

APPENDIX C

HDPE Liner Materials

POLY-FLEX, INC.

2000 W. Marshall Drive Grand Prairie, Texas 75051 USA

888-765-9359

972-337-7113

FAX 972-337-7233

CERTIFICATION DOCUMENTS

To: Foster Supply
P. O. Box 488
Scott Depot, WV 25580

Date: 10/29/01
Poly-Flex Proj #: 8161
Customer PO: 10816
Project Name:

Attn:

Fax No: 304-755-8280

Number of pages including cover: 7

Departure Date: 10/28/01
Destination: Scott Depot, WV
Carrier:

Trip No: 127502
Freight:

Additional Notes:

Distribution of Documents:

Shipment Inspection Sheet: 1
Roll Certification: 1
Resin Certification: 4
Other:

Attached please find documents for the above referenced shipment. Please let us know if you have any questions.

Sincerely,



Russell Searcy
1-888-765-9359 ext 7289

TEXTURED HDPE GEOMEMBRANE

ENGLISH UNITS



Minimum Average Values

Property	Test Method	40 mil	60 mil	80 mil	100 mil
Thickness, mils	ASTM D 5994				
minimum average		38	57	76	95
lowest individual of 8 of 10 readings		36	54	72	90
lowest individual of 10 readings		34	51	68	85
Asperity Height, mils	GRI GM12	10	10	10	10
Sheet Density, g/cc	ASTM D 1505/D 792	0.940	0.940	0.940	0.940
Tensile Properties ¹	ASTM D 638 (Type IV Specimen @ 2 in/min)				
1. Yield Strength, lb/in		84	126	168	210
2. Break Strength, lb/in		60	90	120	150
3. Yield Elongation, %		12	12	12	12
4. Break Elongation, %		100	100	100	100
Tear Resistance, lb	ASTM D 1004	23	42	56	70
Puncture Resistance, lb	ASTM D 4833	60	90	120	150
Stress Crack Resistance ² , hrs	ASTM D 5397 (App.)	200	200	200	200
Carbon Black Content ³ , %	ASTM D 1603	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion ⁴	ASTM D 5596	Cat. 1 or 2	Cat. 1 or 2	Cat. 1 or 2	Cat. 1 or 2
Oxidative Induction Time (OIT)					
Standard OIT, minutes	ASTM D 3895	100	100	100	100
Oven Aging at 85°C	ASTM D 5721				
Standard OIT - % retained after 90 days	ASTM D 3895	55	55	55	55
UV Resistance ⁵	GRI GM11				
High Pressure OIT ⁶ - % retained after 1600 hrs	ASTM D 5885	50	50	50	50
Seam Properties	ASTM D 4437				
1. Shear Strength, lb/in		80	120	160	200
2. Peel Strength, lb/in		59 & FTB	88 & FTB	118 & FTB	147 & FTB
Roll Dimensions					
1. Width (feet):		23	23	23	23
2. Length (feet):		750	500	375	300
3. Area (square feet):		17,250	11,500	8,625	6,900
4. Gross weight (pounds, approx.)		3,500	3,500	3,470	3,470

1 Machine direction (MD) and cross machine direction (CMD) average values should be on the basis of 5 test specimens each direction. Yield elongation is calculated using a gauge length of 1.3 inches; Break elongation is calculated using a gauge length of 2.0 inches.

2 The yield stress used to calculate the applied load for the SP-NCTL test should be the mean value via MQC testing.

3 Other methods such as ASTM D 4218 or microwave methods are acceptable if an appropriate correlation can be established.

4 Carbon black dispersion for 10 different views: All 10 in Categories 1 and 2.

5 The condition of the test should be 20 hr. UV cycle at 75°C followed by 4 hr. condensation at 60°C.

6 UV resistance is based on percent retained value regardless of the original HP-OIT value.

This data is provided for informational purposes only and is not intended as a warranty or guarantee. Poly-Flex, Inc. assumes no responsibility in connection with the use of this data. These values are subject to change without notice. REV. 9/00

FEB-18-2000 13:54

PHIL S QA LAB

475 3532 P.01/02

**PHILLIPS CHEMICAL COMPANY**

A DIVISION OF PHILLIPS PETROLEUM COMPANY

BOX 792 • PHONE 713-475-3662
PASADENA TEXAS 77501-0792PHILLIPS PLASTICS RESINS
HOUSTON OFFICE: 281-281-1000

February 18, 2000

KSL# 4469-00

FAX: 972-337-7407

Poly America, Inc.
2000 West Marshall Drive
Grand Prairie, TX 75051

Dee Averitte

This letter will certify that the Marlex* resin shown below,
as supplied by Phillips Chemical Company, conforms to our
manufacturing specification.

Type:	K203
Lot Number:	8100091
P.O. Number:	26185
Date Shipped:	02/16/00
Package:	PSPX 2154
Quantity:	178700 LBS.
Melt Index, ASTM D1238:	.180 G/10 MIN
Density, ASTM D1505:	.924 G/CC
HLMI Flow Rate, ASTM D1238:	16.8 G/10 MIN
Production Date:	01/29/00

Karen S. Lively
Quality Assurance Manager

For COA questions call Linda Murray, 713-475-3625

* Reg. U.S. Pat. Off.

cc: QA-File-RC

Lisa
FAX: 972-337-7233Jim Nobert
FAX: 972-337-7396

Phillips Petroleum 4/18/ 12:38 PAGE 001/1 Rigi AX



PHILLIPS CHEMICAL COMPANY

A DIVISION OF PHILLIPS PETROLEUM COMPANY

BOX 182 • PHONE: (713) 475-3666
PASADENA, TEXAS 77501-0712

PHILLIPS PLASTICS RESINS
Houston Chemical Complex

April 13, 2000

KSL# 10119-00

FAX: 972-337-7407

Poly America, Inc.
2000 West Marshall Drive
Grand Prairie, TX 75051

Dee Averitte

This letter will certify that the Marlex[®] resin shown below,
as supplied by Phillips Chemical Company, conforms to our
manufacturing specification.

Type:	K203
Lot Number:	8100398
P.O. Number:	26587
Date Shipped:	04/18/00
Package:	PSPX 1312
Quantity:	184500 LBS.
Melt Index, ASTM D1238:	.170 G/10 MIN
Density, ASTM D1505:	.923 G/CC
HLMF Flow Rate, ASTM D1238:	15.8 G/10 MIN
Production Date:	04/05/00

Karen S. Lively
Quality Assurance Manager

For COA questions call Connie Buckner, 713-475-3625

* Reg. U.S. Pat. Off.

cc: QA-File-RC

Lisa
FAX: 972-337-7233

Jim Nobert
FAX: 972-337-7396

Phillips Petroleum 8/15/00 12:43 PAGE 001/1 RightF

Chevron Phillips Chemical Company, LP

1400 Jefferson Road • Pasadena, TX 77501 • 713-475-3666
Houston Chemical Complex

August 15, 2000

KSL# 20858-00

FAX: 972-337-7407

Poly America, Inc.
2000 West Marshall Drive
Grand Prairie, TX 75051

Dee Averitte

This letter will certify that the Marlex® resin shown below,
as supplied by Chevron Phillips Chemical Company, conforms
to our manufacturing specification.

Type:	K203
Lot Number:	8100969
P.O. Number:	927784
Date Shipped:	08/15/00
Package:	PSPX 175S
Quantity:	179150 LBS.
Melt Index, ASTM D1238:	.160 G/10 MIN
Density, ASTM D1505:	.923 G/CC
HLMI Flow Rate, ASTM D1238:	15.2 G/10 MIN
Production Date:	07/27/00

Karen S. Lively
Quality Assurance Manager

For COA questions call Connie Buckner, 713-475-3625

* Reg. U.S. Pat. Off.

cc: QA-File-RC

Lisa
FAX: 972-337-7233

Jim Nobert
FAX: 972-337-7396



Houston Chemical Complex
P.O. Box 792, Pasadena, TX 77501

October 11, 2000

PSN# 25694-00

FAX: 972-337-7407

Poly America, Inc.
2000 West Marshall Drive
Grand Prairie, TX 75051

Dee Averitte

This letter will certify that the Marlex* resin shown below,
as supplied by Chevron Phillips Chemical Company, conforms
to our manufacturing specification.

Type:	K203
Lot Number:	8101225
P.O. Number:	928270
Date Shipped:	10/11/00
Package:	PSPX 6135
Quantity:	179950 LBS.
Melt Index, ASTM D1238:	.160 G/10 MIN
Density, ASTM D1505:	.922 G/CC
HLMF Flow Rate, ASTM D1238:	14.5 G/10 MIN
Production Date:	09/23/00

Paul S. Newbold
Sr. Certification Systems Specialist

For COA questions call Connie Buckner, 713-475-3625

* Reg. U.S. Pat. Off.

cc: QA-File-RC

Lisa
FAX: 972-337-7233

Jim Nobert
FAX: 972-337-7396