.10164	.002	1.64	.60014	.003	1
S2	1.2500	1.3038	.054	4.31	7.7083	.021	1
S3	2.5000	2.5942	.094	3.77	15.337	.028	1
S4	5.0000	5.0641	.064	1.28	29.941	.362	1
S5	10.000	9.7863	-.214	-2.14	57.861	.710	1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S0 Acquired: 9/22/2014 16:41:18 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00007	-.00008	-.00019	.00022	.00008	.00018	.00911	-.00002
Stddev	.00013	.00004	.00010	.00008	.00015	.00021	.00074	.00004
%RSD	186.92	45.974	53.414	37.812	191.22	118.80	8.1301	243.18
#1	-.00011	-.00011	-.00027	.00031	-.00004	.00033	.00983	-.00001
#2	.00007	-.00008	-.00024	.00016	.00025	.00026	.00835	-.00006
#3	-.00017	-.00004	-.00007	.00018	.00003	-.00006	.00914	.00002

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00026	.00214	-.00004	-.00008	.00059	-.00003	-.00004	-.00013
Stddev	.00004	.00047	.00003	.00014	.00008	.00007	.00012	.00017
%RSD	16.813	22.062	83.736	174.93	14.128	274.31	270.90	128.53
#1	.00021	.00164	-.00001	.00001	.00068	.00005	-.00007	-.00031
#2	.00029	.00258	-.00007	-.00023	.00057	-.00004	-.00015	.00002
#3	.00027	.00221	-.00004	-.00001	.00051	-.00009	.00009	-.00010

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00023	-.00071	-.01103	-.00012	-.00147	.04559	-.00218	.00020
Stddev	.00009	.00012	.00117	.00022	.01422	.00020	.00003	.00011
%RSD	40.278	16.413	10.616	188.41	970.35	.43900	1.2538	57.158
#1	-.00017	-.00074	-.01237	.00009	-.00654	.04552	-.00215	.00007
#2	-.00018	-.00081	-.01051	-.00010	-.01245	.04544	-.00220	.00024
#3	-.00034	-.00058	-.01021	-.00035	.01459	.04582	-.00218	.00028

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00003	.00208	.00051	-.00006	.00107	.00264	-.00086
Stddev	.00013	.00006	.00003	.00008	.00019	.00086	.00052
%RSD	435.01	2.9522	6.3093	129.02	18.077	32.530	59.990
#1	-.00008	.00205	.00051	.00002	.00086	.00167	-.00113
#2	.00012	.00204	.00048	-.00014	.00124	.00329	-.00027
#3	-.00013	.00215	.00055	-.00008	.00112	.00297	-.00120

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S0 Acquired: 9/22/2014 16:41:18 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S0 Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	78.661	5359.9	79476.	9941.4	6204.2
Stddev	.715	12.5	139.	54.3	18.1
%RSD	.90876	.23288	.17431	.54656	.29159
#1	79.446	5350.5	79318.	9893.6	6203.8
#2	78.490	5355.0	79534.	10000.	6186.4
#3	78.047	5374.0	79576.	9930.2	6222.6

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S1 Acquired: 9/22/2014 16:45:20 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00033	.00213	.00169	.00222	.00688	.00967	.63600	.00109
Stddev	.00002	.00006	.00014	.00012	.00006	.00016	.00375	.00001
%RSD	7.4374	2.7574	8.4227	5.2147	.92040	1.6469	.58965	1.3391
#1	.00035	.00209	.00159	.00226	.00681	.00952	.63167	.00110
#2	.00035	.00220	.00185	.00209	.00694	.00984	.63803	.00107
#3	.00030	.00211	.00163	.00230	.00689	.00964	.63829	.00109

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01401	.19349	.00182	.03996	.00367	.00173	.00439	.03995
Stddev	.00006	.00055	.00005	.00026	.00025	.00005	.00014	.00036
%RSD	.43217	.28239	2.6236	.66249	6.8037	2.8855	3.1558	.91092
#1	.01394	.19286	.00187	.03972	.00339	.00176	.00431	.03953
#2	.01401	.19376	.00180	.03991	.00388	.00167	.00431	.04017
#3	.01407	.19385	.00178	.04024	.00373	.00175	.00455	.04016

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02322	.00217	.01509	.00405	.09103	.10736	-.00213	.00027
Stddev	.00007	.00001	.00119	.00010	.00585	.00102	.00002	.00007
%RSD	.30195	.59215	7.8707	2.4125	6.4294	.95411	.83198	26.174
#1	.02314	.00216	.01478	.00404	.08470	.10621	-.00214	.00032
#2	.02328	.00218	.01408	.00396	.09215	.10818	-.00215	.00019
#3	.02323	.00216	.01640	.00415	.09625	.10768	-.00211	.00029

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00621	.00507	.00174	.00094	.02889	.04221	.60014
Stddev	.00002	.00006	.00011	.00005	.00034	.00066	.00258
%RSD	.28098	1.2193	6.2625	5.2910	1.1704	1.5741	.43006
#1	.00621	.00501	.00179	.00090	.02850	.04215	.59772
#2	.00623	.00508	.00161	.00099	.02910	.04290	.60286
#3	.00620	.00513	.00181	.00093	.02908	.04158	.59983

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S1 Acquired: 9/22/2014 16:45:20 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	81.835	5446.9	80519.	10140.	6175.7
Stddev	1.247	3.2	196.	90.	7.0
%RSD	1.5234	.05863	.24355	.88999	.11336
#1	82.508	5447.9	80433.	10243.	6173.2
#2	80.396	5449.5	80743.	10081.	6183.6
#3	82.600	5443.3	80381.	10094.	6170.3

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S2 Acquired: 9/22/2014 16:49:26 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.06503	.11913	1.2840	.07665	.15628	2.0015	8.1890	.02806	1.8944
Stddev	.00025	.00016	.0029	.00032	.00046	.0036	.0142	.00010	.0063
%RSD	.38500	.13388	.22809	.41417	.29513	.18003	.17370	.33887	.33332
#1	.06477	.11899	1.2811	.07639	.15612	2.0031	8.1744	.02800	1.8883
#2	.06506	.11910	1.2839	.07657	.15592	2.0039	8.2028	.02817	1.8939
#3	.06527	.11930	1.2870	.07701	.15680	1.9973	8.1897	.02802	1.9009

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2.5698	.76803	.54951	.48843	.70476	1.1757	.52239	.39757	.09331
Stddev	.0031	.00207	.00184	.00007	.00201	.0038	.00251	.00109	.00029
%RSD	.12229	.26911	.33443	.01486	.28584	.32034	.48079	.27420	.31258
#1	2.5709	.76844	.54832	.48851	.70663	1.1762	.52302	.39637	.09311
#2	2.5723	.76985	.54858	.48840	.70502	1.1792	.52452	.39785	.09365
#3	2.5663	.76578	.55162	.48837	.70262	1.1717	.51962	.39849	.09318

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.19279	.05090	6.2236	.56038	.07499	.02613	.81799	.04471	.01949
Stddev	.00104	.00015	.1246	.00274	.00023	.00008	.00308	.00004	.00020
%RSD	.53975	.28831	2.0023	.48811	.30223	.29444	.37708	.08095	1.0262
#1	.19160	.05097	6.1008	.55834	.07478	.02606	.81571	.04470	.01942
#2	.19351	.05100	6.3500	.55932	.07496	.02613	.81676	.04469	.01934
#3	.19328	.05073	6.2200	.56349	.07523	.02621	.82150	.04475	.01972

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.19383	.36991	1.0567	7.7083
Stddev	.00076	.00182	.0017	.0210
%RSD	.39411	.49194	.15694	.27279
#1	.19296	.37037	1.0548	7.6886
#2	.19413	.37146	1.0575	7.7305
#3	.19440	.36791	1.0577	7.7057

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S2 Acquired: 9/22/2014 16:49:26 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	75.647	5072.5	74909.	9794.3	5356.4
Stddev	1.647	11.0	212.	17.9	9.0
%RSD	2.1771	.21644	.28239	.18282	.16779
#1	76.783	5080.1	74838.	9780.7	5362.8
#2	73.758	5077.4	74743.	9787.7	5360.3
#3	76.400	5059.9	75147.	9814.6	5346.1

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S3 Acquired: 9/22/2014 16:53:19 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.13204	.23562	2.5782	.15412	.31723	3.9888	16.294	.05610	3.8126
Stddev	.00075	.00155	.0148	.00082	.00174	.0125	.064	.00028	.0201
%RSD	.56449	.65697	.57378	.52992	.54881	.31285	.39148	.49388	.52781
#1	.13219	.23613	2.5812	.15425	.31765	3.9813	16.223	.05606	3.8189
#2	.13123	.23388	2.5622	.15325	.31531	3.9818	16.317	.05584	3.7901
#3	.13269	.23685	2.5913	.15486	.31872	4.0032	16.344	.05639	3.8288

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	5.0600	1.5226	1.1080	.97387	1.3814	2.2948	1.0425	.79954	.18957
Stddev	.0067	.0052	.0059	.00192	.0025	.0065	.0004	.00468	.00030
%RSD	.13277	.34127	.53116	.19727	.18215	.28210	.03892	.58568	.15729
#1	5.0530	1.5186	1.1097	.97165	1.3833	2.2899	1.0426	.80113	.18927
#2	5.0607	1.5285	1.1015	.97493	1.3785	2.2924	1.0429	.79427	.18986
#3	5.0664	1.5207	1.1129	.97503	1.3823	2.3021	1.0421	.80321	.18959

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.39543	.10014	12.453	1.0789	.15394	.05189	1.6288	.09050	.03861
Stddev	.00091	.00036	.104	.0009	.00081	.00028	.0076	.00047	.00031
%RSD	.22918	.35562	.83812	.08155	.52583	.54680	.46761	.51454	.79334
#1	.39506	.09976	12.572	1.0791	.15422	.05179	1.6315	.09061	.03828
#2	.39476	.10017	12.377	1.0780	.15303	.05220	1.6203	.08999	.03866
#3	.39646	.10047	12.411	1.0797	.15458	.05166	1.6348	.09090	.03888

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.39135	.73349	2.1227	15.337
Stddev	.00211	.00223	.0063	.028
%RSD	.53877	.30357	.29658	.18087
#1	.39208	.73123	2.1155	15.317
#2	.38897	.73356	2.1266	15.326
#3	.39299	.73568	2.1261	15.369

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S3 Acquired: 9/22/2014 16:53:19 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	75.329	4906.3	73114.	9826.6	5072.5
Stddev	.673	21.9	105.	30.7	22.8
%RSD	.89286	.44547	.14349	.31263	.44982
#1	74.610	4896.7	73145.	9791.2	5065.1
#2	75.943	4931.3	72996.	9842.7	5098.1
#3	75.435	4890.9	73199.	9845.9	5054.3

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S4 Acquired: 9/22/2014 16:57:09 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.26816	.45945	5.1369	.31125	.64590	8.0504	32.078	.11217	7.5625
Stddev	.00054	.00026	.0034	.00089	.00120	.0158	.152	.00054	.0208
%RSD	.20214	.05626	.06554	.28526	.18643	.19654	.47359	.47758	.27511
#1	.26762	.45923	5.1330	.31024	.64461	8.0645	32.019	.11279	7.5388
#2	.26870	.45974	5.1386	.31161	.64700	8.0533	32.251	.11188	7.5709
#3	.26818	.45938	5.1391	.31190	.64608	8.0333	31.965	.11185	7.5777

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	9.9554	2.9894	2.2047	1.9358	2.6934	4.4832	2.0767	1.5848	.38807
Stddev	.0234	.0174	.0039	.0054	.0038	.0154	.0017	.0029	.00136
%RSD	.23503	.58317	.17473	.27939	.14019	.34330	.08165	.18528	.34931
#1	9.9778	2.9847	2.2003	1.9411	2.6977	4.4991	2.0783	1.5817	.38816
#2	9.9574	2.9748	2.2074	1.9359	2.6919	4.4821	2.0768	1.5852	.38667
#3	9.9311	3.0087	2.2063	1.9303	2.6906	4.4683	2.0750	1.5876	.38938

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.79889	.19707	25.406	2.1363	.31274	.10283	3.2356	.18525	.07629
Stddev	.00324	.00053	.115	.0058	.00081	.00055	.0127	.00020	.00038
%RSD	.40524	.26838	.45384	.26966	.26020	.53222	.39118	.10797	.50115
#1	.80248	.19761	25.420	2.1423	.31215	.10225	3.2215	.18516	.07598
#2	.79797	.19655	25.285	2.1357	.31367	.10292	3.2393	.18548	.07617
#3	.79621	.19707	25.514	2.1308	.31240	.10333	3.2459	.18512	.07672

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.77788	1.4474	4.2848	29.941
Stddev	.00132	.0014	.0093	.362
%RSD	.17028	.09509	.21664	1.2096
#1	.77644	1.4489	4.2955	30.231
#2	.77814	1.4474	4.2792	29.535
#3	.77905	1.4461	4.2796	30.057

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S4 Acquired: 9/22/2014 16:57:09 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	70.674	4696.7	70877.	9723.2	4788.3
Stddev	.463	5.5	534.	39.2	6.1
%RSD	.65526	.11784	.75273	.40295	.12837
#1	70.225	4702.1	70893.	9682.3	4782.4
#2	71.150	4696.9	71403.	9726.9	4794.6
#3	70.647	4691.1	70336.	9760.4	4787.8

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S5 Acquired: 9/22/2014 17:01:16 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934	Be2348	Cd2144
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.53967	.88070	10.013	.61903	1.3031	15.858	62.470	.21541	14.531
Stddev	.00218	.00246	.027	.00308	.0041	.037	.385	.00041	.027
%RSD	.40334	.27981	.26850	.49788	.31616	.23512	.61575	.19214	.18572
#1	.53719	.87793	9.9828	.61572	1.2987	15.824	62.139	.21497	14.500
#2	.54123	.88264	10.022	.62181	1.3069	15.898	62.380	.21547	14.548
#3	.54060	.88154	10.034	.61957	1.3037	15.853	62.892	.21580	14.545

Elem	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	19.063	5.5507	4.2997	3.7565	5.0992	8.4951	4.0208	3.0698	.77911
Stddev	.048	.0229	.0100	.0092	.0038	.0251	.0069	.0064	.00044
%RSD	.25203	.41248	.23289	.24373	.07403	.29582	.17243	.20747	.05647
#1	19.008	5.5298	4.2882	3.7461	5.0977	8.4663	4.0153	3.0624	.77961
#2	19.090	5.5470	4.3062	3.7633	5.0965	8.5126	4.0186	3.0738	.77892
#3	19.092	5.5752	4.3048	3.7602	5.1035	8.5064	4.0286	3.0730	.77880

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.5725	.37952	48.843	4.1552	.62527	.19798	6.2884	.37452	.14748
Stddev	.0063	.00181	.652	.0075	.00214	.00040	.0219	.00112	.00043
%RSD	.40019	.47591	1.3355	.17950	.34223	.19983	.34895	.29780	.29294
#1	1.5709	.37775	49.154	4.1466	.62283	.19767	6.2658	.37329	.14700
#2	1.5794	.38136	48.093	4.1600	.62681	.19842	6.3097	.37546	.14758
#3	1.5672	.37945	49.280	4.1590	.62619	.19783	6.2896	.37482	.14785

Elem	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.5037	2.7867	8.4819	57.861
Stddev	.0041	.0007	.0225	.710
%RSD	.27525	.02468	.26468	1.2270
#1	1.4992	2.7863	8.4560	57.103
#2	1.5074	2.7864	8.4959	57.969
#3	1.5044	2.7875	8.4937	58.511

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S5 Acquired: 9/22/2014 17:01:16 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	68.671	4438.2	69003.	9695.7	4466.4
Stddev	1.126	10.8	134.	55.7	6.7
%RSD	1.6394	.24233	.19368	.57454	.14966
#1	68.528	4446.1	69015.	9749.4	4471.8
#2	69.861	4426.0	68864.	9699.6	4458.9
#3	67.623	4442.6	69131.	9638.1	4468.6

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: S6 Acquired: 9/22/2014 17:05:31 Type: Cal
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: IR Corr. Factor: 1.000000
User: JASWAL Custom ID1: S Custom ID2: Custom ID3:
Comment:

Elem	Al3961	Ca3736	Fe2598	Mg2790	Na8183
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	40.882	29.369	13.364	6.4863	4.3791
Stddev	.199	.129	.033	.0243	.0108
%RSD	.48592	.43908	.24394	.37408	.24622
#1	40.652	29.287	13.345	6.4754	4.3700
#2	41.002	29.517	13.401	6.5141	4.3910
#3	40.990	29.302	13.345	6.4694	4.3764

Int. Std.	Y_3710
Units	Cts/S
Avg	9544.1
Stddev	31.2
%RSD	.32739
#1	9572.7
#2	9510.7
#3	9548.8

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICV55 Acquired: 9/22/2014 17:29:04 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICV55 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9720290	1.105172	1.006509	.9901982	.9702696	2.456521
Stddev	.0022271	.001251	.001854	.0026556	.0006179	.014186
%RSD	.2291221	.1131602	.1842356	.2681933	.0636789	.5774922
#1	.9723044	1.104123	1.005704	.9889687	.9699063	2.467757
#2	.9696770	1.104838	1.005193	.9932458	.9709830	2.440580
#3	.9741056	1.106556	1.008630	.9883801	.9699195	2.461225

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5245040	.5020962	.4994629	10.72074	.5088536	.4988941
Stddev	.0009298	.0040605	.0012860	.00514	.0015940	.0012174
%RSD	.1772738	.8087204	.2574775	.0479317	.3132442	.2440109
#1	.5240509	.4979002	.4984908	10.72608	.5101174	.4982667
#2	.5238877	.5023820	.4989767	10.71583	.5093805	.4981185
#3	.5255735	.5060062	.5009211	10.72031	.5070630	.5002972

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5184979	5.573783	.5430529	6.207189	.5099509	.4984833
Stddev	.0032609	.011500	.0036837	.032943	.0007386	.0008275
%RSD	.6289102	.2063311	.6783347	.5307256	.1448472	.1659990
#1	.5180140	5.571950	.5393753	6.199195	.5094735	.4993916
#2	.5155060	5.586091	.5467427	6.178978	.5095774	.4977724
#3	.5219737	5.563310	.5430407	6.243393	.5108017	.4982859

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.958837	.5361304	.9855031	9.490327	F .0292794	F -.000201
Stddev	.207319	.0007832	.0115053	.093200	.0016257	.003755
%RSD	2.081756	.1460794	1.167451	.9820551	5.552225	1864.163
#1	10.13449	.5353180	.9753527	9.386406	.0288799	-.002538
#2	9.73015	.5361928	.9831556	9.566507	.0278908	.004130
#3	10.01187	.5368806	.9980011	9.518069	.0310676	-.002196

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICV55 Acquired: 9/22/2014 17:29:04 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICV55 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .000269	.0033418	-.016152	F .000021	.0003725	-.001390
Stddev	.000148	.0038883	.010180	.000208	.0004090	.001577
%RSD	55.05844	116.3537	63.02760	985.2427	109.7879	113.5094
#1	-.000168	-.001027	-.013350	-.000202	.0000037	-.001193
#2	-.000200	.006422	-.027440	.000206	.0008124	-.003057
#3	-.000439	.004631	-.007666	-.000067	.0003016	.000080

Elem	Sr4077
Units	ppm
Avg	.0123800
Stddev	.0000684
%RSD	.5523092
#1	.0123010
#2	.0124175
#3	.0124213

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	78.01087	5285.371	77684.78	9997.917	5919.510
Stddev	1.18953	3.964	240.90	40.938	7.025
%RSD	1.524820	.0750001	.3101007	.4094619	.1186777
#1	79.34132	5288.855	77461.30	10032.78	5927.341
#2	77.64130	5281.058	77653.08	9952.84	5917.427
#3	77.05000	5286.198	77939.96	10008.13	5913.762

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICB55 Acquired: 9/22/2014 17:33:00 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICB55 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002811	-.000363	.0006873	.0005630	.0003299	-.004470	.0002334
Stddev	.000284	.000334	.0007259	.0010915	.0013377	.002612	.0003431
%RSD	10.09920	91.79534	105.6107	193.8712	405.4583	58.43739	147.0226
#1	-.002717	.000013	.0008866	-.000021	.0014160	-.002264	-.000156
#2	-.002586	-.000622	-.000117	-.000112	-.001164	-.007355	.000366
#3	-.003130	-.000482	.001293	.001822	.000738	-.003791	.000491

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000205	-.000019	.0039340	.0000260	-.000117	-.002187	.0047714
Stddev	.000353	.000044	.0077008	.0001365	.000167	.001113	.0046632
%RSD	172.3176	233.8571	195.7495	525.7094	142.2715	50.89993	97.73243
#1	-.000312	-.000023	.0128205	.0001826	-.000078	-.002130	.0090237
#2	-.000491	-.000060	-.000234	-.000037	.000026	-.001104	-.000216
#3	.000189	.000027	-.000784	-.000068	-.000300	-.003328	.005506

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000378	-.022270	.0000799	.0000868	.0376204	.0021898	.0008567
Stddev	.000267	.000772	.0000869	.0001491	.0956403	.0021816	.0028436
%RSD	70.71921	3.467428	108.7419	171.7030	254.2245	99.62491	331.9306
#1	-.000236	-.023133	.0001802	.0002285	.0132451	.0019633	-.000991
#2	-.000686	-.022032	.0000306	-.000069	.1430896	.0044758	-.000570
#3	-.000211	-.021644	.0000289	.000101	-.043473	.0001303	.004131

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.147200	-.000279	-.002123	-.000069	-.004203	-.005878	.0004016
Stddev	.064407	.001197	.004525	.000084	.001561	.002994	.0003835
%RSD	43.75467	429.3009	213.1390	120.5248	37.13152	50.92792	95.48834
#1	-.140273	.001079	-.007165	-.000118	-.002768	-.005399	.0000127
#2	-.086537	-.000733	-.000789	-.000117	-.003977	-.009083	.0004127
#3	-.214790	-.001182	.001585	.000027	-.005865	-.003153	.0007794

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICB55 Acquired: 9/22/2014 17:33:00 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICB55 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0001333	-.001279	-.000082
Stddev	.0003600	.000682	.000037
%RSD	270.0452	53.33085	45.30820
#1	-.000234	-.001430	-.000086
#2	.000485	-.001872	-.000117
#3	.000149	-.000534	-.000043

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	79.74090	5429.910	79644.80	9968.084	6251.620
Stddev	1.03968	7.176	332.00	24.654	11.222
%RSD	1.303817	.1321582	.4168563	.2473264	.1795041
#1	80.39812	5434.887	79272.90	9962.058	6261.500
#2	78.54225	5421.684	79750.18	9995.192	6253.942
#3	80.28232	5433.159	79911.33	9947.002	6239.419

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICSA55 Acquired: 9/22/2014 17:37:06 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSA55 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0018942	-.001643	-.000456	.0161523	.0036172	251.8529
Stddev	.0010451	.000660	.001704	.0019183	.0016852	.6129
%RSD	55.17285	40.17205	373.4773	11.87600	46.58851	.2433704
#1	.0015091	-.002140	.001479	.0163961	.0042249	251.8230
#2	.0010964	-.000894	-.001116	.0141238	.0049141	251.2554
#3	.0030772	-.001896	-.001732	.0179370	.0017124	252.4802

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0072577	.0008985	.0008047	255.9514	.0567574	-.000284
Stddev	.0003394	.0001675	.0000265	.4697	.0004538	.000298
%RSD	4.676791	18.63965	3.292510	.1835198	.7995889	105.0462
#1	.0070991	.0010798	.0007770	255.6560	.0564086	-.000434
#2	.0070266	.0007496	.0008073	255.7052	.0572705	-.000477
#3	.0076474	.0008660	.0008298	256.4931	.0565932	.000060

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002622	105.4989	.0139116	264.3732	.0009975	-.002414
Stddev	.0014457	.2389	.0006375	.6720	.0001747	.000172
%RSD	551.3952	.2264049	4.582807	.2541765	17.51940	7.139835
#1	-.000467	105.6912	.0142280	264.5258	.0011885	-.002512
#2	-.000673	105.2315	.0143291	263.6380	.0009582	-.002215
#3	.001927	105.5738	.0131777	264.9557	.0008457	-.002515

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1851007	.0019998	.0178012	-.133929	.0056336	-.009678
Stddev	.1571482	.0018219	.0044773	.006893	.0018002	.003729
%RSD	84.89878	91.10436	25.15171	5.146461	31.95487	38.52600
#1	.1050502	.0036675	.0128951	-.141827	.0035749	-.008647
#2	.3661562	.0000553	.0216664	-.129134	.0069123	-.006574
#3	.0840958	.0022766	.0188421	-.130825	.0064135	-.013814

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICSA55 Acquired: 9/22/2014 17:37:06 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSA55 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0150540	-.006043	-.005839	F .0257193	.0201211	.0031274
Stddev	.0001340	.003678	.009705	.0002572	.0011228	.0009263
%RSD	.8898071	60.86056	166.2245	1.000125	5.579979	29.61797
#1	.0149381	-.007435	-.010933	.0256813	.0206534	.0032590
#2	.0150233	-.008822	-.011937	.0254832	.0208787	.0039808
#3	.0152006	-.001872	.005353	.0259934	.0188312	.0021423

Elem	Sr4077
Units	ppm
Avg	.1090916
Stddev	.0004231
%RSD	.3878784
#1	.1089664
#2	.1087452
#3	.1095632

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	76.19790	4951.325	71078.28	9775.105	4990.610
Stddev	1.11542	15.633	368.51	41.629	14.963
%RSD	1.463845	.3157277	.5184602	.4258661	.2998208
#1	77.43915	4949.671	71186.63	9728.676	4990.112
#2	75.87500	4967.719	70667.74	9809.100	5005.816
#3	75.27955	4936.585	71380.47	9787.540	4975.903

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICSAB55 Acquired: 9/22/2014 17:41:08 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSAB55 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1007299	.1017008	.0510780	.0635511	.6034477	255.2984	.5471983
Stddev	.0003172	.0016854	.0021023	.0014593	.0072102	1.0922	.0027599
%RSD	.3149028	1.657195	4.115813	2.296204	1.194825	.4278124	.5043651
#1	.1005873	.1036463	.0513580	.0635853	.6117571	256.2496	.5491801
#2	.1010934	.1006871	.0530262	.0620750	.5988433	255.5400	.5483687
#3	.1005090	.1007689	.0488497	.0649929	.5997428	254.1057	.5440461

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5304807	1.047883	259.3678	.5714081	.5242940	.5249983	106.8924
Stddev	.0012982	.013159	.8117	.0012100	.0059995	.0039511	.3664
%RSD	.2447264	1.255761	.3129385	.2117553	1.144303	.7525966	.3427371
#1	.5293038	1.063054	259.8111	.5700334	.5312208	.5284908	106.8559
#2	.5318733	1.039568	259.8612	.5718789	.5209267	.5257943	107.2757
#3	.5302649	1.041027	258.4310	.5723119	.5207346	.5207097	106.5457

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5610871	267.8397	1.043186	.2105298	.1972036	.5395704	1.020085
Stddev	.0041227	.4892	.013376	.0002842	.2082067	.0037868	.008856
%RSD	.7347759	.1826297	1.282251	.1349699	105.5796	.7018101	.8681151
#1	.5652221	267.9830	1.058628	.2104763	.2789740	.5436495	1.016485
#2	.5610623	268.2413	1.035762	.2108369	.3521122	.5388949	1.013596
#3	.5569768	267.2950	1.035169	.2102762	-.039476	.5361669	1.030173

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.581331	.0339388	F -.039758	.0000258	-.005827	-.016665	-.000374
Stddev	.054129	.0008733	.010361	.0001065	.001764	.007071	.000777
%RSD	9.311146	2.573321	26.06146	412.0774	30.26420	42.42900	207.6975
#1	-.534182	.0332959	-.032855	.0000231	-.005032	-.024387	.000105
#2	-.569371	.0349331	-.051672	-.000079	-.007849	-.010507	-.001270
#3	-.640439	.0335874	-.034746	.000134	-.004602	-.015101	.000043

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: ICSAB55 Acquired: 9/22/2014 17:41:08 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: ICSAB55 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.002154	.0011990	.1104638
Stddev	.001029	.0004244	.0004701
%RSD	47.78923	35.39462	.4255289
#1	-.001966	.0007855	.1106515
#2	-.001231	.0011782	.1108110
#3	-.003264	.0016335	.1099289

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	76.77158	5039.438	72631.07	9952.400	5069.546
Stddev	.31666	53.802	8.31	27.538	55.031
%RSD	.4124673	1.067612	.0114424	.2767010	1.085516
#1	76.87313	4977.319	72632.74	9960.390	5006.217
#2	77.02500	5071.222	72638.42	9921.750	5105.733
#3	76.41660	5069.774	72622.05	9975.060	5096.688

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCV67 Acquired: 9/22/2014 17:45:05 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV67 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.058313	5.061763	25.79920	5.012302	5.078138	417.4800	10.51555
Stddev	.028160	.023259	.07805	.012543	.008146	1.0537	.11024
%RSD	.5567126	.4594957	.3025135	.2502459	.1604082	.2524026	1.048307
#1	5.044167	5.039825	25.78892	5.008095	5.077172	417.7463	10.39559
#2	5.040031	5.059314	25.72680	5.002402	5.070518	418.3751	10.61240
#3	5.090742	5.086148	25.88187	5.026407	5.086723	416.3187	10.53866

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5180662	2.554706	422.4582	15.70760	2.580745	15.69640	417.0323
Stddev	.0040648	.009433	.8924	.07556	.009766	.02769	.6880
%RSD	.7846048	.3692570	.2112507	.4810364	.3784047	.1763912	.1649815
#1	.5223398	2.555741	422.5415	15.63137	2.577258	15.71129	416.9302
#2	.5176102	2.544798	423.3061	15.78247	2.573201	15.71346	417.7656
#3	.5142488	2.563579	421.5270	15.70897	2.591775	15.66445	416.4010

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.72166	412.9848	2.534674	1.333486	412.8483	2.614910	14.87372
Stddev	.04957	1.0497	.007756	.002134	.8310	.020850	.17325
%RSD	.3152882	.2541851	.3059842	.1600137	.2012906	.7973435	1.164824
#1	15.71776	412.3525	2.536163	1.331333	412.4094	2.599698	15.07271
#2	15.77306	414.1966	2.526281	1.333527	413.8068	2.638677	14.79206
#3	15.67416	412.4053	2.541577	1.335600	412.3287	2.606357	14.75638

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	159.1857	5.126809	5.003555	4.895159	5.205556	5.300528	5.061521
Stddev	.2013	.012577	.026947	.013928	.027974	.034280	.015870
%RSD	.1264595	.2453130	.5385503	.2845163	.5373825	.6467316	.3135475
#1	159.2937	5.113987	5.031499	4.895259	5.192638	5.336760	5.062152
#2	159.3100	5.127315	4.977731	4.881182	5.186374	5.296217	5.045344
#3	158.9535	5.139125	5.001435	4.909037	5.237654	5.268607	5.077066

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCV67 Acquired: 9/22/2014 17:45:05 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV67 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.134730	5.269271	5.256300
Stddev	.011803	.008281	.020935
%RSD	.2298672	.1571624	.3982852
#1	5.131649	5.266942	5.274327
#2	5.147767	5.278467	5.261235
#3	5.124772	5.262403	5.233338

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	69.26463	4520.092	66538.93	9265.480	4404.873
Stddev	.66403	8.786	137.68	7.155	9.851
%RSD	.9586902	.1943805	.2069207	.0772253	.2236393
#1	68.50890	4521.199	66697.75	9270.937	4407.636
#2	69.75469	4528.272	66453.45	9268.124	4413.049
#3	69.53032	4510.804	66465.58	9257.379	4393.936

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCB67 Acquired: 9/22/2014 17:49:06 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB67 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000658	.0006612	-.000199	.0000527	-.000046	.0073872	.0004932
Stddev	.001074	.0008083	.000233	.0014883	.000634	.0073301	.0002179
%RSD	163.2402	122.2417	116.9424	2825.957	1382.162	99.22771	44.17316
#1	.000164	-.000232	-.000213	-.000598	.000375	.0138120	.0003225
#2	-.000265	.001343	.000040	.001755	-.000776	-.000597	.0004186
#3	-.001873	.000872	-.000425	-.001000	.000263	.008947	.0007386

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000068	-.000018	.0128324	.0004585	.0000249	-.000984	.0246990
Stddev	.000238	.000024	.0094273	.0000169	.0000645	.000625	.0051752
%RSD	349.2183	135.1274	73.46472	3.691251	259.3207	63.55817	20.95313
#1	-.000310	.000003	.0234887	.0004777	.0000738	-.000805	.0281518
#2	-.000061	-.000043	.0055792	.0004522	-.000048	-.001679	.0271966
#3	.000167	-.000013	.0094293	.0004456	.000049	-.000468	.0187487

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007903	.0137748	-.000082	.0002054	.0214293	.0001942	.0018445
Stddev	.0001896	.0169565	.000044	.0000358	.1934209	.0013703	.0037617
%RSD	23.98750	123.0984	53.32034	17.41265	902.5991	705.6866	203.9446
#1	.0008228	.0002952	-.000076	.0002339	-.036594	-.001148	.0061443
#2	.0009614	.0328129	-.000042	.0002170	.237221	.000139	.0002282
#3	.0005865	.0082162	-.000129	.0001653	-.136339	.001591	-.000839

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0856182	-.000863	.0035622	.0006131	-.004808	-.001540	.0000535
Stddev	.0651479	.000738	.0036773	.0000203	.001230	.007365	.0001764
%RSD	76.09127	85.49518	103.2312	3.309444	25.57622	478.3188	329.5074
#1	.0108236	-.000072	.0060521	.0006255	-.003829	.005299	.0000228
#2	.1160449	-.000983	.0052958	.0005897	-.006188	-.009336	-.000106
#3	.1299859	-.001533	-.000661	.0006241	-.004407	-.000582	.000243

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCB67 Acquired: 9/22/2014 17:49:06 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB67 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0003100	.0018660	.0001139
Stddev	.0008343	.0010754	.0000437
%RSD	269.1450	57.63330	38.38268
#1	.0011205	.0007567	.0000730
#2	-.000546	.0029040	.0001600
#3	.000356	.0019374	.0001087

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	31.09385	5589.112	80113.28	9969.890	6319.744
Stddev	.97335	9.499	178.80	39.788	24.521
%RSD	1.200275	.1699638	.2231794	.3990819	.3880000
#1	80.69431	5585.114	79907.04	10011.81	6311.358
#2	82.20339	5599.957	80208.38	9965.20	6347.357
#3	80.38385	5582.266	80224.44	9932.65	6300.516

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3939-08A Acquired: 9/22/2014 18:36:33 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1A Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0037048	-.002013	.0303310	.0025817	.0012374	6.489648	.0655501
Stddev	.0001225	.000538	.0003510	.0012862	.0004898	.011506	.0000946
%RSD	3.307027	26.71646	1.157396	49.81815	39.58418	.1772975	.1443789
#1	.0038161	-.001895	.0304369	.0023752	.0006947	6.482346	.0656492
#2	.0037248	-.002599	.0299392	.0014113	.0013707	6.483687	.0654607
#3	.0035735	-.001544	.0306170	.0039586	.0016468	6.502912	.0655404

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0012058	.0001657	2.747801	.0616142	.0066733	.0046189	16.91726
Stddev	.0002128	.0000171	.006466	.0011749	.0000489	.0012674	.02238
%RSD	17.64656	10.34589	.2353120	1.906842	.7321552	27.44063	.1323152
#1	.0009751	.0001467	2.740696	.0604091	.0066241	.0034225	16.90250
#2	.0012480	.0001800	2.753340	.0627563	.0067218	.0044871	16.90627
#3	.0013943	.0001703	2.749367	.0616773	.0066742	.0059470	16.94302

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2678028	.3213603	.0060394	-.000042	.1370280	.0304338	.0480550
Stddev	.0009550	.0101597	.0001721	.000159	.0665039	.0020220	.0024313
%RSD	.3566126	3.161456	2.849667	375.4515	48.53303	6.643848	5.059465
#1	.2683622	.3132318	.0058475	.000040	.1317527	.0281336	.0507063
#2	.2683462	.3180990	.0061800	-.000225	.0733190	.0312376	.0459297
#3	.2667001	.3327502	.0060906	.000059	.2060125	.0319304	.0475290

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-1.65971	.3000753	.0003938	.0013218	.4656393	3.518466	.0066526
Stddev	.02449	.0021330	.0014383	.0002641	.0028229	.049977	.0004159
%RSD	1.475281	.7108077	365.1990	19.97843	.6062327	1.420409	6.251353
#1	-1.63591	.2982097	.0020507	.0013408	.4627077	3.473092	.0062021
#2	-1.68482	.2996156	-.000534	.0010487	.4658710	3.572033	.0067341
#3	-1.65841	.3024006	-.000336	.0015758	.4683391	3.510273	.0070218

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: F3939-08A Acquired: 9/22/2014 18:36:33 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: MC0AK1A Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2985043	.0008354	.0135771
Stddev	.0032377	.0013223	.0000121
%RSD	1.084639	158.2730	.0887959
#1	.2948666	.0023050	.0135634
#2	.2995762	.0004595	.0135817
#3	.3010702	-.000258	.0135862

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	84.16477	5734.062	81983.50	10297.51	6338.499
Stddev	.91779	16.790	828.43	46.92	9.682
%RSD	1.090469	.2928038	1.010487	.4555973	.1527462
#1	84.61385	5726.449	82705.49	10333.92	6335.923
#2	83.10892	5753.309	81079.04	10244.56	6349.208
#3	84.77155	5722.427	82165.95	10314.05	6330.365

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCV68 Acquired: 9/22/2014 19:16:16 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV68 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.933992	5.015479	25.77818	4.832733	4.955890	418.0394	10.66715
Stddev	.016158	.006756	.06075	.008701	.013138	2.3345	.10280
%RSD	.3274741	.1346965	.2356760	.1800481	.2651008	.5584516	.9637116
#1	4.941339	5.014917	25.72538	4.831828	4.949941	417.7997	10.72237
#2	4.915467	5.009021	25.76459	4.824520	4.946778	415.8339	10.54854
#3	4.945170	5.022498	25.84458	4.841851	4.970950	420.4845	10.73055

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5125374	2.515860	422.4464	15.71188	2.561521	15.60747	410.5983
Stddev	.0034347	.004149	2.1509	.02584	.005378	.08388	2.1042
%RSD	.6701349	.1649090	.5091438	.1644906	.2099627	.5374619	.5124599
#1	.5117555	2.512505	422.5605	15.68307	2.557633	15.56306	410.6287
#2	.5095611	2.514576	420.2407	15.71952	2.559271	15.55513	408.4791
#3	.5162957	2.520499	424.5378	15.73304	2.567658	15.70423	412.6870

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.76142	408.3520	2.489364	1.349380	413.9546	2.617047	14.52665
Stddev	.10952	2.0691	.004858	.002354	1.5210	.025002	.20996
%RSD	.6948760	.5066981	.1951372	.1744573	.3674399	.9553447	1.445371
#1	15.77434	408.4817	2.483986	1.348983	413.5271	2.618923	14.33957
#2	15.64601	406.2211	2.490675	1.347250	412.6931	2.591160	14.75374
#3	15.86391	410.3532	2.493432	1.351908	415.6437	2.641058	14.48665

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	159.3879	5.088738	4.892585	4.740928	5.123553	5.298601	4.970675
Stddev	.6979	.013103	.017045	.008439	.002646	.037440	.012845
%RSD	.4378623	.2574845	.3483887	.1780034	.0516400	.7065994	.2584127
#1	159.2075	5.084026	4.898855	4.736240	5.121890	5.297815	4.957849
#2	158.7979	5.078644	4.873293	4.735874	5.122165	5.261561	4.970635
#3	160.1583	5.103545	4.905608	4.750670	5.126604	5.336428	4.983539

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCV68 Acquired: 9/22/2014 19:16:16 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCV68 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.059684	5.256439	5.341689
Stddev	.019526	.014337	.076875
%RSD	.3859091	.2727426	1.439145
#1	5.044075	5.242918	5.368816
#2	5.053399	5.254928	5.254929
#3	5.081578	5.271472	5.401323

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	68.08641	4621.003	66194.89	9162.461	4440.363
Stddev	.65427	9.360	113.95	64.923	7.961
%RSD	.9609377	.2025466	.1721380	.7085706	.1792980
#1	68.75374	4626.025	66267.80	9144.448	4448.463
#2	67.44604	4626.780	66253.29	9234.487	4440.079
#3	68.05943	4610.204	66063.59	9108.446	4432.547

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCB68 Acquired: 9/22/2014 19:20:12 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB68 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001716	-.000194	-.000705	-.000475	-.000682	.0034062	-.000064
Stddev	.001377	.000594	.000877	.001258	.000566	.0079949	.000498
%RSD	80.25419	305.8140	124.4469	264.7052	83.06673	234.7160	777.8554
#1	-.002508	.000089	-.001280	-.000418	-.001310	.0093025	-.000546
#2	-.002513	-.000877	-.001139	-.001760	-.000210	.0066097	-.000093
#3	-.000126	.000205	.000305	.000753	-.000525	-.005694	.000448

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000094	-.000021	.0002760	.0001027	-.000162	-.001417	.0126650
Stddev	.000207	.000023	.0084321	.0001000	.000153	.001474	.0014157
%RSD	220.3109	111.7664	3054.880	97.38264	94.64018	103.9873	11.17814
#1	.000145	-.000046	-.008080	.0001658	-.000301	-.000473	.0133153
#2	-.000226	.000001	.000125	-.000013	-.000189	-.000663	.0136388
#3	-.000201	-.000018	.008783	.000155	.000003	-.003116	.0110410

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001808	-.000202	-.000153	.0001814	.1729568	.0018868	.0000176
Stddev	.0001349	.012699	.000176	.0002840	.2269002	.0022465	.0060804
%RSD	74.60817	6278.760	114.9672	156.5511	131.1890	119.0633	34592.94
#1	.0000271	-.014682	-.000245	.0000905	.3908051	.0001542	.0006640
#2	.0002796	.009040	-.000265	.0004997	.1900891	.0044250	-.006360
#3	.0002355	.005036	.000050	-.000046	-.062024	.0010812	.005749

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1871839	-.001400	.0012922	.0010151	-.005706	-.004233	.0000493
Stddev	.0258057	.001518	.0025651	.0003293	.001683	.005200	.0005626
%RSD	13.78630	108.4120	198.5095	32.43516	29.49269	122.8504	1140.906
#1	.1666972	.000352	-.001661	.0013254	-.007438	-.002542	.0006080
#2	.2161665	-.002331	.002577	.0010504	-.005603	-.010069	-.000517
#3	.1786881	-.002222	.002961	.0006697	-.004077	-.000089	.000057

Reviewed By:BIN
On:9/23/2014 10:43:36 AM
Inst Id :P5

Sample Name: CCB68 Acquired: 9/22/2014 19:20:12 Type: Unk
Method: ISM01.3 INSTRUMENT P5 WITH 6 POINT ICAL(v553) Mode: CONC Corr. Factor: 1.000000
User: JASWAL Custom ID1: CCB68 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0005382	.0026894	.000120
Stddev	.0007972	.0004696	.000096
%RSD	148.1176	17.46012	80.37590
#1	.0007868	.0032174	-.000025
#2	.0011816	.0025319	-.000218
#3	-.000354	.0023188	-.000117

Int. Std.	Y_2243	Y_2243	Y_3600	Y_3710	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	30.52831	5636.996	79944.92	9813.432	6289.251
Stddev	.59176	128.422	187.88	30.439	140.239
%RSD	.7348503	2.278208	.2350093	.3101818	2.229818
#1	79.84516	5709.745	79843.03	9820.255	6367.757
#2	80.85743	5712.528	79829.99	9780.159	6372.654
#3	80.88235	5488.716	80161.73	9839.880	6127.342

CHEMTECH

Instrument ID: P5

284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Daily Analysis Runlog For Sequence/QCBatch ID # LB72859

Review By BIN Review On 9/23/2014 10:43:36 AM

STD. NAME	STD REF.#
ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

Sr#	SampleId	ClientID	QcType	Date	Comment	Status
1	S0	S0	CAL1	09/22/14 16:41		OK
2	S1	S1	CAL2	09/22/14 16:45		OK
3	S2	S2	CAL3	09/22/14 16:49		OK
4	S3	S3	CAL4	09/22/14 16:53		OK
5	S4	S4	CAL5	09/22/14 16:57		OK
6	S5	S5	CAL6	09/22/14 17:01		OK
7	S6	S6	CAL7	09/22/14 17:05		OK
8	ICV55	ICV55	ICV	09/22/14 17:29		OK
9	ICB55	ICB55	ICB	09/22/14 17:33		OK
10	ICSA55	ICSA55	ICSA	09/22/14 17:37		OK
11	ICSAB55	ICSAB55	ICSAB	09/22/14 17:41		OK
12	CCV67	CCV67	CCV	09/22/14 17:45		OK
13	CCB67	CCB67	CCB	09/22/14 17:49		OK
14	F3847-01	ME42Z2	SAM	09/22/14 17:53		OK
15	F3847-02	ME42Z3	SAM	09/22/14 17:57		OK
16	F3847-11	ME4301	SAM	09/22/14 18:01		OK
17	F3847-12	ME4302	SAM	09/22/14 18:04		OK
18	F3847-03	ME42Z5	SAM	09/22/14 18:08	Report 10X for Fe	Confirms
19	F3847-05	ME42Z7	SAM	09/22/14 18:12	Report 10X for Fe,Ni	Confirms
20	F3847-06	ME42Z8	SAM	09/22/14 18:16	Report 10X for Ni	Confirms
21	F3847-07	ME42Z9	SAM	09/22/14 18:20	Report 10X for Fe,Ni	Confirms

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CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

22	F3847-13	ME4303	SAM	09/22/14 18:24	Report 10X for Fe,Ni	Confirms
23	F3847-08A	ME4300A	PS	09/22/14 18:28	Not required	Not Ok
24	F3976-04A	MB0AD7A	PS	09/22/14 18:32	PS for Sb,Mn	OK
25	F3939-08A	MC0AK1A	PS	09/22/14 18:36	PS for Cr	OK
26	PB78988BL	PBS01	MB	09/22/14 18:40		OK
27	PB78988BS	LCS01	LCS	09/22/14 18:44		OK
28	F3940-01	MC0AD4	SAM	09/22/14 18:48		OK
29	F3940-02	MC0AD5	SAM	09/22/14 18:52		OK
30	F3940-03	MC0AD6	SAM	09/22/14 18:56		OK
31	F3940-04	MC0AD7	SAM	09/22/14 19:00		OK
32	F3940-05	MC0AD7D	DUP	09/22/14 19:04		OK
33	F3940-06	MC0AD7S	MS	09/22/14 19:08	MS fail for Sb(Below RL)	OK
34	F3940-04L	MC0AD7L	SD	09/22/14 19:12	SD fail for Cd	OK
35	CCV68	CCV68	CCV	09/22/14 19:16		OK
36	CCB68	CCB68	CCB	09/22/14 19:20		OK
37	F3940-07	MC0AD8	SAM	09/22/14 19:24		OK
38	F3940-08	MC0AD9	SAM	09/22/14 19:28		OK
39	F3940-09	MC0AE0	SAM	09/22/14 19:32		OK
40	F3940-10	MC0AE1	SAM	09/22/14 19:36		OK
41	F3940-11	MC0AE2	SAM	09/22/14 19:40		OK
42	F3940-12	MC0AE3	SAM	09/22/14 19:44		OK
43	F3940-13	MC0AE4	SAM	09/22/14 19:48		OK
44	F3940-14	MC0AE5	SAM	09/22/14 19:52		OK

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ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

45	F3940-15	MC0AE6	SAM	09/22/14 19:56		OK
46	F3940-16	MC0AE7	SAM	09/22/14 20:00		OK
47	F3940-17	MC0AE8	SAM	09/22/14 20:04		OK
48	F3940-18	MC0AE9	SAM	09/22/14 20:08		OK
49	F3940-19	MC0AF0	SAM	09/22/14 20:12		OK
50	F3940-20	MC0AG4	SAM	09/22/14 20:16		OK
51	F3940-21	MC0AG5	SAM	09/22/14 20:20		OK
52	F3940-22	MC0AG6	SAM	09/22/14 20:24		OK
53	PB79101BL	PBW01	MB	09/22/14 20:28		OK
54	PB79101BS	LCS01	LCS	09/22/14 20:32		OK
55	F4000-01	MC0J90	SAM	09/22/14 20:36	CCV fail for Se,Ba,Ag,Zn	Not Ok
56	F4000-02	MC0J90D	DUP	09/22/14 20:40	CCV fail for Se,Ba,Ag,Zn	Not Ok
57	CCV69	CCV69	CCV	09/22/14 20:44		OK
58	CCB69	CCB69	CCB	09/22/14 20:48		OK
59	F4000-03	MC0J90S	MS	09/22/14 20:52	CCV fail for Se,Ba,Ag,Zn	Not Ok
60	F4000-01L	MC0J90L	SD	09/22/14 20:56	CCV fail for Se,Ba,Ag,Zn	Not Ok
61	F4000-04	MC0J92	SAM	09/22/14 21:00	CCV fail for Se,Ba,Ag,Zn	Not Ok
62	F4000-05	MC0J94	SAM	09/22/14 21:04	CCV fail for Se,Ba,Ag,Zn	Not Ok
63	F4000-06	MC0J96	SAM	09/22/14 21:08	CCV fail for Se,Ba,Ag,Zn	Not Ok
64	F4000-07	MC0J98	SAM	09/22/14 21:13	CCV fail for Se,Ba,Ag,Zn	Not Ok
65	F4000-08	MC0JA0	SAM	09/22/14 21:17	CCV fail for Se,Ba,Ag,Zn	Not Ok
66	F4000-09	MC0JA2	SAM	09/22/14 21:21	CCV fail for Se,Ba,Ag,Zn	Not Ok
67	PB79099BL	PBW01	MB	09/22/14 21:25	CCV fail for Se,Ba,Ag,Zn	Not Ok

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ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

68	PB79099BS	LCS01	LCS	09/22/14 21:29	CCV fail for Se,Ba,Ag,Zn	Not Ok
69	F3884-01	MBBRC1	SAM	09/22/14 21:33	CCV fail for Se,Ba,Ag,Zn	Not Ok
70	F3884-02	MBBRC2	SAM	09/22/14 21:37	CCV fail for Se,Ba,Ag,Zn	Not Ok
71	F3884-03	MBBRC3	SAM	09/22/14 21:41	CCV fail for Se,Ba,Ag,Zn	Not Ok
72	F3884-04	MBBRC3D	DUP	09/22/14 21:45	CCV fail for Se,Ba,Ag,Zn	Not Ok
73	F3884-05	MBBRC3S	MS	09/22/14 21:49	CCV fail for Se,Ba,Ag,Zn	Not Ok
74	F3884-03L	MBBRC3L	SD	09/22/14 21:53	CCV fail for Se,Ba,Ag,Zn	Not Ok
75	F3884-06	MBBRC4	SAM	09/22/14 21:57	CCV fail for Se,Ba,Ag,Zn	Not Ok
76	F3884-07	MBBRC5	SAM	09/22/14 22:01	CCV fail for Se,Ba,Ag,Zn	Not Ok
77	F3884-08	MBBRC6	SAM	09/22/14 22:06	CCV fail for Se,Ba,Ag,Zn	Not Ok
78	F3884-09	MBBRC7	SAM	09/22/14 22:10	CCV fail for Se,Ba,Ag,Zn	Not Ok
79	CCV70	CCV70	CCV	09/22/14 22:14	Fail for Se,Ba,Ag,Zn	OK
80	CCB70	CCB70	CCB	09/22/14 22:18		OK
81	F3884-10	MBBRC8	SAM	09/22/14 22:22	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
82	F3884-11	MBBRC9	SAM	09/22/14 22:26	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
83	F3884-12	MBBRD0	SAM	09/22/14 22:30	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
84	F3884-13	MBBRD1	SAM	09/22/14 22:34	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
85	F3884-14	MBBRD2	SAM	09/22/14 22:38	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
86	F3884-15	MBBRD3	SAM	09/22/14 22:42	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
87	F3978-07	MB0AA3	SAM	09/22/14 22:46	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
88	F3978-08	MB0AA4	SAM	09/22/14 22:50	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
89	F3978-09	MB0AA4D	DUP	09/22/14 22:54	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
90	F3978-10	MB0AA4S	MS	09/22/14 22:58	CCV fail for Se,Ba,Ag,K,Zn	Not Ok

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ICAL Standard	MP23668,MP23661,MP23662,MP23664,MP23665,MP23666,MP23667
ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

91	F3978-08L	MB0AA4L	SD	09/22/14 23:02	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
92	F3978-11	MB0AA5	SAM	09/22/14 23:06	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
93	F3978-15	MB0AA6	SAM	09/22/14 23:10	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
94	F3978-20	MB0AR4	SAM	09/22/14 23:14	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
95	PB79102BL	PBS01	MB	09/22/14 23:18	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
96	PB79102BS	LCS01	LCS	09/22/14 23:22	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
97	F3978-01	MB0AR2	SAM	09/22/14 23:27	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
98	F3978-02	MB0AA0	SAM	09/22/14 23:31	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
99	F3978-03	MB0AA1	SAM	09/22/14 23:35	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
100	F3978-04	MB0AA1D	DUP	09/22/14 23:39	CCV fail for Se,Ba,Ag,K,Zn	Not Ok
101	CCV71	CCV71	CCV	09/22/14 23:43	Fail for Se,Ba,K,Ag,Zn	OK
102	CCB71	CCB71	CCB	09/22/14 23:47		OK
103	F3978-05	MB0AA1S	MS	09/22/14 23:51	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
104	F3978-03L	MB0AA1L	SD	09/22/14 23:55	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
105	F3978-06	MB0AA2	SAM	09/22/14 23:59	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
106	F3978-12	MB0AA9	SAM	09/23/14 00:03	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
107	F3978-13	MB0AB0	SAM	09/23/14 00:07	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
108	F3978-14	MB0AB1	SAM	09/23/14 00:11	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
109	F3978-16	MB0AB2	SAM	09/23/14 00:15	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
110	F3978-17	MB0AB2D	DUP	09/23/14 00:19	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
111	F3978-18	MB0AB2S	MS	09/23/14 00:23	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
112	F3978-16L	MB0AB2L	SD	09/23/14 00:27	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok
113	F3978-19	MB0AB3	SAM	09/23/14 00:31	CCV fail for Se,Ba,Ca,Cu,Mn,Ag,K,V,Zn	Not Ok

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ICV Standard	MP23658
CCV Standard	MP23663
ICSA Standard	MP23642,MP23643
CRI Standard	
Chk Standard	MP23655,MP23656

114	CCV72	CCV72	CCV	09/23/14 00:35	Barium, Calcium, Copper, Manganese, Silver, Y	OK
115	CCB72	CCB72	CCB	09/23/14 00:39		OK

Prep Standard - Chemical Standard Summary

Order ID : F3939

Test : Metals CLP Full

Prepbatch ID : PB78987

Sequence ID/Qc Batch ID: LB72859

Standard ID :
MP23410,MP23642,MP23639,MP23643,MP23655,MP23656,MP23658,MP23654,MP23659,MP23660,MP23661,MP23662,MP23663,MP23664,MP23665,MP23666,MP23667,MP23668,MP23410,MP23639,MP23642,MP23643,MP23654,MP23655,MP23656,MP23658,MP23659,MP23660,MP23661,MP23662,MP23663,MP23664,MP23665,MP23666,MP23667,MP23668,

Chemical ID :
M3245,M3207,M3218,M2942,V1456,M3215,M3047,W1152,M3218,M3227,M3057,M3156,M2988,M2961,M3081,M3187,M3242,M3240,M2782,M3151,M3096,M3099,M3100,M3102,M3115,M3224,M2979,M3112,M3124,M3122,M3110,M3185,M3225,M2975,M2991,M3113,M3118,M3098,M3117,M3106,M3121,M3101,M3097,M3108,M2987,M3111,M3104,M3123,M2962,M3145,M3148,M2782,M2942,M2961,M2962,M2975,M2979,M2987,M2988,M2991,M3047,M3057,M3081,M3096,M3097,M3098,M3099,M3100,M3101,M3102,M3104,M3106,M3108,M3110,M3111,M3112,M3113,M3115,M3117,M3118,M3121,M3122,M3123,M3124,M3145,M3148,M3151,M3156,M3185,M3187,M3207,M3215,M3218,M3224,M3225,M3227,M3240,M3242,M3245,V1456,W1152,

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
169	1:1HNO3	MP23410	09/02/2014	03/02/2015	BHUPENDRA

FROM 1250.000ml of M3215 + 1250.000ml of V1456 = Final Quantity: 2500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23639	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
904	ICP AES ICSA SOLN	MP23642	09/17/2014	09/30/2014	BIN

FROM 25.000ml of M3047 + 225.000ml of MP23639 = Final Quantity: 250.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
905	ICP AES ICSAB SOLN	MP23643	09/17/2014	09/30/2014	BIN

FROM 25.000ml of M3047 + 25.000ml of M3057 + 200.000ml of MP23639 = Final Quantity: 250.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23654	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
903	ICP AES RINSE SOLN	MP23655	09/17/2014	09/30/2014	BIN

FROM 200.000ml of M3227 + 9800.000ml of W1152 = Final Quantity: 10000.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
919	ICP AES INTERNAL STD	MP23656	09/17/2014	09/30/2014	BIN

FROM 1.000ml of M2988 + 10.000ml of M3156 + 1969.000ml of W1152 + 20.000ml of M3227 = Final Quantity: 2000.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
2054	ICV-ICPAES	MP23658	09/17/2014	09/30/2014	BIN

FROM 0.500ml of M2961 + 0.500ml of M3187 + 10.000ml of M3081 + 89.000ml of MP23654 = Final Quantity: 100.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
921	ICPAES SPIKE SOL#6	MP23659	09/17/2014	09/30/2014	BIN

FROM 10.000ml of M3240 + 10.000ml of M3242 + 80.000ml of MP23654 = Final Quantity: 100.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
994	ICPAES ISM01.2 S1 (CONC.)	MP23660	09/17/2014	09/30/2014	BIN

FROM 0.100ml of M3100 + 0.100ml of M3112 + 0.100ml of M3115 + 0.140ml of M2987 + 0.200ml of M2979 + 0.200ml of M2991 + 0.200ml of M3096 + 0.200ml of M3102 + 0.200ml of M3106 + 0.200ml of M3110 + 0.200ml of M3122 + 0.300ml of M2975 + 0.300ml of M3187 + 0.400ml of M2782 + 0.500ml of M3108 + 0.500ml of M3124 + 0.700ml of M3098 + 0.800ml of M3113 + 1.000ml of M3104 + 1.000ml of M3185 + 1.200ml of M3123 + 1.200ml of M3151 + 10.000ml of M3118 + 10.000ml of M3121 + 10.000ml of M3224 + 10.000ml of M3225 + 2.000ml of M3097 + 2.000ml of M3101 + 2.000ml of M3111 + 2.000ml of M3117 + 4.000ml of M3099 + 37.360ml of MP23654 = Final Quantity: 100.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1003	ICPAES ISM01.2 S1	MP23661	09/17/2014	09/18/2014	BIN

FROM 1.000ml of MP23660 + 199.000ml of MP23654 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1004	ICPAES ISM01.2 (S5)	MP23662	09/17/2014	09/30/2014	BIN

FROM 0.375ml of M3100 + 18.750ml of M2975 + 18.750ml of M3118 + 18.750ml of M3121 + 18.750ml of M3123 + 20.625ml of M3124 + 21.750ml of M2782 + 21.750ml of M2979 + 21.750ml of M3122 + 30.000ml of M3110 + 33.750ml of M3224 + 33.750ml of M3225 + 7.500ml of M2962 + 7.500ml of M3097 + 7.500ml of M3101 + 7.500ml of M3145 + 7.500ml of M3148 + 7.500ml of M3151 + 7.500ml of M3185 + 7.500ml of M3187 + 431.250ml of MP23654 = Final Quantity: 750.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1119	ICPAES ISM01.2(CCV)	MP23663	09/17/2014	09/30/2014	BIN

FROM 12.250ml of M2782 + 12.500ml of M3121 + 12.500ml of M3122 + 7.500ml of M3224 + 7.500ml of M3225 + 197.750ml of MP23654 + 250.000ml of MP23662 = Final Quantity: 500.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1005	ICPAES ISM01.2(S4)	MP23664	09/17/2014	09/30/2014	BIN

FROM 100.000ml of MP23654 + 100.000ml of MP23662 = Final Quantity: 200.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1007	ICPAES ISM01.2(S3)	MP23665	09/17/2014	09/30/2014	BIN

FROM 150.000ml of MP23654 + 50.000ml of MP23662 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
1008	ICPAES ISM01.2(S2)	MP23666	09/17/2014	09/30/2014	BIN

FROM 175.000ml of MP23654 + 25.000ml of MP23662 = Final Quantity: 200.000 ml

STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
2480	ICP AES STD 6 ISM01.3	MP23667	09/17/2014	09/30/2014	BIN

FROM 16.000ml of M2782 + 16.000ml of M3121 + 16.000ml of M3122 + 16.000ml of M3224 + 16.000ml of M3225 + 120.000ml of MP23654 = Final Quantity: 200.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration D	Prepared By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP23668	09/17/2014	09/30/2014	BIN

FROM 125.000ml of M3218 + 2350.000ml of W1152 + 25.000ml of M3227 = Final Quantity: 2500.000 ml

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58113 / Aluminum (Al) 10,000PPM	082812	08/28/2015	12/28/2012 / Janet	12/28/2012 / Janet	M2782

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Labpure	0919120 / Boiling Stones	4368-7F031	08/22/2018	08/22/2013 / bhupendra	08/22/2013 / bhupendra	M2942

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CHEM-QC-4 / CHEM-QC-4, Second Source, 1000 ug/ml, B, Mo, Si, Sn, Ti	F2-MEB452072	10/01/2014	09/03/2013 / aesha	08/26/2013 / aesha	M2961

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	G2-MEB491013	10/01/2014	09/03/2013 / aesha	08/26/2013 / aesha	M2962

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58025 / Manganese, Mn, 500 ml, 1000 PPM	070313	07/03/2016	09/25/2013 / jaswal	09/25/2013 / jaswal	M2975

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58024 / Chromium, Cr, 500 ml, 1000 PPM	072913	07/29/2016	09/25/2013 / jaswal	09/25/2013 / jaswal	M2979

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSNCL1-1 / TIN/HCL 125mL 1000ug/mL	G2-SN02062	11/01/2014	10/21/2013 / BIN	10/18/2013 / BIN	M2987

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	F2-Y02004	11/01/2014	10/21/2013 / BIN	10/18/2013 / BIN	M2988

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57042 / Molybdeum, Mo, 100 ml, 1000 PPM	080913	08/09/2016	10/30/2013 / BIN	09/25/2013 / BIN	M2991

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3047

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3057

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV1-0307	10/09/2014	09/02/2014 / BIN	10/09/2013 / jaswal	M3081

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGAS1-1 / ARSENIC 125mL 1000ug/mL	G2-AS02102	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3096

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGS1-1 / SULFUR 125mL 1000ug/mL	G2-S02007	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3097

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSE(4)1-1 / SELENIUM 125mL 1000ug/mL	E2-SE02033	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3098

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGBA1-1 / BARIUM 125mL 1000ug/mL	F2-BA02076	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3099

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGBE1-1 / BERYLLIUM 125mL 1000ug/mL	F2-BE02021	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3100

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSR1-1 / Strontium, 125 ml, 1000 PPM	F2-SR02036	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3101

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGB1-1 / BORON 125mL 1000ug/mL	F2-B02109	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3102

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGV1-1 / VANADIUM 125mL 1000ug/mL	G2-V02081	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3104

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGAG1-1 / SILVER 125mL 1000ug/mL	G2-AG03035	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3106

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTL1-1 / THALLIUM 125mL 1000ug/mL	F2-TL02003	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3108

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGPB1-1 / LEAD 125mL 1000ug/mL	G2-PB03044	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3110

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	F2-TI02094	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3111

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCO1-1 / COBALT 125mL 1000ug/mL	F2-CO02052	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3112

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGNI1-1 / NICKEL 125mL 1000ug/mL	G2-NI02086	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3113

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCD1-1 / CADMIUM, 125mL 1000ug/mL	G2-CD02043	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3115

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSI1-1 / SILICON 125mL 1000ug/mL	G2-SI03023	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3117

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGK10-5 / Potassium, 500 ml, 10000 PPM	F2-K03033	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3118

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGNA10-5 / Sodium, 500 ml, 10000 PPM	G2-NA03110	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3121

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGFE10-5 / Iron, 500 ml, 10000 PPM	G2-FE04029	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3122

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGZN1-5 / Zinc, 500 ml, 1000 PPM	F2-ZN02088	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3123

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCU1-5 / Copper, 500 ml, 1000 PPM	F2-CU02147	02/01/2015	01/24/2014 / jaswal	01/17/2014 / jaswal	M3124

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	G2-MEB479124	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3145

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-CAL-3 / CLP CAL SOLUTION #3, 125mL	G2-MEB467069	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3148

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGSBF1-1 / Antimony, Sb, 125 ml	G2-SB03021	04/01/2015	03/04/2014 / jaswal	02/28/2014 / jaswal	M3151

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGIN10-1 / INDIUM 125mL 10,000ug/mL	F2-IN01095	04/01/2015	03/07/2014 / jaswal	03/07/2014 / jaswal	M3156

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57003 / Lithium, Li, 100 ml, 1000 PPM	122713	12/27/2016	05/19/2014 / BIN	05/09/2014 / jaswal	M3185

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGP1-1 / Phosphorus, 125 ml	G2-P02048	06/01/2015	09/02/2014 / BIN	05/09/2014 / jaswal	M3187

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-2186-03 / Hydrogen Peroxide (cs/4x4L)	0000064775	05/27/2015	07/15/2014 / bhupendra	07/03/2014 / bhupendra	M3207

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000077192	04/15/2019	08/22/2014 / bhupendra	08/12/2014 / bhupendra	M3215

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	0000075649	03/25/2019	09/02/2014 / BHUPENDRA	08/20/2014 / bhupendra	M3218

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGCA10-5 / Calcium, 500 ml, 10000 PPM	G2-CA04095	09/01/2015	09/02/2014 / BIN	08/12/2014 / jaswal	M3224

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGMG10-5 / Magnesium, 500 ml, 10000 PPM	G2-MG03120	09/01/2015	09/02/2014 / BIN	08/12/2014 / jaswal	M3225

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000077192	04/15/2019	09/05/2014 / bhupendra	09/03/2014 / bhupendra	M3227

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-1 / SOIL/WATER SPIKE SOLN 1, 125mL	F2-MEB427123	10/01/2015	09/05/2014 / BIN	09/05/2014 / BIN	M3240

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CLPP-SPK-5 / CLP Spike Standard 5	G2-MEB474100	10/01/2015	09/05/2014 / BIN	09/05/2014 / BIN	M3242

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	0000084115	07/01/2019	09/23/2014 / bhupendra	09/12/2014 / BHUPENDRA	M3245

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Res-Kem General water	DIW / DI Water	DAILY	12/31/2019	03/01/2010 / apatel	03/02/2010 / apatel	V1456

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Res-Kem General water	DIW / DI Water	Lab certified	02/23/2015	02/23/2010 /	02/23/2010 / divya	W1152

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Certified Reference Material CRM

ISO 9001 QS Registered
ISO 17025-34-35-[illegible] Accredited
Scopes: http://Absolute[illegible]andards.com

Standard ID : M2782

CERTIFIED WEIGHT REPORT:

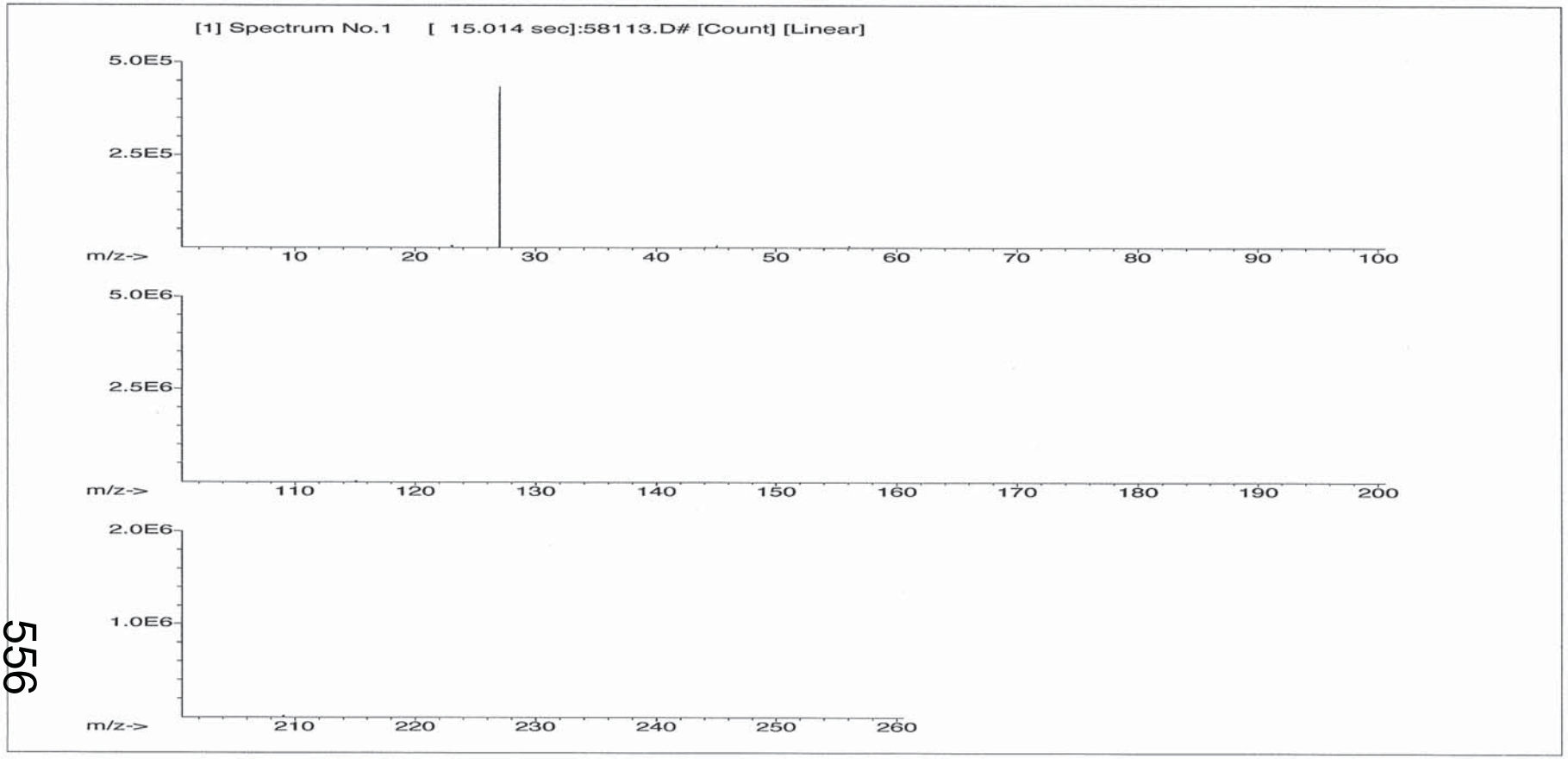
Part Number:	**58113**	DO: 12/28/12	**Solvent:**	**Lot #** C142199	Nitric Acid
Lot Number:	**082812**				
Description:	**Aluminum (Al)**	R: 12/28/12	2%	40.0 (mL)	Nitric Acid
Expiration Date:	082815				
		Storage: 20 °C			
Nominal Concentration (µg/mL):	**10000**				
		5E-05 Balance Uncertainty			
Weight shown below was diluted to (mL):	1999.68	0.100 Flask Uncertainty			

M2782

Formulated By:	Lawrence Barry	082812
Reviewed By:	Pedro L. Rentas	082812

MSDS Information
(Solvent Safety Info. On Attached pg.)

	Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity	Uncertainty Purity	Assay (%)	Target Weight (g)	Actual Weight (g)	**Actual Conc. (µg/mL)**	Expanded Uncertainty (+/-)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1.	Aluminum Nitrate Nonahydrate (Al)	IN022	D312ALA1	10000.0	99.999	0.10	7.10	281.6484	281.6803	**10001.1**	0.00200	07784-27-2	5 mg/m3	orl-rat 264 mg/kg	3101a



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INORGANIC VENTURES™
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CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
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M2961

R: 08/26/13

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Custom Second Source Solution**

Catalog No.: CHEM-QC-4

Lot Number: **F2-MEB452072**

Matrix: 3% HNO3(v/v), 2.7% HF(v/v)

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

1,000 µg/mL ea:
B, Mo, Si, Sn, Ti

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Boron, B	1,000 ± 7 µg/mL	Molybdenum, Mo	1,000 ± 6 µg/mL	Silicon, Si	1,000 ± 5 µg/mL
Tin, Sn	1,000 ± 5 µg/mL	Titanium, Ti	1,000 ± 7 µg/mL		

Certified Density: 1.033 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\sum x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2\ [\ \Sigma(s_i)^2\ ]^{½}$ 2 = the coverage factor.

$[\ \Sigma(s_i)^2\ ]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

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Standard ID : M2962

CERTIFICATE OF ANALYSIS

M2962

R: 08/26/13

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Custom Solution**

Catalog No.: CHEM-CLP-4

Lot Number: **G2-MEB491013**

Matrix: 3% HNO3(v/v), 2.7% HF(v/v)

1,000 µg/mL ea:
B, Mo, Si, Sn, Ti

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Boron, B	1,000 ± 7 µg/mL	Molybdenum, Mo	1,000 ± 5 µg/mL	Silicon, Si	1,000 ± 7 µg/mL
Tin, Sn	1,001 ± 7 µg/mL	Titanium, Ti	1,000 ± 7 µg/mL		

Certified Density: 1.035 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Absolute Standards, Inc.
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Certified Reference Material CRM

RD: 09/25/13
M2975

ISO 9001 QS Registered
ISO 17025-34-35- Accredited
Scopes: http://Absolute ndards.com

Standard ID : M2975

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58025**	C257285	Nitric Acid	
Lot Number:	**070313**			
Description:	**Manganese (Mn)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	070316			
	Storage: 20 °C			
Nominal Concentration (µg/mL):	**1000**			
		5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty	

Gabriel Helland

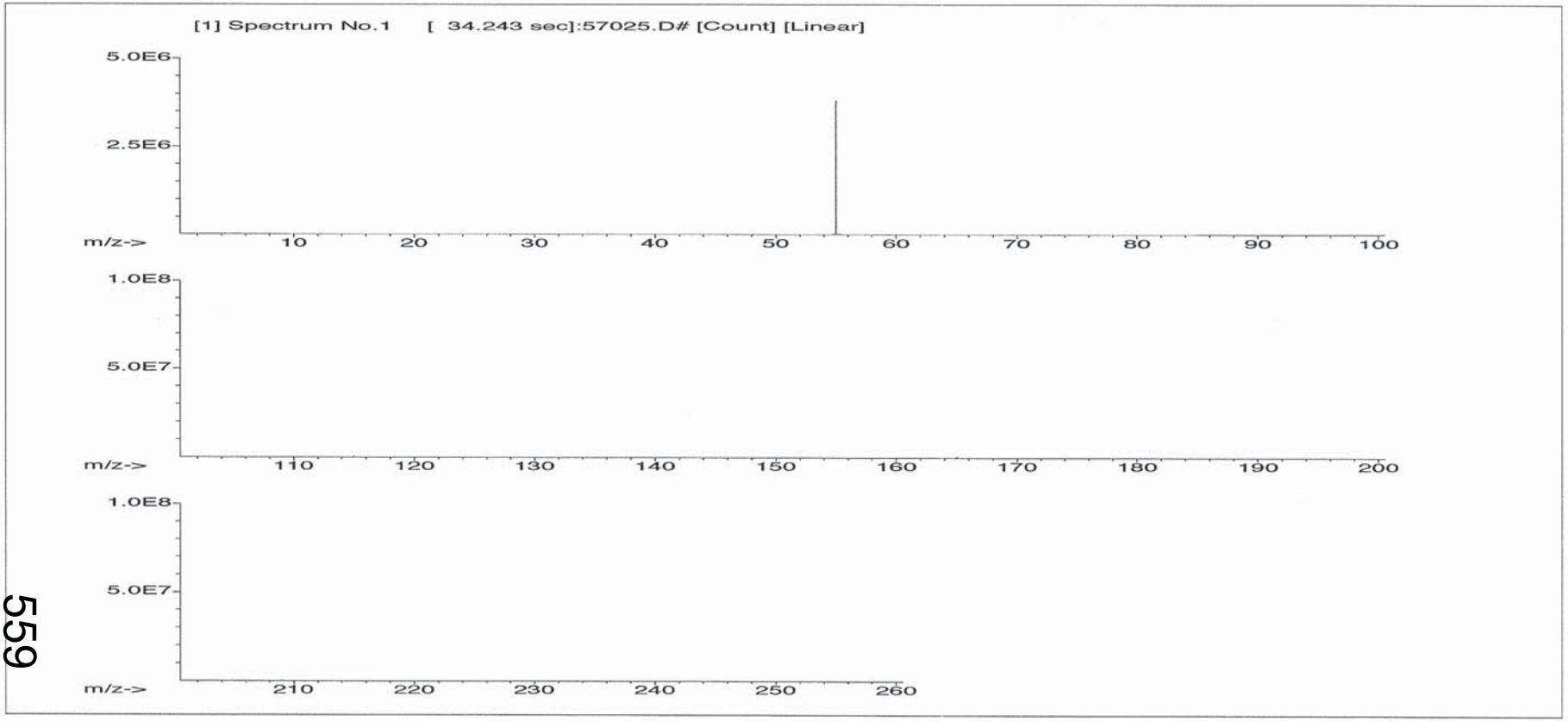
Formulated By:	Gabriel Helland	070313

Pedro Rentas

Reviewed By:	Pedro L. Rentas	070313

MSDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	ty Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Manganese (II) nitrate Hydrate (Mn)	58125	122712	0.1000	200.0	0.013	10000.9	**1000.2**	0.00201	15710-66-4	5 mg/m3	N/A	3132



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Absolute Standards, Inc.
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Certified Reference Material CRM

RD: 09/25/13
M2979

ISO 9001 QS Registered
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Scopes: http://Absolute[illegible]andards.com

Standard ID : M2979

CERTIFIED WEIGHT REPORT:

			Lot #	Solvent:	
Part Number:	**58024**		C257285	Nitric Acid	
Lot Number:	**072913**				
Description:	**Chromium (Cr)**				
			2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	072916				
	Storage:	20 °C			
Nominal Concentration (µg/mL):	**1000**				
		5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty		

Gabriel Helland

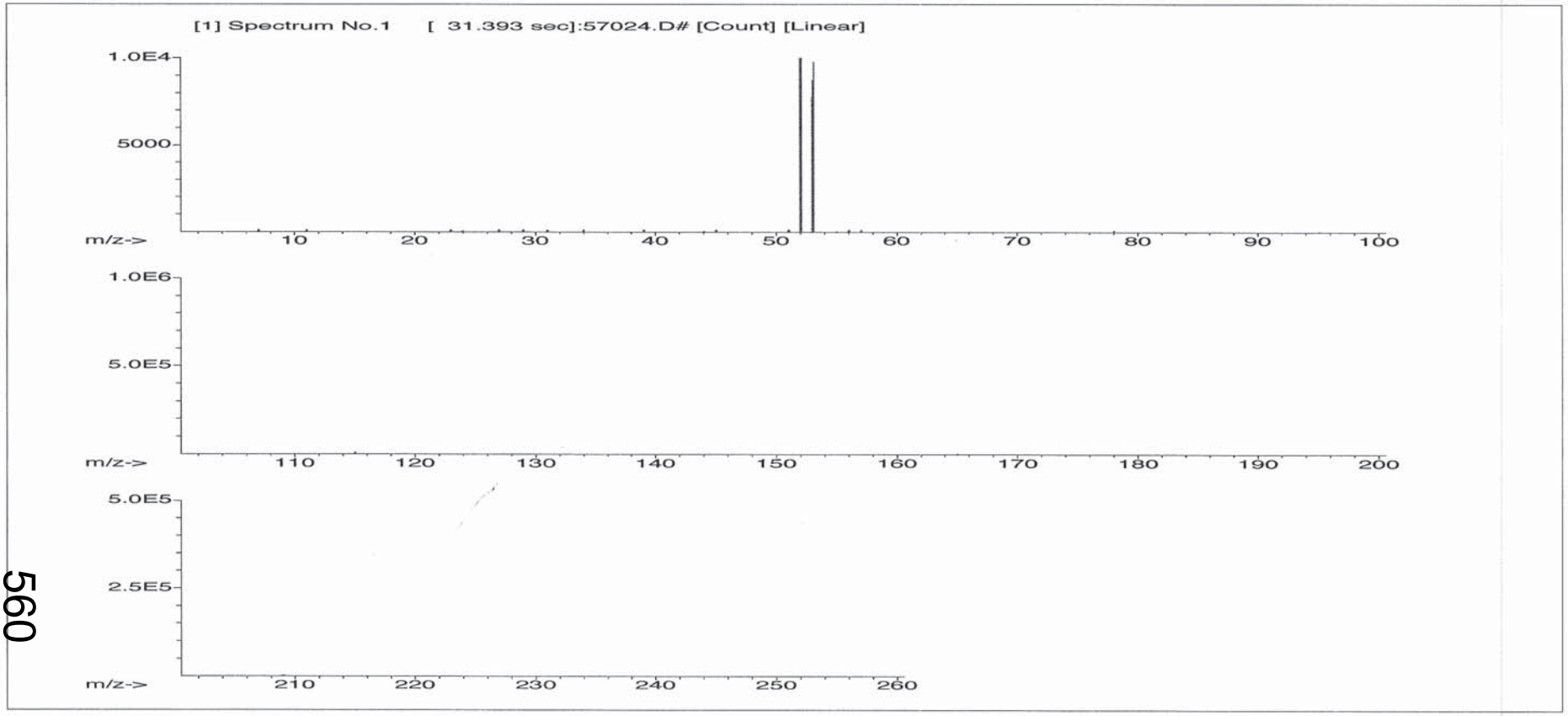
Formulated By:	Gabriel Helland	072913

Pedro Rentas

Reviewed By:	Pedro L. Rentas	072913

MSDS Information
(Solvent Safety Info. On Attached pg.)

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	**Final Conc. (µg/mL)**	Expanded Uncertainty (+/-)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Chromium (III) nitrate nonahydrate (Cr)	58124	022213	0.100	200.0	0.013	10000.9	**1000.2**	0.00201	07789-02-8	0.5 mg(Cr)/m3	orl-rat 3250 mg/kg	3112a



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M2987

Standard ID : M2987

RV: 10/18/2013

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CERTIFICATE OF ANALYSIS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Tin HCl in 20% (v/v) HCl**

Catalog Number:	CGSNCL1-1, CGSNCL1-2, and CGSNCL1-5
Lot Number:	**G2-SN02062**
Starting Material:	Sn shot
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1744
Matrix:	20% (v/v) HCl

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 3 µg/mL -weighted mean-
Certified Density:	1.042 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

RD : 10/18/2013

Standard ID : M2988

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CERTIFICATE OF ANALYSIS

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2.0 **DESCRIPTION OF CRM** **10000 µg/mL Yttrium in 2% (v/v) HNO3**

Catalog Number:	CGY10-1, CGY10-2, and CGY10-5
Lot Number:	**F2-Y02004**
Starting Material:	Y2O3
Starting Material Purity (%):	99.9999
Starting Material Lot No:	0623052
Matrix:	2% (v/v) HNO3

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration:	10,006 ± 53 µg/mL - weighted mean
Certified Density:	1.034 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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M2991

RD : 09/25/13

Certified Reference Material CRM

ISO 9001 QS R
ISO 17025 24-35-43 A
Scopes: http:/ soluteStan

Standard ID : M2991

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:
Part Number:	**57042**	Y47057	Ammonium hydroxide
Lot Number:	**080913**		
Description:	**Molybdenum (Mo)**		
		0.5%	10.0 (mL) Ammonium hydroxide
Expiration Date:	080916		
	Storage: 20 °C		
Nominal Concentration (µg/mL):	**1000**		
		5E-05	Balance Uncertainty
Volume shown below was diluted to (mL):	1999.68	0.100	Flask Uncertainty

Gabriel Helland

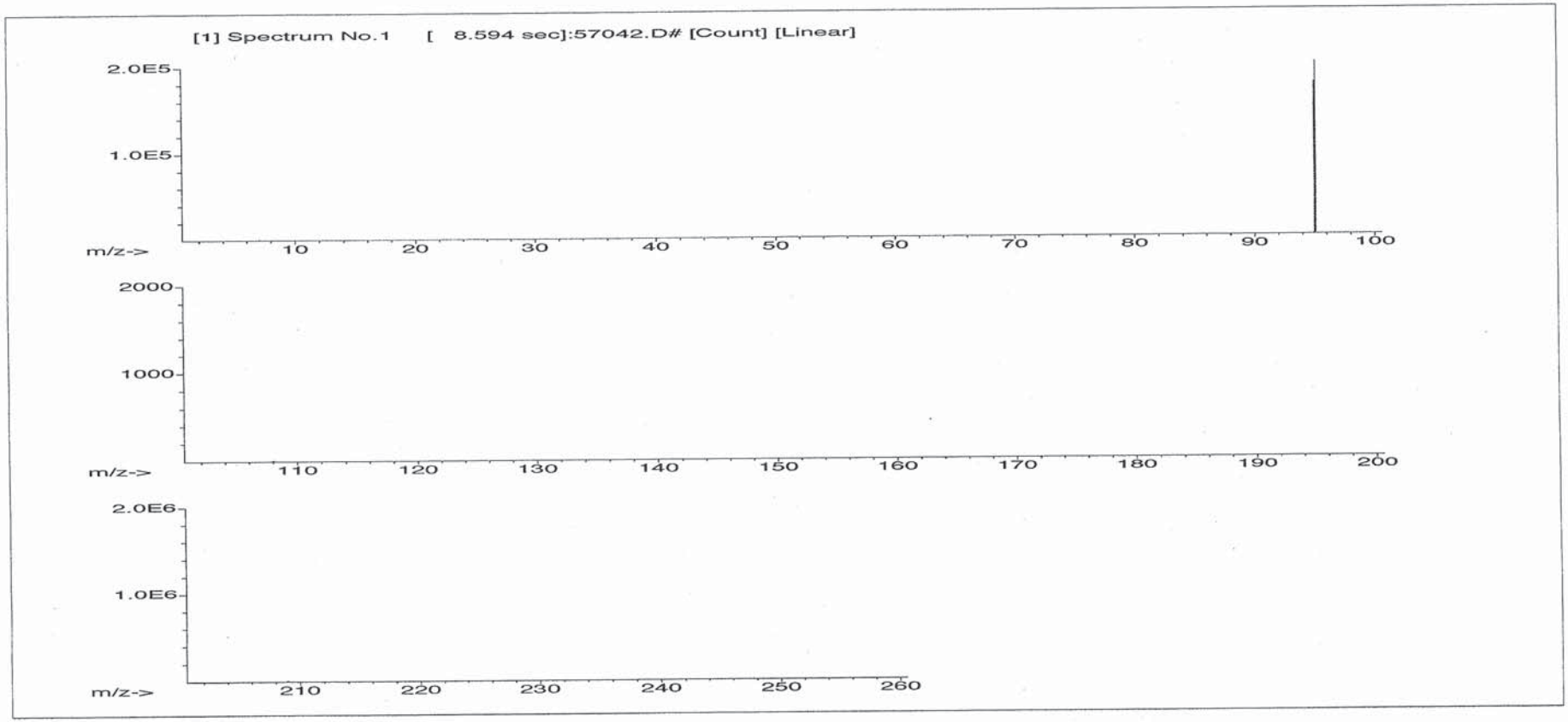
Formulated By:	Gabriel Helland	080913

Pedro Rentas

Reviewed By:	Pedro L. Rentas	080913

MSDS Information
(Solvent Safety Info. On Attached pg.)

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty (+/-)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium molybdate (Mo)	58142	072613	0.1000	200.0	0.013	10001.3	**1000.3**	0.00201	12054-85-2	5 mg(Mo)/m3	orl-rat 333 mg/kg	3134



563

interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:
ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSA solution by ICP-AES.
ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO_3. Analyze this ICSAB solution by ICP-AES.

(D) *"CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)*

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB) events, CLP pre-award events, and external referee laboratories.

ICSA M3046 ↓ to M3055

ICSB M3056 ↓ to M3065

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	254900	203920	305880	246800	197440	296160
Sb	60	(0)*	-60	60	618	494	742
As	10	(0)	-10	10	104	83	125
Ba	200	(6)	-194	206	(537)	337	737
Be	5	(0)	-5	5	495	396	594
Cd	5	(1)	-4	6	972	778	1166
Ca	5000	244500	195600	293400	234900	187920	281880
Cr	10	52	42	62	542	434	650
Co	50	(0)	-50	50	476	381	571
Cu	25	(2)	-23	27	511	409	613
Fe	100	100700	80560	120840	99320	79456	119184
Pb	10	(0)	-10	10	(49)	39	59
Mg	5000	255400	204320	306480	248000	198400	297600
Mn	15	(7)	-8	22	507	406	608
Ni	40	(2)	-38	42	954	763	1145
Se	35	(0)	-35	35	(46)	11	81
Ag	10	(0)	-10	10	201	161	241
Tl	25	(0)	-25	25	(108)	83	133
V	50	(0)	-50	50	491	393	589
Zn	60	(0)	-60	60	952	762	1142

* The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 20 percent of the listed certified value.

R: 10/09/13

Standard ID : M3081

(D) *CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS*

M3081 To M3090

ICV1-0307		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2521	504
Sb	994	199
As	999	200
Ba	497	99
Be	495	99
Cd	496	99
Ca	10026	2005
Cr	490	98
Co	499	100
Cu	492	98
Fe	5082	1016
Pb	1002	200
Mg	6074	1215
Mn	499	100
Ni	503	101
K	10021	2004
Se	1029	206
Ag	501	100
Na	10097	2019
Tl	1028	206
V	501	100
Zn	1025	205

ICV5-0508		ICV6-0400	
Element	Concentration (µg/L) (after 100-fold dilution)	Analyte	Concentration (µg/L) (after 100-fold dilution)
Hg	4.0	CN^-	99

Standard ID : M3096

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R: 01517JM

M3096-

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Arsenic in 2% (v/v) HNO3**

Catalog Number:	CGAS1-1, CGAS1-2, and CGAS1-5
Lot Number:	**G2-AS02102**
Starting Material:	As Lump
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1814
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 5 µg/mL -weighted mean-

Certified Density: 1.012 (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2);$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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R1. 01/17/14

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M3097

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2.0 DESCRIPTION OF CRM **1000 µg/mL Sulfur in H2O**

Catalog Number:	CGS1-1, CGS1-2, and CGS1-5
Lot Number:	**G2-S02007**
Starting Material:	H2SO4
Starting Material Purity (%):	100.0000
Starting Material Lot No:	H44F03
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,005 ± 5 µg/mL -weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Selenium(+4) in 2% (v/v) HNO3**

Catalog Number:	CGSE(4)1-1, CGSE(4)1-2, and CGSE(4)1-5
Lot Number:	**E2-SE02033**
Starting Material:	Se shot
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1616
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 6 µg/mL - weighted mean

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = \frac{2\,[(\Sigma s_i)^2]^{1/2}}{(n)^{1/2}}$$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
Σs_i = The summation of all significant estimated errors (Most common are the errors from instrumental measurement, weighing, dilution to volume and the fixed error reported on the NIST SRM certificate of analysis)

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

4.1	**Assay Method #1**	**1,002 ± 4 µg/mL** ICP Assay NIST SRM 3149 Lot Number: 100901
	Assay Method #2	**1,000 ± 3 µg/mL** Calculated NIST SRM Lot Number: See Sec. 4.2

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M3099-

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2.0 DESCRIPTION OF CRM **1000 µg/mL Barium in 0.1%(v/v) HNO3**

Catalog Number:	CGBA1-1, CGBA1-2, and CGBA1-5
Lot Number:	**F2-BA02076**
Starting Material:	Ba(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	BAE42012A1
Matrix:	0.1%(v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	996 ± 5 µg/mL -No weighted mean-
Certified Density:	1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$ 2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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CERTIFICATE OF ANALYSIS

M3100

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **1000 µg/mL Beryllium in 3% (v/v) HNO3**

Catalog Number:	CGBE1-1, CGBE1-2, and CGBE1-5
Lot Number:	**F2-BE02021**
Starting Material:	Be4O(OOCCH3)6
Starting Material Purity (%):	99.9999
Starting Material Lot No:	1772
Matrix:	3% (v/v) HNO3

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,003 ± 4 µg/mL - weighted mean

Certified Density: 1.022 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **1000 µg/mL Strontium in 0.1% (v/v) HNO3**

Catalog Number:	CGSR1-1, CGSR1-2, and CGSR1-5
Lot Number:	**F2-SR02036**
Starting Material:	SrCO3
Starting Material Purity (%):	99.9988
Starting Material Lot No:	1610
Matrix:	0.1% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,000 ± 5 µg/mL - weighted mean

Certified Density: 1.001 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Boron in H2O**

Catalog Number:	CGB1-1, CGB1-2, and CGB1-5
Lot Number:	**F2-B02109**
Starting Material:	H3BO3
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1631
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 999 ± 5 µg/mL -weighted mean-

Certified Density: 1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Vanadium in 2% (v/v) HNO3**

Catalog Number:	CGV1-1, CGV1-2, and CGV1-5
Lot Number:	**G2-V02081**
Starting Material:	V2O5
Starting Material Purity (%):	99.9991
Starting Material Lot No:	1782
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Silver in 5% (v/v) HNO3**

Catalog Number:	CGAG1-1, CGAG1-2, and CGAG1-5
Lot Number:	**G2-AG03035**
Starting Material:	Ag shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1641
Matrix:	5% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,002 ± 6 µg/mL -weighted mean-
Certified Density:	1.026 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Thallium in 0.7% (v/v) HNO3**

Catalog Number:	CGTL1-1, CGTL1-2, and CGTL1-5
Lot Number:	**F2-TL02003**
Starting Material:	TlNO3
Starting Material Purity (%):	99.9996
Starting Material Lot No:	1576
Matrix:	0.7% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,001 ± 5 µg/mL - weighted mean

Certified Density: 1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **1000 µg/mL Lead in 0.5%(v/v) HNO3**

Catalog Number:	CGPB1-1, CGPB1-2, and CGPB1-5
Lot Number:	**G2-PB03044**
Starting Material:	Pb(NO3)2
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1717
Matrix:	0.5%(v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 3 µg/mL -weighted mean-
Certified Density:	1.002 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Titanium in 2% (v/v) HNO3 / tr. HF**

Catalog Number:	CGTI1-1, CGTI1-2, and CGTI1-5
Lot Number:	**F2-TI02094**
Starting Material:	Ti powder
Starting Material Purity (%):	99.9948
Starting Material Lot No:	1769
Matrix:	2% (v/v) HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,000 ± 6 µg/mL - weighted mean
Certified Density:	1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\sum x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 DESCRIPTION OF CRM **1000 µg/mL Cobalt in 3% (v/v) HNO3**

Catalog Number:	CGCO1-1, CGCO1-2, and CGCO1-5
Lot Number:	**F2-CO02052**
Starting Material:	Co powder
Starting Material Purity (%):	99.9982
Starting Material Lot No:	1749
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 1,003 ± 5 µg/mL - weighted mean

Certified Density: 1.018 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 **DESCRIPTION OF CRM** **1000 µg/mL Nickel in 2% (v/v) HNO3**

Catalog Number:	CGNI1-1, CGNI1-2, and CGNI1-5
Lot Number:	**G2-NI02086**
Starting Material:	Ni pieces
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1559
Matrix:	2% (v/v) HNO3

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

Certified Concentration: 1,002 ± 4 µg/mL -weighted mean-

Certified Density: 1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$ ($\bar{x}$) = mean

x_i = individual results

n = number of measurements

Uncertainty (±) = $2 [\Sigma(s_i)^2]^{½}$ 2 = the coverage factor.

$[\Sigma(s_i)^2]^{½}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

4.1 **Assay Method #1** **1,001 ± 3 µg/mL**
ICP Assay NIST SRM 3136 Lot Number: 000612

Assay Method #2 **1,002 ± 3 µg/mL**
EDTA NIST SRM 928 Lot Number: 928

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Cadmium in 3% (v/v) HNO3**

Catalog Number:	CGCD1-1, CGCD1-2, and CGCD1-5
Lot Number:	**G2-CD02043**
Starting Material:	Cd shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1714
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,004 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements

Uncertainty (±) = $2\,[\,\Sigma(s_i)^2\,]^{1/2}$

2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Silicon in tr. HNO3 / tr. HF**

Catalog Number:	CGSI1-1, CGSI1-2, and CGSI1-5
Lot Number:	**G2-SI03023**
Starting Material:	SiO2
Starting Material Purity (%):	99.9993
Starting Material Lot No:	1551
Matrix:	tr. HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 999 ± 5 µg/mL -weighted mean-

Certified Density: 1.003 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

Standard ID : M3118

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Potassium in 2% (v/v) HNO3**

Catalog Number:	CGK10-1, CGK10-2, and CGK10-5
Lot Number:	**F2-K03033**
Starting Material:	KNO3
Starting Material Purity (%):	99.9995
Starting Material Lot No:	1727
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration: 10,022 ± 60 µg/mL - weighted mean

Certified Density: 1.025 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

$(\bar{x})$ = mean

x_i = individual results

n = number of measurements

2 = the coverage factor.

$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Sodium in 2% (v/v) HNO3**

Catalog Number:	CGNA10-1, CGNA10-2, and CGNA10-5
Lot Number:	**G2-NA03110**
Starting Material:	Na2CO3
Starting Material Purity (%):	99.9992
Starting Material Lot No:	1628
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,008 ± 17 µg/mL -weighted mean-
Certified Density:	1.033 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Iron in 5 % (v/v) HNO3**

Catalog Number:	CGFE10-1, CGFE10-2, and CGFE10-5
Lot Number:	**G2-FE04029**
Starting Material:	Fe pieces
Starting Material Purity (%):	99.9977
Starting Material Lot No:	1762
Matrix:	5 % (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	9,977 ± 24 µg/mL -weighted mean-
Certified Density:	1.035 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2)$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Zinc in 2% (v/v) HNO3**

Catalog Number:	CGZN1-1, CGZN1-2, and CGZN1-5
Lot Number:	**F2-ZN02088**
Starting Material:	Zn shot
Starting Material Purity (%):	99.9999
Starting Material Lot No:	1689
Matrix:	2% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	998 ± 5 µg/mL -weighted mean-
Certified Density:	1.011 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Copper in 3% (v/v) HNO3**

Catalog Number:	CGCU1-1, CGCU1-2, and CGCU1-5
Lot Number:	**F2-CU02147**
Starting Material:	Cu shot
Starting Material Purity (%):	100.0000
Starting Material Lot No:	1718
Matrix:	3% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	999 ± 5 µg/mL -weighted mean-
Certified Density:	1.016 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

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- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

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2.0 **DESCRIPTION OF CRM** **Stock Solution**

Catalog No.: CLPP-CAL-1

Lot Number: **G2-MEB479124**

Matrix: 5% HNO3(v/v)

5,000 µg/mL ea:
Ca, K, Mg, Na,

2,000 µg/mL ea:
Al, Ba,

1,000 µg/mL ea:
Fe,

500 µg/mL ea:
Co, Mn, Ni, V, Zn,

250 µg/mL ea:
Ag, Cu,

200 µg/mL ea:
Cr3,

50 µg/mL ea:
Be

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	2,002 ± 13 µg/mL	Barium, Ba	2,002 ± 13 µg/mL	Beryllium, Be	50.03 ± 0.28 µg/mL
Calcium, Ca	5,004 ± 35 µg/mL	Chromium+3, Cr3	200.2 ± 1.3 µg/mL	Cobalt, Co	500.5 ± 3.3 µg/mL
Copper, Cu	250.2 ± 1.6 µg/mL	Iron, Fe	1,001 ± 6 µg/mL	Magnesium, Mg	5,004 ± 33 µg/mL
Manganese, Mn	500.4 ± 3.2 µg/mL	Nickel, Ni	500.5 ± 3.3 µg/mL	Potassium, K	5,004 ± 22 µg/mL
Silver, Ag	250.2 ± 1.6 µg/mL	Sodium, Na	5,004 ± 33 µg/mL	Vanadium, V	500.4 ± 3.4 µg/mL
Zinc, Zn	500.4 ± 3.3 µg/mL				

Certified Density: 1.117 g/mL (measured at 20 ± 1° C)

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ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM**

	Stock Solution
Catalog No.:	CLPP-CAL-3
Lot Number:	**G2-MEB467069**
Matrix:	7% HNO3(v/v)

1,000 µg/mL ea:
As, Pb, Se, Tl,

500 µg/mL ea:
Cd

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Arsenic, As	1,000 ± 7 µg/mL	Cadmium, Cd	500.0 ± 3.2 µg/mL	Lead, Pb	1,000 ± 7 µg/mL
Selenium, Se	1,000 ± 7 µg/mL	Thallium, Tl	1,000 ± 7 µg/mL		

Certified Density: 1.043 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

$$\text{Certified Value } (\bar{x}) = \frac{\Sigma x_i}{n}$$

$$\text{Uncertainty } (\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$$

$(\bar{x})$ = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 **TRACEBILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS**

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

Standard ID : M3151

R: 2/22/14

CERTIFICATE OF ANALYSIS

M3151

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

M3151

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **1000 µg/mL Antimony in HF in 2% (v/v) HNO3 / tr. HF**

Catalog Number:	CGSBF1-1, CGSBF1-2, and CGSBF1-5
Lot Number:	**G2-SB03021**
Starting Material:	Sb shot
Starting Material Purity (%):	99.9997
Starting Material Lot No:	1647
Matrix:	2% (v/v) HNO3 / tr. HF

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,006 ± 5 µg/mL -No weighted mean-
Certified Density:	1.010 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods	Characterization of CRM by one method
Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$ X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$. **w_a and w_b** = The weighting factors for each method calculated using the inverse square of the variance: $w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$; $w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$ **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).	**Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:** X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$. **CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{½}$** $U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; **k**, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

INORGANIC VENTURES™
300 Technology Drive
Standard ID : M3156 urg, VA 24073 · USA
inorganicventures.com

R: 03/07/14

CERTIFICATE OF ANALYSIS

M3156 TO M3160

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM **10000 µg/mL Indium in 5% (v/v) HNO3**

Catalog Number:	CGIN10-1, CGIN10-2, and CGIN10-5
Lot Number:	**F2-IN01095**
Starting Material:	In shot
Starting Material Purity (%):	99.9998
Starting Material Lot No:	1775, 1777
Matrix:	5% (v/v) HNO3

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	10,050 ± 51 µg/mL -weighted mean-
Certified Density:	1.033 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{1/2}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements
2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{1/2}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

· "Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties." (ISO VIM, 2nd ed., 1993, definition 6.10)

· This product is Traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRMs are available, the term 'in-house std.' is specified.

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a NIST SRM/RM. See section 4.2 for balance traceability.

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M3185

R : 05/08/14

ISO 9001 QS Registered
ISO 17025-34-35-43 Accredited
Scopes: http://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57003**	C363101	Nitric Acid	
Lot Number:	**122713**			
Description:	**Lithium (Li)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	122716			
Storage:	20 °C			
Nominal Concentration (µg/mL):	**1000**			
	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	1999.98	0.090	Flask Uncertainty	

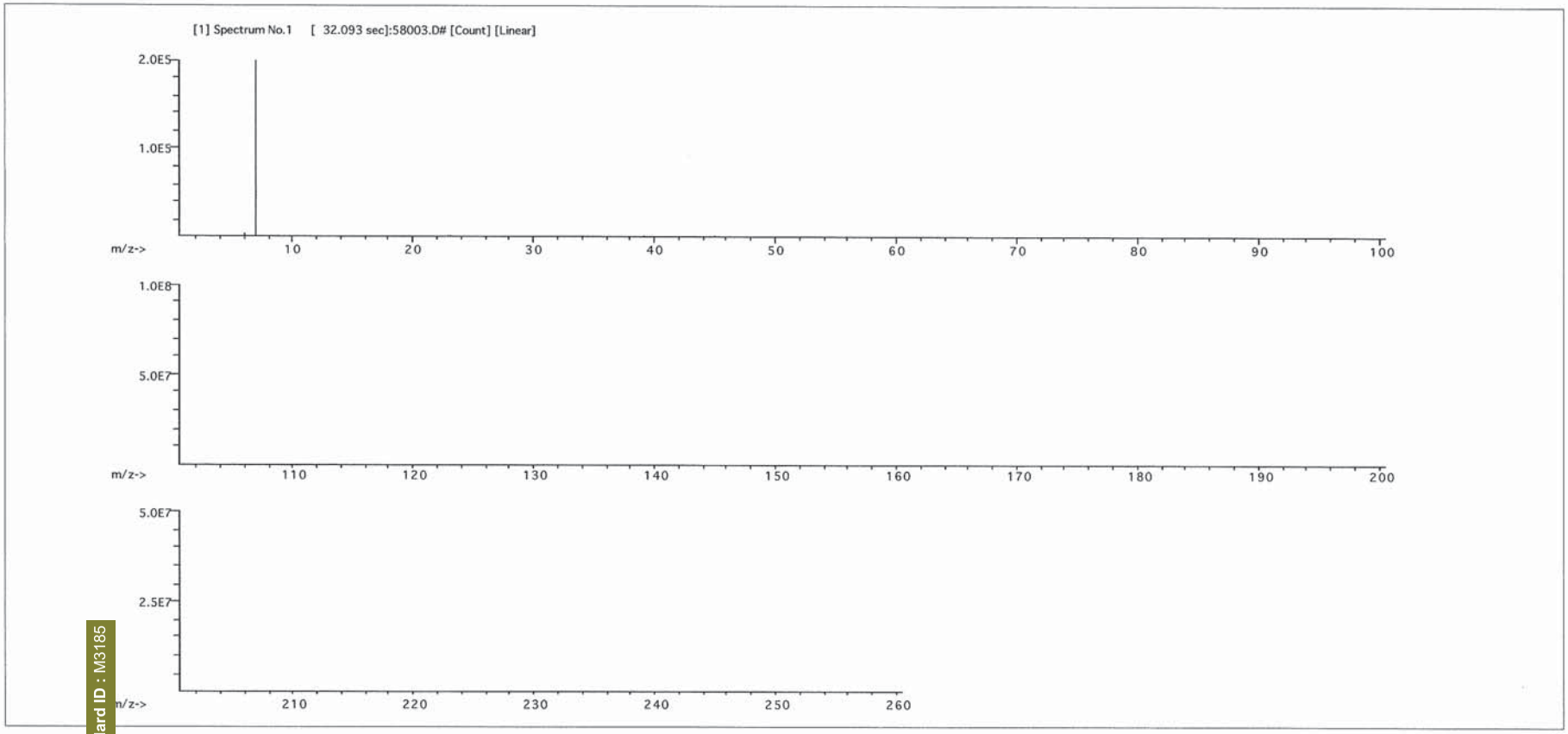
Gabriel Helland

Formulated By:	Gabriel Helland	122713

Pedro Rentas

Reviewed By:	Pedro L. Rentas	122713

Compound	Part Number	Lot Number	Dilution Factor	Initial Volume	Uncertainty Pipette	Initial Conc. (µg/mL)	**Final Conc. (µg/mL)**	Expanded Uncertainty (+/-)	MSDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lithium nitrate (Li)	58103	111412	0.1000	200.0	0.013	10001.5	**1000.2**	0.00201	07790-69-4	5 mg/m3	N/A	N/A



Standard ID : M3185

INORGANIC VENTURES™

Standard ID : M3187

R: 05/09/19

CERTIFICATE OF ANALYSIS

M3187

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 DESCRIPTION OF CRM

1000 µg/mL Phosphorus in H2O

Catalog Number:	CGP1-1, CGP1-2, and CGP1-5
Lot Number:	**G2-P02048**
Starting Material:	H3PO4
Starting Material Purity (%):	99.9997
Starting Material Lot No:	1704
Matrix:	H2O

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Concentration:	1,001 ± 4 µg/mL -weighted mean-
Certified Density:	1.000 g/mL (measured at 20 ± 1°C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence interval using a coverage factor of k = 2.

Characterization of CRM by two independent methods

Certified Value, X_{CRM}, where two methods of characterization are used, is the weighted mean of the two results = $[(w_a)(X_a) + (w_b)(X_b)]$

X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

X_b is the mean of Assay Method B with standard uncertainty $U_{char\ b}$.

w_a and w_b = The weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/U_{char\ a})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2));$$

$$w_b = (1/U_{char\ b})^2 / ((1/U_{char\ a})^2 + (1/U_{char\ b})^2))$$

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a\&b} = [(w_a)^2 (U_{char\ a})^2 + (w_b)^2 (U_{char\ b})^2]^{0.5}$; $U_{char\ a}$ and $U_{char\ b}$ are the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

Characterization of CRM by one method

Certified Value, X_{CRM}, where one method of characterization is used, is the mean of individual results:

X_a = Mean X_a is the mean of Assay Method A with standard uncertainty $U_{char\ a}$.

CRM Expanded Uncertainty (±) = $U_{CRM} = k\ (U^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{sts})^{1/2}$

$U_{char\ a}$ is the square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume; k, coverage factor = 2 in all cases at Inorganic Ventures; u_{bb} = bottle to bottle homogeneity standard uncertainty; u_{lts} = long term stability standard uncertainty (storage); u_{sts} = short term stability standard uncertainty (transportation).

4.0 TRACEABILITY TO NIST AND VALUES OBTAINED BY INDEPENDENT METHODS

Standard ID : M3207

Hydrogen Peroxide, 30%
BAKER ANALYZED® A.C.S. Reagent
(Stabilized)

M3207.
Received Date 7/3/14
Exp. Date 5/27/15 7/3/14.

Material No.: 2186-03
Batch No.: 0000064775
Manufactured Date: 2013/11/26
Expiration Date: 2015/05/27

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay (H_2O_2)	30.0 - 32.0 %	31.7
Color (APHA)	<= 10	5
Residue after Evaporation	<= 0.0020 %	0.0002
Titrable Acid (meq/g)	<= 0.0006	< 0.0001
Chloride (Cl)	<= 3 ppm	< 1
Nitrate (NO_3)	<= 2 ppm	< 2
Phosphate (PO_4)	<= 2 ppm	< 1
ACS - Sulfate (SO_4)	<= 5 ppm	< 3
Ammonium (NH_4)	<= 5 ppm	< 3
Trace Impurities - Copper (Cu)	<= 50.0 ppb	< 1.0
Trace Impurities - Iron (Fe)	<= 100.0 ppb	4.1
Heavy Metals (as Pb)	<= 1000 ppb	< 250
Trace Impurities - Lead (Pb)	<= 100.0 ppb	< 10.0
Trace Impurities - Nickel (Ni)	<= 50.0 ppb	< 5.0

For Laboratory, Research or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs

Country of Origin: US
Packaging Site: Paris Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Nitric Acid, 69.0-70.0%
Standard ID : M3215 ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

M 3215
Received D. 08/12/14
Exp. D. 04/15/19.

Material No.: 9598-34
Batch No.: 0000077192
Manufactured Date: 2014/04/16
Retest Date: 2019/04/15

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.7
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.419
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	< 0.7
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.3
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	2.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	< 1.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000077192

Test	Specification	Result
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	< 1.0
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.3
Trace Impurities - Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities - Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities - Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities - Silicon (Si)	<= 20.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 200.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Standard ID : M3218

Hydrochloric Acid, 36.5-38.0%
ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

M 3218
Received d. 8/20/14
Exp. D. 25/03/19
By

Material No.: 9530-33
Batch No.: 0000075649
Manufactured Date: 2014/03/26
Retest Date: 2019/03/25

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	< 1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.190
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	< 1
ACS - Free Chlorine (as Cl_2)	<= 0.5 ppm	< 0.5
Phosphate (PO_4)	<= 0.05 ppm	< 0.03
Sulfate (SO_4)	<= 0.5 ppm	< 0.3
Sulfite (SO_3)	<= 0.8 ppm	0.2
Ammonium (NH_4)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	9.3
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9530-33
Batch No.: 0000075649

Test	Specification	Result
Trace Impurities - Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 15.0 ppb	< 1.0
Trace Impurities - Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 10.0 ppb	0.2
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	0.1
Trace Impurities - Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities - Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.2
Trace Impurities - Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities - Selenium (Se), For Information Only	ppb	1.0
Trace Impurities - Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Titanium (Ti)	<= 1.0 ppb	0.5
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600

Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

INORGANIC VENTURES

Standard ID : M3224

CERTIFICATE OF ANALYSIS

M3224

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number (010105).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.03

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGCA10
Lot Number:	G2-CA04095
Matrix:	2% (v/v) HNO3
Value/Analyte(s):	10,000 µg/mL Calcium
Starting Material:	CaO
Starting Material Lot#:	Multiple Lots
Starting Material Purity:	99.9990%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10,027 ± 23 µg/mL weighted mean

Certified Density: 1.040 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	**10031 ± 41 µg/mL** ICP Assay NIST SRM 3109a Lot Number: 050825
Assay Method #2	**10025 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

INORGANIC VENTURES

Standard ID : M3225

CERTIFICATE OF ANALYSIS

M3225

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (SAI Global File Number (010105).

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGMG10
Lot Number:	G2-MG03120
Matrix:	2% (v/v) HNO3
Value/Analyte(s):	10,000 µg/mL Magnesium
Starting Material:	Mg chips
Starting Material Lot#:	1484
Starting Material Purity:	99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9,973 ± 20 µg/mL -weighted mean-

Certified Density: 1.053 g/mL (measured at 20 ± 1 °C)

Assay Information:

Assay Method #1	**9,955 ± 29 µg/mL** ICP Assay NIST SRM 3131a Lot Number: 050302
Assay Method #2	**9,986 ± 25 µg/mL** EDTA NIST SRM 928 Lot Number: 928

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Standard ID : M3227 0-70.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

J.T.Baker®

Part of AVANTOR™ PERFORMANCE MATERIALS

SEIDLER CHEMICAL COMPANY
537 Raymond Boulevard
Newark, NJ 07105

Material No.: 9598-34
Batch No.: 0000077192
Manufactured Date: 2014/04/16
Retest Date: 2019/04/15

M3227.
Received D. 9/3/14
Expired d. 4/15/19.
B 9/3/14.

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.7
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.419
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	< 0.7
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.3
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	2.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	< 1.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600
Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000077192

Test	Specification	Result
Trace Impurities – Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities – Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities – Magnesium (Mg)	<= 7.0 ppb	< 1.0
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities – Mercury (Hg)	<= 0.5 ppb	0.3
Trace Impurities – Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities – Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities – Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities – Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities – Silicon (Si)	<= 20.0 ppb	< 10.0
Trace Impurities – Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities – Sodium (Na)	<= 200.0 ppb	< 5.0
Trace Impurities – Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities – Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities – Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities – Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities – Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities – Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities – Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

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INORGANIC VENTURES

CERTIFICATE OF ANALYSIS

Standard ID : M3240

M3240 R:09/05/14

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM**

	Stock Solution
Catalog No.:	CLPP-SPK-1
Lot Number:	**F2-MEB427123**
Matrix:	7% HNO3(v/v)

2,000 µg/mL ea:
Al, Ba,

1,000 µg/mL ea:
Fe,

500 µg/mL ea:
Co, Mn, Ni, V, Zn,

250 µg/mL ea:
Cu,

200 µg/mL ea:
Cr3,

50 µg/mL ea:
Ag, Be

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Aluminum, Al	2,000 ± 14 µg/mL	Barium, Ba	2,000 ± 13 µg/mL	Beryllium, Be	50.01 ± 0.34 µg/mL
Chromium+3, Cr3	200.0 ± 1.4 µg/mL	Cobalt, Co	500.0 ± 3.2 µg/mL	Copper, Cu	250.1 ± 1.6 µg/mL
Iron, Fe	1,000 ± 7 µg/mL	Manganese, Mn	500.0 ± 3.2 µg/mL	Nickel, Ni	499.9 ± 3.3 µg/mL
Silver, Ag	50.02 ± 0.32 µg/mL	Vanadium, V	500.0 ± 3.5 µg/mL	Zinc, Zn	500.0 ± 3.2 µg/mL

Certified Density: 1.070 g/mL (measured at 20 ± 1° C)

M3242 R: 09/05/14

INORGANIC VENTURES™
Standard ID : M3242
[redacted] gy Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 **INORGANIC VENTURES** is an ISO Guide 34 "General Requirements for the Competence of Reference Material Producers" and ISO 9001 registered manufacturer. Our manufacturing laboratory is accredited to ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories."

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 **DESCRIPTION OF CRM** **Stock Solution**

Catalog No.: CLPP-SPK-5

Lot Number: **G2-MEB474100**

Matrix: 5% HNO3(v/v)

100 µg/mL ea:
Sb,

50 µg/mL ea:
Cd, Se, Tl,

40 µg/mL ea:
As,

20 µg/mL ea:
Pb

3.0 **CERTIFIED VALUES AND UNCERTAINTIES**

ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE	ELEMENT	CERTIFIED VALUE
Antimony, Sb	100.0 ± 0.8 µg/mL	Arsenic, As	40.01 ± 0.27 µg/mL	Cadmium, Cd	50.03 ± 0.32 µg/mL
Lead, Pb	20.00 ± 0.13 µg/mL	Selenium, Se	50.02 ± 0.33 µg/mL	Thallium, Tl	49.96 ± 0.33 µg/mL

Certified Density: 1.025 g/mL (measured at 20 ± 1° C)

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Certified Value $(\bar{x}) = \frac{\Sigma x_i}{n}$

($\bar{x}$) = mean
x_i = individual results
n = number of measurements

Uncertainty $(\pm) = 2\,[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$

2 = the coverage factor.
$[\,\Sigma(s_i)^2\,]^{\frac{1}{2}}$ = The square root of the sum of the squares of the most common errors (where 's' stands for the standard deviation) from instrumental measurement, density, NIST SRM uncertainty, weighing, dilution to volume, homogeneity, long term stability and short term stability.

Standard ID : M3245 -70.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis

M3245
Received 9/12/14
Exp. 07/01/19.
BS

Part of AVANTOR™ PERFORMANCE MATERIALS

Material No.: 9598-34
Batch No.: 0000084115
Manufactured Date: 2014/07/02
Retest Date: 2019/07/01

Certificate of Analysis

Test	Specification	Result
ACS - Assay (HNO_3)	69.0 - 70.0 %	69.5
Appearance	Passes Test	PT
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 2 ppm	< 1
ACS - Specific Gravity at 60°/60°F	1.416 - 1.420	1.420
Chloride (Cl)	<= 0.04 ppm	< 0.03
Phosphate (PO_4)	<= 0.1 ppm	<0.01
Sulfate (SO_4)	<= 0.4 ppm	< 0.2
Trace Impurities - Aluminum (Al)	<= 30.0 ppb	0.5
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 1.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 4.0 ppb	0.8
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	1.0
Trace Impurities - Chromium (Cr)	<= 10.0 ppb	3.0
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 0.2
Trace Impurities - Germanium (Ge)	<= 4.0 ppb	< 2.0
Trace Impurities - Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities - Iron (Fe)	<= 10.0 ppb	0.5

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Avantor ™ Performance Materials Inc.
3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Material No.: 9598-34
Batch No.: 0000084115

Test	Specification	Result
Trace Impurities - Lead (Pb)	<= 0.5 ppb	< 0.5
Trace Impurities - Lithium (Li)	<= 1.0 ppb	< 0.2
Trace Impurities - Magnesium (Mg)	<= 7.0 ppb	0.2
Trace Impurities - Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities - Mercury (Hg)	<= 0.5 ppb	< 0.1
Trace Impurities - Molybdenum (Mo)	<= 5.0 ppb	< 3.0
Trace Impurities - Nickel (Ni)	<= 1.0 ppb	< 0.3
Trace Impurities - Niobium (Nb)	<= 1.0 ppb	0.4
Trace Impurities - Potassium (K)	<= 5.0 ppb	< 2.0
Trace Impurities - Silicon (Si)	<= 20.0 ppb	2.0
Trace Impurities - Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities - Sodium (Na)	<= 200.0 ppb	< 0.5
Trace Impurities - Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities - Tantalum (Ta)	<= 2.0 ppb	< 0.9
Trace Impurities - Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities - Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities - Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities - Zinc (Zn)	<= 5.0 ppb	< 0.3
Trace Impurities - Zirconium (Zr)	<= 1.0 ppb	0.2

For Laboratory, Research or Manufacturing Use
Meets ACS Specifications

Country of Origin: US
Packaging Site: Phillipsburg Mfg Ctr & DC

ISO
Phillipsburg, NJ 9001:2008, 14001:2004
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
Gliwice, Poland 9001:2008, 17025:2005
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2008, 17025:2005
Panoli, India 9001:2008

Richard M Siberski
Vice President Global Quality

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3477 Corporate Parkway. Suite #200. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

ISM01.3AES
3050B.

Sop. ISM01.3 - Trace metals.02.

CHEMTECH

IEPAES
Soil/Sludge Preparation Sheet

PB78987

F3939.
NOMA.

PrepBatch ID :	PB78987	Batch#	PB78987
SDG No :		ICP Digest Date:	9/17/14. Time : 10.00AM
Matrix :	Solid	Sample Received By :	Bin He
Final Volume :	100 ML	Acceptance Range: +/- 1%	N/A.
(1) Balance Calibration Check(1.00):	1.00g @ 10.0g = 10.00g	Dig Technician Signature:	Bhuvanesh Patel signature
Method :	ISM01.3 AES.	Supervisor Signature:	
Hot Plate Temp :	(1) 95°C. 2. 3.	Prep Code:	CR1

End TIME FOU HOT BLOCK 12.00pm.

Standared Name	MLS USED	STD REF. # FROM LOG
LCSS	1.00ml	MP23660.
Spike Sol 5	2.00ml	MP23659.
BOILING STONE PTFE	1.00gm	M2942
	BP 9/17/14.	

Chemical Used	ML/SAMPLE USED	Lot Number
1:1 HNO3	10.00ml	MP23410.
CONC: HNO3	5.00ml	M3245
30% H2O2	3.00ml	M3207.
CONC: HCL	10.00ml	M3218 BP 9/17/14

Date / Time	Received By	Relinquished By	Location
BP 9/17/14 ~~9/17/14~~	Bin He	Bhuvanesh	IEP-Lab
9/17/14	Analysis Group	Digestion Group	
	tr	BP, JP	

CHEMTECH Soil/Sludge Sample Preparation Workshee PrepBatch ID : **PB78987**

Lab Sample	Client Sample ID	Weight gm	Color Before	Color After	Texture	Artifact	Comments	Prep Pos
F3939-01	MC0AJ3	1.32	BR	Y	M.	NO		
F3939-02	MC0AJ4	1.31	BR	Y	M.			
F3939-03	MC0AJ5	1.30	BR	Y	M			
F3939-04	MC0AJ7	1.27	BR	Y	M.			
F3939-05	MC0AJ8	1.36	BR	Y	M.			
F3939-06	MC0AJ9	1.40	BR	Y	M			
F3939-07	MC0AK0	1.30	BR	Y	M.			
F3939-08	MC0AK1	1.31	BR	Y	M			
F3939-09	MC0AK1D	1.32	BR	Y	M.		BB91114	
F3939-10	MC0AK1S	1.05	BR	Y	M.		MP23659.	
F3939-11	MC0AK2	1.32	BR	Y	M.			
F3939-12	MC0AK3	1.27	BR	Y	M.			
F3939-13	MC0AK4	1.35	BR	Y	M.			
F3939-14	MC0AK5	1.40	BR	Y	M.			
F3939-15	MC0AK6	1.30	BR	Y	M.			
F3939-16	MC0AK7	1.30	BR	Y	M.			
F3939-17	MC0AK8	1.31	BR	Y	M.			
F3939-18	MC0AK9	1.29	BR	Y	M.			
F3939-19	MC0AL0	1.30	BR	Y	M.			
F3939-20	MC0AL1	1.34	BR	Y	M.			
F3939-21	MC0AL2	1.25	BR	Y	M.			
PB78987BL	PBS01	1.00	C	C	F.		BB91114.	
PB78987BS	LCS01	1.02	C	C	F.	V.	MP23660.	

* BL=Blank BS=Blank Spike TB=TCLP Blank
* COLOR: R=Red BU=Blue Y=Yellow GR=Green O=Orange V=Violet W=White C=Colorless BR=Brown GY=Grey BL=Black
* CLARITY: CL=Clear CD=Cloudy O=Opaque
* TEXTURE: F=Fine M=Medium C=Coarse

CHEMTECH Soil/Sludge Sample Preparation Workshee PrepBatch ID : **PB78987**

Lab Sample ID	Client Sample ID	Weight	Color Before	Color After	Texture	Artifact	Comments	Prep Pos
F3939-01	MC0AJ3	1.32	Brown	Yellow	Medium	No		
F3939-02	MC0AJ4	1.31	Brown	Yellow	Medium	No		
F3939-03	MC0AJ5	1.30	Brown	Yellow	Medium	No		
F3939-04	MC0AJ7	1.27	Brown	Yellow	Medium	No		
F3939-05	MC0AJ8	1.36	Brown	Yellow	Medium	No		
F3939-06	MC0AJ9	1.40	Brown	Yellow	Medium	No		
F3939-07	MC0AK0	1.30	Brown	Yellow	Medium	No		
F3939-08	MC0AK1	1.31	Brown	Yellow	Medium	No		
F3939-09	MC0AK1D	1.32	Brown	Yellow	Medium	No		
F3939-10	MC0AK1S	1.05	Brown	Yellow	Medium	No		
F3939-11	MC0AK2	1.32	Brown	Yellow	Medium	No		
F3939-12	MC0AK3	1.27	Brown	Yellow	Medium	No		
F3939-13	MC0AK4	1.35	Brown	Yellow	Medium	No		
F3939-14	MC0AK5	1.40	Brown	Yellow	Medium	No		
F3939-15	MC0AK6	1.30	Brown	Yellow	Medium	No		
F3939-16	MC0AK7	1.30	Brown	Yellow	Medium	No		
F3939-17	MC0AK8	1.31	Brown	Yellow	Medium	No		
F3939-18	MC0AK9	1.29	Brown	Yellow	Medium	No		
F3939-19	MC0AL0	1.30	Brown	Yellow	Medium	No		
F3939-20	MC0AL1	1.34	Brown	Yellow	Medium	No		
F3939-21	MC0AL2	1.25	Brown	Yellow	Medium	No		
PB78987BL	PBS01	1.00	Colorless	Colorless	Fine	No		
PB78987BS	LCS01	1.00	Colorless	Colorless	Fine	No		

9/17/14.

* BL=Blank BS=Blank Spike TB=TCLP Blank
* COLOR: R=Red BU=Blue Y=Yellow GR=Green O=Orange V=Violet W=White C=Colorless BR=Brown GY=Grey BL=Black
* CLARITY: CL=Clear CD=Cloudy O=Opaque
* TEXTURE: F=Fine M=Medium C=Coarse

CHEMTECH

PERCENT SOLIDS

Analyst Name: JIGNESH

Date: 9/17/2014

OVEN TEMP IN Celsius (°C) :	108	OVEN TEMP OUT Celsius (°C):	105
Time IN	5:20	Time OUT:	9:13
In Date:	09/16/2014	Out Date:	09/17/2014
Weight Check 1.0g=	1.00 g	Weight Check 1.0g=	1.00 g
Weight Check 10g=	10.00 g	Weight Check 10g=	10.00 g

QC: LB72736

Lab ID	Client Sample ID	Dish#	Dish Weight (g) (A)	Dish + Sample Wt. (g) (B)	Dish + Dry Sample Wt. (g) (C)	% Solid
F3939-01	MC0AJ3	1	1.16	9.88	5.68	51.8
F3939-02	MC0AJ4	2	1.17	9.65	4.76	42.3
F3939-03	MC0AJ5	3	1.17	9.8	5.86	54.3
F3939-04	MC0AJ7	4	1.18	9.83	7.35	71.3
F3939-05	MC0AJ8	5	1.17	9.55	5.68	53.8
F3939-06	MC0AJ9	6	1.17	9.91	6.03	55.6
F3939-07	MC0AK0	7	1.18	9.62	5.91	56
F3939-08	MC0AK1	8	1.17	9.71	7.45	73.5
F3939-09	MC0AK1D	9	1.17	9.71	7.45	73.5
F3939-10	MC0AK1S	10	1.17	9.71	7.45	73.5
F3939-11	MC0AK2	11	1.15	9.79	7.56	74.2
F3939-12	MC0AK3	12	1.16	9.74	5.69	52.8
F3939-13	MC0AK4	13	1.14	9.7	7.06	69.2
F3939-14	MC0AK5	14	1.16	9.55	7.1	70.8
F3939-15	MC0AK6	15	1.14	9.72	4.93	44.2
F3939-16	MC0AK7	16	1.16	9.84	7.68	75.1
F3939-17	MC0AK8	17	1.17	9.79	5.91	55
F3939-18	MC0AK9	18	1.15	9.9	7.01	67
F3939-19	MC0AL0	19	1.16	9.89	5.63	51.2
F3939-20	MC0AL1	20	1.16	9.59	7.92	80.2
F3939-21	MC0AL2	21	1.16	9.7	7.57	75.1

$$\% \text{ Solid} = \frac{(C-A) * 100}{(B-A)}$$

WORKLIST(Hardcopy Internal Chain) LB 72736

WorkList Name : %1-F3939 WorkList ID : 70525 Date : 9/16/2014 11:35:05 AM

Due Date	Matrix	Sample	Test	Preservative	Customer	Storage Location	Customer Sample	Collect Date	Method
09/21/2014	Solid	F3939-01	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AJ3	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-02	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AJ4	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-03	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AJ5	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-04	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AJ7	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-05	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AJ8	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-06	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AJ9	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-07	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AK0	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-08	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AK1	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-09	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AK1D	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-10	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AK1S	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-11	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AK2	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-12	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AK3	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-13	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AK4	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-14	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AK5	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-15	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AK6	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-16	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AK7	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-17	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AK8	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-18	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AK9	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-19	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AL0	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-20	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AL1	09/11/2014	Chemtech -SO
09/21/2014	Solid	F3939-21	Percent Solids	Cool 4 deg C	USEP01	B41	MC0AL2	09/11/2014	Chemtech -SO

610

Date/Time 09/16/14 2:00 pm
Received by: JP
Relinquished by: DP

Date/Time 09/16/14 3:00 PM
Received by: DP
Relinquished by: JP

From: (484) 213-8723
Erik Armistead
WESTON
1400 Weston Way

West Chester, PA 19380

Origin ID: BIGA

FedEx Express

J14201406190326

Ship Date: 12SEP14
ActWgt: 50.0 LB
CAD: 105266671/INET3550

Dims: 30 X 16 X 16 IN

Delivery Address Bar Code

Ref # 20403.016.003.0134.00
Invoice #
PO #
Dept #

Deepak Rama 9/12/14 10:00

SHIP TO: (908) 789-8900 BILL SENDER

Sample Recieving
Chemtech
284 SHEFFIELD ST

MOUNTAINSIDE, NJ 07092

5 of 5

MPS# 7711 3242 4616
0263

Mstr# 7711 3242 4708 0201

SATURDAY 12:00P
PRIORITY OVERNIGHT

07 CDWA

07092
NJ-US
EWR

522G1/CDB4/8AC9

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1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
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Sample # NKWP-SD-12 Case # 44664
Date: 9/11/2014 Time: 11:45
Location: SD12
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-SD-11 Case # 44664
Date: 9/11/2014 Time: 11:32
Location: SD11
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-SD-10 Case # 44664
Date: 9/11/2014 Time: 11:10
Location: SD10
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-SD-09 Case # 44664
Date: 9/11/2014 Time: 10:50
Location: SD09
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-SD-08 Case # 44664
Date: 9/11/2014 Time: 10:35
Location: SD08
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-SD-04 Case # 44664
Date: 9/11/2014 Time: 08:55
Location: SD04
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-SD-07 Case # 44664
Date: 9/11/2014 Time: 10:00
Location: SD07
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-SD-06 Case # 44664
Date: 9/11/2014 Time: 09:47
Location: SD06
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-SD-03 Case # 44664
Date: 9/11/2014 Time: 08:33
Location: SD03
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-SD-04-01 Case # 44664
Date: 9/11/2014 Time: 08:55
Location: SD04
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-SD-02 Case # 44664
Date: 9/11/2014 Time: 08:15
Location: SD02
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-WS-11 Case # 44664
Date: 9/11/2014 Time: 13:45
Location: WS11
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-SD-01 Case # 44664
Date: 9/11/2014 Time: 08:00
Location: SD01
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-WS-13 Case # 44664
Date: 9/11/2014 Time: 14:25
Location: WS13
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-SD-05 Case # 44664
Date: 9/11/2014 Time: 09:27
Location: SD05
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-WS-12 Case # 44664
Date: 9/11/2014 Time: 13:55
Location: WS12
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-SD-15 Case # 44664
Date: 9/11/2014 Time: 14:45
Location: SD15
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-SD-14 Case # 44664
Date: 9/11/2014 Time: 14:35
Location: SD14
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Sample # NKWP-SD-13 Case # 44664
Date: 9/11/2014 Time: 12:00
Location: SD13
Analyses: ICP-AES 11+ Metals Collection: Grab
Preservation: 4 C

Login Summary Report

Order ID :	F3939	Order Date :	9/13/2014 10:00:00 AM	Project Mgr :	Zhaleh
Client :	USEPA CLP SMO	Project :	44664	Report Type :	USEPA CLP
Contact :	Account Payable	Receive Date :	9/13/2014 10:00:00 AM	EDD Type :	EPA CLP
Date Sign Off :	9/15/2014 2:58:22 PM				

Sample ID	Client ID	Matrix	Sampling Date	Test	Test Group	Method	TAT Days	Fax Due Date	HC Due Date
F3939-01	MC0AJ3	Solid	09/11/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-02	MC0AJ4	Solid	09/11/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-03	MC0AJ5	Solid	09/11/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-04	MC0AJ7	Solid	09/11/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-05	MC0AJ8	Solid	09/11/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-06	MC0AJ9	Solid	09/11/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-07	MC0AK0	Solid	09/11/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-08	MC0AK1	Solid	09/11/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-09	MC0AK1D	Solid	09/11/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-10	MC0AK1S	Solid	09/11/2014						
				Metals CLP Full		ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids		Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-11	MC0AK2	Solid	09/11/2014						

				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-12	MC0AK3	Solid	09/11/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-13	MC0AK4	Solid	09/11/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-14	MC0AK5	Solid	09/11/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-15	MC0AK6	Solid	09/11/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-16	MC0AK7	Solid	09/11/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-17	MC0AK8	Solid	09/11/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-18	MC0AK9	Solid	09/11/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-19	MC0AL0	Solid	09/11/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-20	MC0AL1	Solid	09/11/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014
F3939-21	MC0AL2	Solid	09/11/2014					
				Metals CLP Full	ISM01.3_AES	15	10/03/2014	10/03/2014
				Percent Solids	Chemtech -SOP	15	10/03/2014	10/03/2014

From: Dean, Whitlee <wdean9@fedcsc.com>
Sent: Thursday, September 18, 2014 12:03
To: Himanshu Prajapati; Divya Mehta; Mohammad Ahmed
Cc: Slizys, Dan; Jarmael Burman; Elaine Stiles; Colleen Walling; Kevin Martin; Sharon Roberson
Subject: Region 03 | Case 44664 | Lab CHEM | SDG MC0AJ3 | Issue Non-standard matrix | FINAL

Himanshu,

Issue: Several samples from SDG MC0AJ3 have % solids results less than 50% but more than 30%.

EPA Sample ID	% Solids
MC0AJ4	42.3
MC0AK6	44.2

Resolution: Per the ISM01.3 SOW, the laboratory will proceed with the analysis of the samples according to Exhibit D, sections 1.6.4 and 1.6.5. The laboratory will note the issue in the SDG Narrative.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your PO.

Thanks,

WHITLEE DEAN
Environmental Coordinator- Region 3
CSC

15000 Conference Center Drive, Chantilly, VA 20151
Civil Division | t: 703-818-4367 | f: 703-818-4602 | wdean9@fedcsc.com | www.csc.com
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From: Himanshu Prajapati [mailto:Himanshu@chemtech.net]
Sent: Thursday, September 18, 2014 10:36 AM
To: Dean, Whitlee; CCS SUPPORT
Cc: Divya Mehta; Mohammad Ahmed
Subject: REGION 3 | SDG MC0AJ3 | CASE 44664 | EPW 09038 | ISSUE % SOLIDS | CHEMTECH ORDER ID F3939 |
Importance: High

Hello Whitlee,

We are sending this email with reference to % solids issue for SDG (MC0AJ3) & Case (44664).

Some samples from SDG (MC0AJ3) have % solids results less than 50% but more than 30%. Please see below table for detail.

EPA Sample ID	% Solids
MC0AJ4	42.3
MC0AK6	44.2

Please advise.

Regards,

Himanshu Prajapati
QA/QC Director
Direct Line: (908)728-3152
General Number: (908)789-8900
Fax: (908)789-8922

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From: Dean, Whitlee <wdean9@fedcsc.com>
Sent: Monday, September 15, 2014 15:32
To: zhaleh@chemtech.net
Cc: Burman, Jarmael; Slizys, Dan; Stiles, Elaine; Martin, Kevin; Walling, Colleen; Sharon Roberson
Subject: Region 03 | Case 44664 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC | FINAL
Attachments: 44673 - Lab COCs.pdf; 44664 - Lab COCs.pdf

Zhaleh,

Issue 1:The laboratory received samples for Case 44673. The case number on the COC (attached), sample tag and label (attached) do not match.
Resolution 1: Per Region 3, the Case number on the sample tag and label are correct. The sample is for Case 44664. The COC contained an incorrect case number. The correct COC is attached for Case 44664 and Case 44673. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Issue 2: The sample IDs and tag numbers are missing from the sample tags and labels. The station location is listed in place of the sample number on both the sample tag and label.
Resolution 2: Per Region 3, MC0AJ3 is for Case 44664. The station location and collection time for sample MC0AJ3 match the sample tag and label per the attached corrected COC. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Please let me know if you have any questions or problems. To waive any defect(s) associated with this issue, please contact your PO.

Thanks,

WHITLEE DEAN
Environmental Coordinator- Region 3
CSC

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From: Burman, Jarmael [mailto:Burman.Jarmael@epa.gov]
Sent: Monday, September 15, 2014 3:19 PM
To: Dean, Whitlee; Slizys, Dan
Cc: Walling, Colleen; Stiles, Elaine; Martin, Kevin
Subject: RE: NEW ISSUE | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Hi Whitlee,

The response provided by Laura Matthews below is acceptable.

Jay

From: Dean, Whitlee [mailto:wdean9@fedcsc.com]
Sent: Monday, September 15, 2014 3:08 PM
To: Slizys, Dan
Cc: Burman, Jarmael; Walling, Colleen; Stiles, Elaine; Martin, Kevin
Subject: RE: NEW ISSUE | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Dan,

Could you confirm the sampler's response before I send the Final ROC?

For Issue 1: the case number on the sample tags and label are correct and are for Case 44664.

For Issue 2: per the corrected COC provided by the sampler, MC0AJ3 is for Case 44664. The station location and collection time for sample MC0AJ3 match the sample tag and label .

Please let me know if you have any questions.
Thanks!

WHITLEE DEAN
Environmental Coordinator- Region 3
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From: Mathew, Laura [mailto:mathewl@WestonSolutions.com]
Sent: Monday, September 15, 2014 1:52 PM
To: Slizys, Dan
Cc: Dean, Whitlee; Burman, Jarmael; Walling, Colleen; Stiles, Elaine; Martin, Kevin; Fisher, Matt; Shannon, Nancy; Armistead, Erik
Subject: RE: NEW ISSUE | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Dan,

The discrepancy of the case numbers was due to an incorrect case number on the chain of custody. I have attached corrected laboratory copies of the COCs for both RAS 44664 and RAS 44673. I hope this helps to clarify the issue, please let me know if you have additional questions.

Regards,
Laura

From: Slizys, Dan [mailto:Slizys.Dan@epa.gov]
Sent: Monday, September 15, 2014 11:26 AM
To: Mathew, Laura; Shannon, Nancy; fisher.mark@westonsolutions.com
Cc: Dean, Whitlee; Burman, Jarmael; Walling, Colleen; Stiles, Elaine; Martin, Kevin
Subject: RE: NEW ISSUE | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Whitlee,

The samples are for case 44673 Mark Fisher as collector. The TR/COC indicates in Station Location column NKWP-WS-11 This could be inorganic sample MC0AJ3.

Laura,

Please have Nancy and Mark try to resolve this issue.

Nancy Shannon is the sample collector for case 44664.

From: Dean, Whitlee [mailto:wdean9@fedcsc.com]
Sent: Monday, September 15, 2014 9:53 AM
To: Slizys, Dan; Burman, Jarmael; Stiles, Elaine; Martin, Kevin; Walling, Colleen
Subject: NEW ISSUE | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

Good Morning,

CHEM is reporting the following issues. Please advise as to how the laboratory should proceed.

Issue 1:The laboratory received samples for Case 44673. The case number on the COC (attached), sample tag and label (attached) do not match.

Issue 2: The sample IDs and tag numbers are missing from the sample tags and labels. The station location is listed in place of the sample number on both the sample tag and label.

Please let me know if you have any questions.
Thanks,

WHITLEE DEAN
Environmental Coordinator- Region 3
CSC

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From: Zhaleh Rohani [mailto:zhaleh@chemtech.net]
Sent: Monday, September 15, 2014 8:50 AM
To: Dean, Whitlee
Subject: Region 03 | Case 44673 | Lab CHEM | Issue Discrepancies with tags, jars, and/or COC

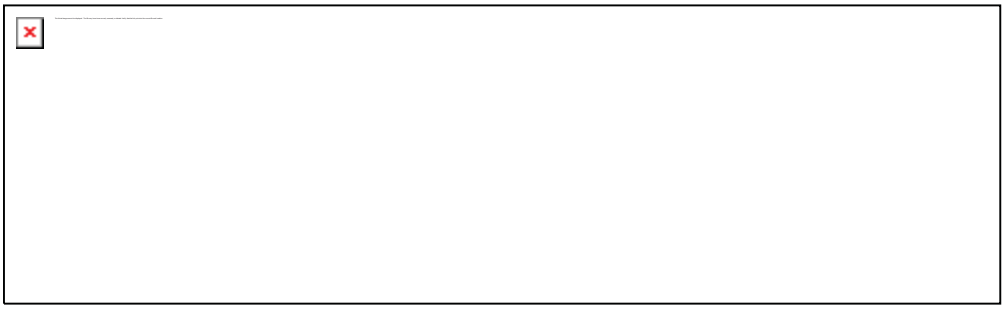
Good morning Whitlee,

Laboratory received samples for case 44673, however case number on COC, sample tag and label do not match; in addition all CLP sample IDs and tag numbers are missing in sample tags and labels as well.

Please let me know if you have any questions.
Thanks.

Regards,
Zhaleh Rohani
EPA CLP Program Manager

Direct Line: (908) 728-3158



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WORKLIST(Hardcopy Internal Chain)

WorkList Name : F3939AESS WorkList ID : 70544 Date : 9/17/2014 8:41:29 AM

Due Date	Matrix	Sample	Test	Preservative	Customer	Storage Location	Customer Sample	Collect Date	Method
09/11/2014	Solid	F3939-01	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AJ3	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-02	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AJ4	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-03	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AJ5	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-04	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AJ7	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-05	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AJ8	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-06	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AJ9	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-07	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AK0	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-08	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AK1	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-09	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AK1D	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-10	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AK1S	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-11	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AK2	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-12	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AK3	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-13	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AK4	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-14	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AK5	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-15	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AK6	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-16	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AK7	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-17	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AK8	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-18	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AK9	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-19	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AL0	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-20	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AL1	09/11/2014	ISM01.3_AES
09/11/2014	Solid	F3939-21	Metals CLP Full	Cool 4 deg C	USEP01	B41	MC0AL2	09/11/2014	ISM01.3_AES

Date/Time 9/17/14 9:00 AM
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