Dynamic Wind Load Testing in Accordance with CSA A123.21-14
Mod-bit Toprock DD System, Partially attached (PARS)

FINAL REPORT

Exp Services Inc.
2400 Canadien Street
Drummondville (Quebec) J2C 7W3
Phone: 819.850.6247
Fax: 819.478.8436
Siplast

Dynamic Wind Load Testing in Accordance with CSA A123.21-14
Mod-bit Toprock DD System, Partially attached (PARS)

FINAL REPORT
FINAL

Project number:
SIPZ-DRS-00221706-03-5100

Prepared by:
Exp Services Inc.
2400 Canadien Street
Drummondville (Quebec) J2C 7W3
Phone: 819-850-6247
www.exp.com

Prepared by:

__________________________
Nicolas Courchesne,
Projects Manager – Roofing and Waterproofing

Validate by:

__________________________
Michel Desgranges, T.P.
Roofing and Waterproofing Director, Quebec
OTPQ n° 18788

Date:
January 15th 2015
Legal Notification

This report was prepared by exp Services Inc. for the account of Siplast.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Exp Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this project.
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Distribution list

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<th>Client Coordinates</th>
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<td>M. Todd Corley</td>
<td><a href="mailto:tcorley@siplast.com">tcorley@siplast.com</a></td>
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Distribution list
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</tr>
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1. Introduction

According to our mandate, exp Services Inc. have proceeded, in our roofing local located to 2400 Canadien Street in Drummondville, to the following roofing system test by the date mentioned hereunder, according to the CSA A123.21-14 « Standard test method for the dynamic wind uplift resistance of membrane-roofing systems » against method 2:

This test have been realised in accordance with the work plan established with the client before the test, (see details on appendix 5).

System Description:
- Steel deck (gage 22).
- Vapor barrier, Vapor Bloc SA, Self-adhering membrane
- Insulation: Paratherm W Mechanically attached (16 screws and plates by panel)
- Cover board: Top Rock DD Plus, Adhered, OlyBond 500, ribbons of 305 mm (12 in) o.c.
- Base-Sheet membrane: Paradiene 20 TG, Heat welded
- Cap sheet membrane: Paradiene 20 TG, Heat welded
- Test date: October 14th 2014

Following, you’ll find the roofing system results of the test done in our laboratory, all drawings, photographic report and related document prepared by our technical team and professional.

Note:
- The roofing system as undergo a ripening time of ± 7 days.
- A temperatures registry and humidity is enclose at appendix 8.
- The systems lasted ± 3 hours 20 minutes.

The initial pressure was established at -2.2 kPa (-45 psf) by the client.

As required by the CSA A123.21 standard, the published dynamic uplift resistance (DUR) must be reduced by a safety factor of 1.5. Therefore, the rating of the tested assembly is -1.46 kPa (-30 psf).
2. Testing Apparatus and Test Method

2.1 Test Method

Testing was conducted in accordance with CSA A123.21-14, Standard test method for the dynamic wind uplift resistance of membrane-roofing systems. This test method determines the wind uplift resistance of membrane-roofing systems when subjected to dynamic wind load cycles. The roofing system consists of a deck and roofing membrane and may include components such as air/vapour barriers, insulation and cover board. The roofing assembly is subjected to a simulated dynamic load sequence which was developed based on wind pressure records. Testing in accordance with this test method is limited to mechanically attached, reinforced membrane systems having a fastener row separation not greater than 2896 mm (114 in.) and fastener in-line spacing not greater than 610 mm (24 in.).

2.2 Test Apparatus

The test apparatus consists of a top pressure vessel mounted on a height-adjustable bottom frame that is fixed to the floor and on which the test specimen was installed. The pressure vessel was connected to fans and incorporates a gust simulator which consists of a flap valve connected to a stepping motor capable of simulating wind gust as per CSA A123.21-10 standard requirements. The pressure vessel has interior dimensions of 6100 ± 50 mm (240 ± 2 in.) x 2200 ± 50 mm (87 ± 2 in.) x 800 ± 50 mm (31 ± 2 in.) high and can withstand a minimum of 20 kPa (400 psf) suction pressure. It incorporates six viewing windows and a gust simulator capable of producing a minimum suction of 10 kPa (200 psf) over the roof assembly. The roof deck was installed on structural purlins with spacing of 1829 mm (6 ft.) o.c.. Air leakage was minimized to facilitate the control of the test pressure that is applied over the assembly. The apparatus has a pressure-measuring device capable of measuring pressure differential within a tolerance of ± 0.05 % of full-scale pressure or ± 10 kPa (± 0.2 psf), whichever is smaller. A pressure sensor was installed at each of the following two locations:

(a) Inside the chamber, to provide reference pressure;
(b) On top of the membrane, to measure simulated pressure

Instruments and sensors used for the reported data were calibrated by SBX Instrumentation of Drummondville, in April 2014.
3. Test specimen details

3.1 Installation and test

- Materials receiving: (see date, description, condition and identification on appendix 6)
- Installation date: 2014-10-07
- Sampling requirement according to the procedure exp Q.P.R.4.7
- Installed by: Todd Corley & Zach Taylor from Siplast.
- Supervised by: Todd Corley from Siplast
- Documented by: Denis Isabelle as per Les Services exp inc.
- Tested by: Denis Isabelle.
- Curing temperature: 21 °C to 21.4 °C
- Testing temperature: 21.6 °C to 22 °C
- Elapsed time between installation and testing: ± 7 days.

3.2 Decking

- Type: Profiled metal sheeting, 22 gauge
- Standard: ASTM 653M SS
- Total thickness: 0.76 mm (0.030 in)
- Spacing supports: 2 m (6'-6'').
- Spacing's fasteners: At every flute

3.3 Vapor barrier

- Type: Vapor Bloc SA
- Dimensions: 1210 mm x 22,86 m (48' x 75').
- Attached method: Self-Adhering membrane
- Manufacturer: Bakor

3.4 Thermal Insulation

- Product: Paratherm W
- Dimensions: 1220 mm x 1440 mm x 50.8 mm (4' x 8' x 2'')
- Attached method: Mechanically attached
- Manufacturer: Siplast
3.5 Insulation Attachment Details

- Product: Screw and Plates
- Attachment: Roofing Fasteners and Base Plates
- Attached method: Every 305 mm (12") c/c overlap (*see appendix 1*)
- Manufacturer: OMG

3.6 Coverboard

- Product: Top Rock DD Plus
- Dimensions: 1220 mm x 1220 mm x 50.8 mm (4' x 4' x 2'"
- Attached method: Adhered
- Manufacturer: Roxul

3.7 Coverboard Attachment Details

- Product: Olybond 500
- Attachment: Adhered
- Attached method: Ribbons of 305 mm (12 in) o.c.
- Manufacturer: OMG

3.8 Base sheet membrane:

- Product: Membrane Paradiene 20 TG
- Dimensions: 1 m x 10.21 m (3.2’ x 33.5’)
- Attached method: Heat welded
- Manufacturer: Siplast

3.9 Cap sheet membrane:

- Product: Membrane Paradiene 30 TG
- Dimensions: 1 m x 10.21 m (3.2’ x 33.5’)
- Attached method: Heat welded
- Manufacturer: Siplast
4. Test Results


4.1 System’s Description

- Steel deck (gage 22).
- Vapor barrier, Vapor Bloc SA, Self-adhering membrane
- Insulation: Paratherm W Mechanically attached (16 screws and plates by panel)
- Cover board: Top Rock DD Plus, Adhered, OlyBond 500, ribbons of 305 mm (12 in) o.c.
- Base-Sheet membrane: Paradiene 20 TG, Heat welded
- Cap sheet membrane: Paradiene 20 TG, Heat welded

- Differences between description and the client specifications: none

4.2 Test pressure

The initial test pressure was established at -2.2 kPa (-45 psf) by the client.

As required by the CSA A123.21 standard, the published dynamic uplift resistance (DUR) must be reduced by a safety factor of 1.5. Therefore, the rating of the tested assembly is -1.46 kPa (-30 psf).

4.3 Test failure

- -2.2 kPa (-45 psf)
- Level: B
- Sequence: 7

4.4 Failure mode

- Rupture is cohesive, The Cover board (Top Rock DD Plus) ripped off to the adhesive ribbons

4.5 Generals Conditions

The indicated test data is valid for the tested assembly only. This test report shall not be considered as valid should any other products than those identified herein be used for application.
5. Conclusion

5.1 Conclusion

At the client's request, an assessment should be conducted to determine the suitability of optional and equivalent products which could be used in the tested assembly, without affecting results. The assessment would be based on information provided by the client at the time of testing and on research conducted by the National Research Council of Canada.

5.2 Description

Equivalent products: Components that can replace the products tested in the assembly. They may not be equivalent in their physical properties but are considered as equivalent for their wind uplift performance in the tested assembly. Only the equivalent products listed below can replace the tested products.

Optional components: Products which can be inserted in the assembly without adversely affecting wind uplift performance.

End of Report
Appendix 1

Drawings
Vapor Barrier (Vapor Bloc SA) Layout

Insulation (Paratherm W) Layout
Recovery board (Top Rock DD Plus) adhesive (Olybond 500) Layout

Recovery board (Top Rock DD Plus)Layout
Appendix 2

Gust and Load Amplitude Pressure Table
And Fastener Pullout test
# Gusts and load Amplitude Pressure Table

<table>
<thead>
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<th>Level A</th>
<th>Number of gusts (cycles)</th>
<th>Load-amplitude pressure levels (psf)</th>
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**Test shutdown**

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<th>Groupe 2</th>
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<tr>
<td>Loading sequence</td>
<td>Groupe 1</td>
<td>Groupe 2</td>
</tr>
</tbody>
</table>

**Groupe 1**

- Level A: 25 gusts
- Level B: 175 gusts
- Level C: 100 gusts
- Level D: 100 gusts
- Level E: 75 gusts

**Groupe 2**

- Level A: 250 gusts
- Level B: 350 gusts
- Level C: 350 gusts
- Level D: 225 gusts
- Level E: 225 gusts

**Notes**

- Test shutdown indicated.
- Pressure levels in psi (pounds per square inch).
Appendix 3
Photographic report
### Photographic Report

**Client:** Siplast  
**Date:** 07-10-2014  
**Project:** Mod-bit Top Rock DD Plus System, Partially attached (PARS)  
**Project n°:** SPIZ-DRS-00221706-03-5100

<table>
<thead>
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<th>Photo n°</th>
<th>Description</th>
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<td>Steel deck before the installation of the roof system</td>
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<th>Description</th>
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<tbody>
<tr>
<td>2</td>
<td>View of the Vapor Barrier before the installation of the Insulation</td>
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Photographic Report

Client: Siplast

Date: 07 - 10 - 2014

Project: Mod-bit Top Rock DD Plus System, Partially attached (PARS)

Project n°: SPIZ-DRS-0021706-03-5100

Photo n°: 3

Description:
Installation of the Insulation with the fastners patum

Photo n°: 4

Description:
View of the Insulation before the installation of the Coverboard
# Photographic Report

**Client:** Siplast  
**Date:** 07-10-2014  
**Project:** Mod-bit Top Rock DD Plus System, Partially attached (PARS)  
**Project n°:** SPIZ-DRS-00221706-03-5100

### Photo n°: 5

**Description:**
Installation of the Coverboard with the adhesif pattern

![Photo 5](image)

### Photo n°: 6

**Description:**
View of the adhesif pattern

![Photo 6](image)
# Photographic Report

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<th>Date</th>
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<td>Project n°</td>
<td>SPIZ-DRS-00221706-03-5100</td>
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### Photo n° : 7

**Description :**
View of the Coverboard before the installation of the Base sheet membrane

![Coverboard before installation](image7.jpg)

### Photo n° : 8

**Description :**
Installation of the Base sheet membrane welded on the Coverboard

![Base sheet membrane welding](image8.jpg)
### Photographic Report

**Client:** Siplast  
**Date:** 07-10-2014  
**Project:** Mod-bit Top Rock DD Plus System, Partially attached (PARS)  
**Project n°:** SPIZ-DRS-00221706-03-5100

#### Photo n°: 9

**Description:**
Membrane welded on the Coverboard

#### Photo n°: 10

**Description:**
View of the Base sheet membrane before the installation of the Cap sheet membrane
Photographic Report

Client: Siplast

Date: 07-10-2014

Project: Mod-bit Top Rock DD Plus System, Partially attached (PARS)

Project n°: SPIZ-DRS-00221706-03-5100

Photo n°: 11

Description:
View of the installation of the Cap sheet membrane welded on the Base sheet membrane

Photo n°: 12

Description:
View of the roof system before the test
### Photographic Report

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<thead>
<tr>
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### Photographic Report

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| 15       | **Test progression:**  
|          | **Sequence:** B-1-3  
|          | **Gust:** 190/350 |
| 16       | **Test progression:**  
|          | **Sequence:** B-2-6  
|          | **Gust:** 32/50 |
## Photographic Report

### Client:
Siplast

### Date:
07 - 10 - 2014

### Project:
Mod-bit Top Rock DD Plus System, Partially attached (PARS)

### Project n°:
SPIZ-DRS-00221706-03-5100

### Photo n°: 17

**Description:**
Test progression:

**Sequence:** B-2-7

**Gust:** 8/20

### Photo n°: 18

**Description:**
View of rupture area
Photographic Report

Client : Siplast
Date : 07 - 10 - 2014

Project : Mod-bit Top Rock DD Plus System, Partially attached (PARS)
Project n° : SPIZ-DRS-00221706-03-5100

Photo n° : 19
Description :
View of the rupture

Photo n° : 20
Description :
View of the rupture
Appendix 4
Technical Data and MSDS
ARTICLE PREFACE

This product, under normal use and conditions, is considered an “Article” under the Occupational Health and Safety Administration’s Hazard Communication Standard (29CFR 1910.1200c). Based upon the company’s hazards assessment, knowledge of the product and uses, this product does not pose a physical or health hazard to employees and or end users. Consequently there is no regulatory requirement to develop an MSDS with respect to this product. This non-hazardous MSDS is being provided solely because certain end users require a MSDS regardless of no hazards, lack of regulatory requirements and the above determination.

For purposes of this Article Preface, “Article” means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical, and does not pose a physical hazard or health risk to employees.

SECTION 1: PRODUCT IDENTIFICATION

Product Name: Base Plates
Generic Name: Metal Base Plate
Chemical Name: Aluminum/Zinc Alloy Coated Steel

CAS#: Mixture/None Assigned
Formula: Article
Hazard Label: Not Required

Trade Names: 2-inch barbed plates, 3-inch round plate, 3-inch ribbed plate, AccuTrac plate, 2-inch GypTec Plate, 3-inch GypTec Plate, Eye Hook Seam Plate, 2 3/8 inch Super XHD Barbed Plate, 2 ¾ inch Super XHD Barbed Plate, LiteDeck Plate, 3-inch Galvalume Plate Ribbed, 2-inch Galvalume Plate.

Manufacturer: OMG, Inc.
Website: www.olyfast.com

Telephone: 413-789-0252
Address: 153 Bowles Rd
Agawam, MA 01001

Issue Date: 7/23/2009
Latest Revision: 3/16/2010
SECTION 2: INGREDIENTS

The solid base metal portion is comprised of the following components, which are not released under normal use and conditions:

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<th>Component</th>
<th>CAS#</th>
<th>% by Wt.</th>
<th>OSHA PEL</th>
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<td>Iron (Fe)</td>
<td>7439-89-6</td>
<td>Balance</td>
<td>Fe Oxide Fume - 10 mg/M3</td>
</tr>
<tr>
<td>Manganese (Mg)</td>
<td>7439-96-5</td>
<td>1.0 max</td>
<td>Mn Ceiling - 5 mg/M3</td>
</tr>
<tr>
<td>Phosphorous (P)</td>
<td>7723-14-0</td>
<td>1.5 max</td>
<td>None for inorganic phosphates</td>
</tr>
<tr>
<td>Silicon (Si)</td>
<td>7440-21-3</td>
<td>0.4 max</td>
<td>Si Dust – 15mg/M3</td>
</tr>
<tr>
<td>Aluminum (Al)</td>
<td>7429-50-2</td>
<td>0.1 max</td>
<td>Al Dust – 15mg/M3</td>
</tr>
</tbody>
</table>

The solidified metallic coating is comprised of the following components, which are not released under normal use and conditions:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS#</th>
<th>% by Wt.</th>
<th>OSHA PEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOT-DIPPED METALLIC COATING</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zinc (Zn)</td>
<td>7440-66-6</td>
<td>8.0 max</td>
<td>Zn Oxide Dust - 15 mg/M3</td>
</tr>
<tr>
<td>Aluminum (Al)</td>
<td>7429-50-2</td>
<td>0.1 max</td>
<td>Al Dust – 15mg/M3</td>
</tr>
<tr>
<td>Silicon (Si)</td>
<td>7440-21-3</td>
<td>0.4 max</td>
<td>Si Dust – 15mg/M3</td>
</tr>
<tr>
<td>Chromium compounds (Cr)</td>
<td>&lt;0.01 max</td>
<td></td>
<td>Cr(III) - 1.0 mg/M3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cr(VI) &lt; 0.1 mg/M3</td>
</tr>
</tbody>
</table>

SECTION 3: HAZARD IDENTIFICATION

Potential Health Effects

Used as expected and/or directed, this product is not expected to release or otherwise result in exposure to a hazardous chemical.

The metal plates may have sharp edges.

SECTION 4: FIRST AID MEASURES

Seek medical attention immediately if necessary.

Basic first aid measures should be followed in the event of minor cuts.

NOTE: Normal use does not require welding, burning, or grinding. At elevated temperatures, metal fumes can be created. Inhalation of these fumes in excess of published exposure limits may require medical attention. Should an end user engage in such activities, which would not be consistent with the products normal use and application, the end user would be responsible for determining exposure potential and limits and any other applicable regulatory requirements.
SECTION 5: FIRE AND EXPLOSION DATA

Flash Point: NA
Autoignition Temperature: NA
Fire/Explosion Hazards: None known.
Special Extinguishing Media: Not necessary. Use an extinguishing agent suitable for the surrounding area.
Special Fire Fighting Procedures: Use self-contained breathing apparatus for protection against decomposition products and wear protective clothing.

SECTION 6: SPILL/RELEASE MEASURES

Spills: No special precautions are necessary for spills of bulk material.

Waste Disposal: Follow federal, state and local regulations regarding disposal. Scrap metal can be reclaimed for reuse.

SECTION 7: HANDLING AND STORAGE

Handling and Storage: No special precautions required under normal conditions.

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Used as expected and/or directed, this product is not expected to release or otherwise result in exposure to a hazardous chemical.

Persons handling the product are responsible for determining whether personal protective equipment is necessary based on the circumstances of use.

When necessary, persons may require appropriate gloves to prevent minor cuts.

NOTE: Normal use does not require welding, burning, or grinding. At elevated temperatures, metal fumes can be created. Inhalation of these fumes in excess of published exposure limits may require medical attention. Should an end user engage in such activities, which would not be consistent with the products normal use and application, the end user would be responsible for determining exposure potential and limits and any other applicable regulatory requirements.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Melting Point: 1370 -1482 °C
Specific Gravity: 7.0 - 8.0
Appearance: Grey metallic solid; odorless;
Vapor Pressure: Negligible
Solubility in Water: Insoluble
SECTION 10: STABILITY AND REACTIVITY

**Stability:** Stable  
**Incompatibility:** Strong acids, caustic and oxidizers.  
**Hazardous Decomposition Products:** Metal fumes and certain noxious gases, such as Carbon Monoxide, may be emitted at temperatures above the melting point  
**Hazardous Polymerization:** None

SECTION 11: TOXICOLOGICAL INFORMATION

**Potential Chronic Health Effects:** None known  
**Miscellaneous Toxicological Information:** None known  
**Conditions Aggravated by Exposure:** None known

SECTION 12: ECOLOGICAL INFORMATION

No known significant effects or critical hazards.

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose in accordance with applicable federal, state and local government regulations. Waste generators must determine whether a discarded material is classified as a hazardous waste. USEPA guidelines for the classification determination are listed at 40 CFR 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

SECTION 14: TRANSPORT INFORMATION

**Transportation Summary:** This product is not regulated by the U.S. Department of Transportation.

SECTION 15: REGULATORY INFORMATION

**SARA Title III Section 313 Reporting Substances:** Manganese, chromium compounds, Aluminum (dust and fume), and Zinc (dust and fume) are subject to reporting requirements.  
**Pennsylvania R-T-K List:** Listed components (greater than 0.1% by weight) - Manganese (E), Aluminum (E) and Zinc (E). (E) - environmental hazard.  
**New Jersey R-T-K Environmental Hazardous Substance List:** Listed components - Manganese, Aluminum, Chromium compounds, Barium, and Zinc.  
**California Proposition 65:** Chromium (VI) is a listed component known by the state to cause cancer.
SECTION 16: OTHER INFORMATION

Hazardous Material Information System (USA):

<table>
<thead>
<tr>
<th>HMIS RATING</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>1</td>
</tr>
<tr>
<td>Flammability</td>
<td>0</td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
</tr>
<tr>
<td>Personal Protective Equipment</td>
<td>B</td>
</tr>
</tbody>
</table>

EMERGENCY ASSISTANCE

This Material Data Safety Sheet (“MSDS”) provides general information regarding our products and their use. The safety measures outlined are meant to apply to routine use and any minor injuries and/or accidents that result. Users should seek emergency help immediately for any other injury or accident.

USER RESPONSIBILITY

This MSDS provides health and safety information. The product listed is to be used in applications consistent with our product literature. Persons handling the product must be informed of the recommended safety precautions and must have access to this information. Please contact OMG, Inc. (“OMG” and/or “the Company”) regarding other uses. Exposures must be evaluated so appropriate and safe handling and training programs can be established.

DISCLAIMER

Our products and the information contained herein are supplied on the condition that the persons receiving same will make their own determination as to suitability for their purposes prior to use. In no event will OMG be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information from this sheet or the products to which the information refers. OMG does not warrant the accuracy or timeliness of the information in this sheet and has no liability for any errors or omissions in these materials.

THIS SHEET IS PROVIDED ON AN "AS IS" BASIS. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREAFTER WITH RESPECT TO INFORMATION PROVIDED OR THE PRODUCTS TO WHICH INFORMATION REFERS.
Part 1 General

1.01 DESCRIPTION

OlyBond500 is a two-component polyurethane adhesive used to adhere a variety of board stocks to most roof substrates in both new and re-roof applications. It can also be used to adhere insulation board to insulation board. OlyBond500 is dispensed in ¾- to 1-inch bands that spread to several inches while rising ¾- to 1-inch above the substrate. Place the board stock into the adhesive and walk into place. A chemical cure takes place securing the board in approximately 4 to 8 minutes after application, depending on temperature and weather conditions.

1.02 TYPICAL PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th>PHYSICAL PROPERTY</th>
<th>TEST METHOD</th>
<th>TYPICAL VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>ASTM D-1622</td>
<td>3.2 lb./cf</td>
</tr>
<tr>
<td>Compressive Strength</td>
<td>ASTM D-1621</td>
<td>38 psi @ 6% deflection</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>ASTM D-1623</td>
<td>35 psi</td>
</tr>
<tr>
<td>Water Absorption</td>
<td>ASTM D-2842</td>
<td>5.1%</td>
</tr>
<tr>
<td>Closed Cell Content</td>
<td>ASTM D-2826</td>
<td>90% min.</td>
</tr>
<tr>
<td>R-Value</td>
<td>ASTM C-518</td>
<td>3.8/inch (new)</td>
</tr>
<tr>
<td>VOC Content</td>
<td>ASTM D-2369</td>
<td>5 g/L</td>
</tr>
<tr>
<td>Weight/Gallon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part 1 Component</td>
<td></td>
<td>10.32 lbs.</td>
</tr>
<tr>
<td>Part 2 Component</td>
<td></td>
<td>8.54 lbs.</td>
</tr>
</tbody>
</table>

1.03 PACKAGING

1. Package Sizes:
   - 10 gallon Bag-in-Box sets for use with the PaceCart 2® (5 gal. Part 1; 5 gal. Part 2).
   - 1500 ml SpotShot cartridge sets for use in specially designed applicators.

2. Formulas* (Part 2 component, 5 gallon Bag-in-Box):
   - Regular (40°F +)
   - Winter (0°F – 65°F)

*Part 1 component, 5 gallon Bag-in-Box is required for all applications and is not temperature dependent.

3. Formulas (1500 ml SpotShot cartridges):
   - Regular (40°F +)
   - Winter (0°F – 65°F)

1.04 QUALITY ASSURANCE

The OlyBond500 adhesive must be installed in compliance with the information outlined on the OlyBond500 Request for Warranty form and approved in writing by an authorized representative of OMG, Inc.

1.05 SUBMITTALS

To insure compliance with the OMG warranty requirements, the following information must be submitted to OMG for review prior to installation, and preferably prior to bid:

1. Request for Warranty form filled out with the correct project information.

2. Unusual projects such as air pressurized buildings, cold storage buildings, buildings that have large openings (e.g. where the total wall openings exceed 10% of the total wall area on which the openings are located), may require additional review time.

1.06 JOB CONDITIONS

1. Insure that you have the correct OlyBond500 formulation for the surface and ambient temperature.
   - Bag-in-Box: Regular (40°F +)
   - SpotShot: Regular (40°F +) or Winter (0°F – 65°F)

2. On retrofit-recover projects, the existing roofing material must be investigated to insure adequate attachment of existing system. All wet material must be identified and removed prior to the application of the OlyBond500 adhesive.
3. Existing Phenolic Insulation must be removed.
4. Coordination between trades is essential to avoid unnecessary rooftop traffic.

1.07 STORAGE AND HANDLING
1. Store in a cool, dry location at temperatures between 55°F and 85°F. Protect from freezing at all times. If properly stored, the shelf life for unopened product is 18 months from the date of manufacture.
2. Keep containers closed. Contamination by moisture or basic compounds can cause dangerous pressure build-up in a closed container.
3. The minimum product temperature before application should be 72°F. The minimum ambient and surface temperatures should be 40°F and rising unless the SpotShot winter formulation is being used.

1.08 APPROVALS
OlyBond500 is approved by most roof system manufacturers and is Factory Mutual, Florida Building Code, Miami Dade and UL approved.

1.09 FIRST AID
In case of contact with eyes, immediately flush eyes with running water for at least 15 minutes. Call a physician immediately. In case of contact with skin, wash affected area with soap and water. Remove all contaminated clothing and shoes and clean before re-use. If swallowed, give large amounts of water to dilute. If vomiting occurs, give more water. Call a physician immediately.

1.10 DISPOSAL
PMDI in Part 1 component may cause pollution. Do not discharge into lakes, streams, ponds or public waters. Spilled material, unused contents and empty containers should be neutralized and disposed of in accordance with local, state and federal regulations.

1.11 WARRANTY
OMG issues a 10 year limited material warranty on all OlyBond500 purchases. A full adhesion warranty is available by contacting OMG prior to starting the project and submitting a completed Request for Warranty form.

Part 2  Product

2.01 COMPOSITION AND MATERIALS
OlyBond500 is a dual-component, reaction cure polyurethane adhesive. The blowing agent is water. OlyBond500 does not contain HCFC and has low VOCs.

OlyBond500 is available in 10 gallon sets of Part 1 (diisocyanate, 5 gallons), and Part 2 (resin, 5 gallons). OlyBond500 is also available in 1500 ml SpotShot cartridge sets (4 cartridges/case).

2.02 COMPATIBILITY
1. Roof Decks and Substrates:
   - Structural concrete
   - Gypsum
   - Cementitious wood fiber plank
   - Lightweight insulating concrete
   - Steel (22 gauge or thicker with approved cross section)
   - Plywood (¾-inch thick min.)
   - Smooth surface BUR
   - Smooth and granular surface modified bitumen (properly prepared)
   - Existing sprayed in place polyurethane foam
   - Base sheets
   - Most vapor barriers (including asphaltic and fleece-top)

2. Roof Insulation and Cover Board:
   - Expanded Polystyrene
   - Polyisocyanurate
   - High Density Wood Fiber
   - DensDeck®
   - Perlite
   - Securock®
   - Certain Extruded Polystyrene

Any substrate or insulation not listed must be reviewed by OMG. Call 800-633-3800.

2.03 LIMITATIONS
1. OlyBond500 is not recommended for use with isocyanurate board stock larger than 4 feet x 4 feet.
2. OlyBond500 (regular grade) is not recommended for application when ambient or substrate temperatures are below 40°F.
3. OlyBond500 SpotShot winter formulation is specifically designed to be applied between 0°F and 65°F.
4. OlyBond500 is not recommended for use during wet weather.
5. OlyBond500 cannot be used on wet surfaces.
6. OlyBond500 cannot be used on dirty or grease-laden surfaces.
7. OlyBond500 is not recommended for use on any roof deck that shows signs of deterioration or loss of structural integrity.
8. OlyBond500 is not recommended for use after the expiration date. Contact OMG at 800-633-3800 for options and instructions.

Part 3 Execution

3.01 ROOF DECK CRITERIA
1. The building owner or general contractor shall provide a proper substrate. The structure shall be sufficient to withstand normal construction load and live loads.
2. Defects in the deck must be documented and reported to the specifier, general contractor, roof cover manufacturer and OMG, Inc. The application of OlyBond500 shall not proceed unless the defects are corrected.
3. It is the responsibility of the roofing contractor to ensure that the existing roof is adequately attached to the building and meets all the requirements for an acceptable surface.
4. Acceptable decks are structural concrete, gypsum, cementitious wood fiber plank, lightweight insulating concrete, minimum 22-gauge steel, minimum ½-inch plywood.

3.02 SURFACE PREPARATION
1. General. All surfaces must be dry and free of any debris, dirt, oil or grease before applying OlyBond500.
2. Specific Conditions
   a. Steel. The bonding surface of steel decks must be dry and free of debris, dirt, grease and oil. On new steel, the shop coating/mill oil must be removed. The bonding surface must be free of any cleaner before applying OlyBond500.
   b. Existing Smooth Asphaltic Surfaces. The surface must be dry and free of debris, dirt, grease and oil.
   c. Existing Polyurethane Foam. The surface of the polyurethane roof, including the coating, should be removed with a scarifier (minimum ½ inch). The bonding surface should be blown clean before applying OlyBond500.
   d. Metal. OlyBond500 has excellent adhesion to clean metal. It is recommended that all non-ferrous metals (aluminum, copper, stainless, etc.) be primed to further increase adhesion. Accepted primers include epoxy, chlorinated rubber, and wash primer.
   e. Concrete. All concrete surfaces must be fully cured prior to applying OlyBond500.
   f. Other. For other substrates not listed, contact OMG at 800-633-3800.

3.03 INSULATION
Review the roofing insulation plan. Polyisocyanurate insulation boards cannot be larger than 4 feet x 4 feet. Multiple layers of boards should use the staggered joint method of application. Compatible insulation other than polyisocyanurate can be 4 feet x 8 feet maximum size.

3.04 PRODUCT INSTALLATION
1. Using PaceCart 2
   b. Open flow valves on the dispenser completely and turn machine on. This allows adhesive to be pumped at a 1:1 ratio through the disposable mix tip and onto the substrate in a semi-liquid state.
   c. Apply fluid mixture in ¾ to 1 inch wide wet beads spaced maximum of 12 inches on center that spreads in excess of 2 inches wide while rising ¾ to 1 inch.
   d. Lay insulation board into place and walk-in to assure complete adhesion. Curing typically occurs in 4 to 8 minutes depending on temperature and weather conditions.
   e. Check with roof system manufacturer for project-specific spacing requirements.
2. Using SpotShot Applicator
   a. Attach the disposable mix tip to the top of the SpotShot tube. Insert the tube into SpotShot dispensing tool and dispense onto the substrate. Apply fluid mixture in rows spaced maximum of 12 inches on center that spread to several inches wide while rising ¾ to 1 inch.
b. Lay insulation board into place and walk-in to assure complete adhesion. Curing typically occurs in 4 to 8 minutes depending on temperature and weather conditions.

c. Check with roof system manufacturer for project-specific spacing requirements.

3.05 TYPICAL APPLICATION RATES

Application rates vary depending on surface roughness and absorption rate of the substrate. Typical coverage rates for OlyBond500 dispensed through the PaceCart 2 are 10–20 squares per 10 gallon Bag-in-Box sets. Typical coverage rates for OlyBond500 SpotShot dispensed through applicators is 4–6 squares per case (4 sets of 1500 ml cartridges). All coverage rates are based on 12 inch on center maximum spacing. See chart below for typical application rates on specific substrates.

### APPLICATION RATES (Bag-in-Box Dispensed from PaceCart 2)

<table>
<thead>
<tr>
<th>APPLICATION</th>
<th>TYPICAL COVERAGE</th>
<th>Sqaures/Gallon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation to Concrete</td>
<td></td>
<td>1.7 to 2</td>
</tr>
<tr>
<td>Insulation to Insulation</td>
<td></td>
<td>1.7 to 2</td>
</tr>
<tr>
<td>Insulation to Smooth BUR</td>
<td></td>
<td>1.5 to 1.7</td>
</tr>
<tr>
<td>Insulation to Modified Bitumen</td>
<td></td>
<td>1.5 to 1.7</td>
</tr>
<tr>
<td>Insulation to Gypsum</td>
<td></td>
<td>1 to 1.2</td>
</tr>
<tr>
<td>Insulation to Lightweight Concrete*</td>
<td></td>
<td>1 to 1.7</td>
</tr>
<tr>
<td>Insulation to Wood</td>
<td></td>
<td>1.7 to 2</td>
</tr>
<tr>
<td>Insulation to Cementitious Wood Fiber</td>
<td></td>
<td>1 to 1.2</td>
</tr>
</tbody>
</table>

*Coverage rate may vary substantially based on the absorption rate and/or the surface conditions of the LWC.

3.06 REACTION TIME

It is important to monitor the speed of the reaction in relation to the temperature (substrate and ambient) at time of application to ensure a complete reaction. Note the charts below for correct ‘Part 2’ component selection:

### TYPICAL REACTION TIME CHARACTERISTICS

**A. 5 Gallon Bag-in-Box Packaging**

<table>
<thead>
<tr>
<th>TEMPERATURE</th>
<th>PART 2 FORMULA</th>
<th>TACK FREE TIME (minutes)</th>
<th>SET UP TIME (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40°F +</td>
<td>R</td>
<td>3–5</td>
<td>10–12</td>
</tr>
</tbody>
</table>

**Important**: When applying OlyBond500, board stock must be placed into the adhesive shortly after it has reached its maximum rise while it is still wet and tacky and before it reaches its tack free state.

3.07 AVAILABILITY AND COST

OlyBond500 is available throughout the USA and Canada. For availability and pricing contact OMG, Inc. at 800.633.3800. Deliveries directly to job sites and to specific locations are available.

3.08 PRECAUTIONS

1. **IN CASE OF FIRE**: Use water spray, foam or CO₂. Firefighters should be equipped with self-contained breathing apparatus and turnout gear for protection against PMDI vapors and toxic decomposition products. Avoid water contamination in closed container or confined areas.

2. **DO NOT LEAVE ADHESIVE EXPOSED OR UNPROTECTED**. Polyurethane foam or isocyanurate foam products may present a serious fire hazard if exposed or unprotected. Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any of these materials should carefully determine whether there is a potential fire hazard associated with such product in a specific usage and utilize all appropriate precautionary and safety measures as outline in local, state and federal regulations. When not in use keep stored containers closed.

**PATENT NOTICE**

The OMG PaceCart® dispensing cart and the Bag-in-Box OlyBond500® Part 1/Part 2 adhesive system, including the adhesive dispensing method, are covered by one or more of U.S. Patent Nos. 6,220,526; 8,113,385; 8,132,693; 8,167,170 and 8,474,658.
Paradiene 20 TG is a high performance torch grade modified bitumen base ply designed for use in homogeneous multi-layer modified bitumen roof membrane systems. Paradiene 20 TG consists of a lightweight random fibrous glass mat impregnated and coated with high quality styrene-butadiene-styrene (SBS) modified bitumen. The top surface is covered with a silica parting agent, and the back surface is coated with a high performance modified asphalt adhesive layer specifically formulated for torch applications. The adhesive layer is manufactured using a special process that embosses the surface with a grooved pattern to provide optimum burnoff of the plastic film and maximize application rates.

Paradiene 20 TG is available with Siplast RoofTag RFID roof asset technology on a Special-Made-To-Order basis. See RoofTag Commercial Product Data Sheet for more information.

Product Uses
Paradiene 20 TG is the first ply of all Siplast Paradiene 20 TG/30 TG Systems, and is lapped 3 inches (7.6 cm) side and end. Paradiene 20 TG is torch applied to approved substrates. Contact Siplast for specific approval on product uses.

Product Approvals
Paradiene 20 TG is approved by FM Approvals (FM Standard 4470) for use in Siplast Paradiene 20 TG/30 TG and Paradiene 20 TG/30 FR TG Class 1 insulated steel roof deck constructions and insulated and non-insulated concrete roof deck constructions, subject to FM conditions and limitations. Contact Siplast for specific information regarding FM Class 1 windstorm resistance classifications.

PARADIENE 20 TG
Commercial Product Data Sheet

Product Description
Paradiene 20 TG is a high performance torch grade modified bitumen base ply designed for use in homogeneous multi-layer modified bitumen roof membrane systems. Paradiene 20 TG consists of a lightweight random fibrous glass mat impregnated and coated with high quality styrene-butadiene-styrene (SBS) modified bitumen. The top surface is covered with a silica parting agent, and the back surface is coated with a high performance modified asphalt adhesive layer specifically formulated for torch applications. The adhesive layer is manufactured using a special process that embosses the surface with a grooved pattern to provide optimum burnoff of the plastic film and maximize application rates.

Paradiene 20 TG is available with Siplast RoofTag RFID roof asset technology on a Special-Made-To-Order basis. See RoofTag Commercial Product Data Sheet for more information.

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Product Approvals
Paradiene 20 TG is approved by FM Approvals (FM Standard 4470) for use in Siplast Paradiene 20 TG/30 TG and Paradiene 20 TG/30 FR TG Class 1 insulated steel roof deck constructions and insulated and non-insulated concrete roof deck constructions, subject to FM conditions and limitations. Contact Siplast for specific information regarding FM Class 1 windstorm resistance classifications.

Paradiene 20 TG is classified by Underwriters Laboratories for use in Underwriters Laboratories as Class A roofing systems over non-combustible, insulated non-combustible, and insulated combustible decks, and as Class B roofing systems over combustible decks. Siplast Paradiene 20 TG/30 FR TG Roof Systems have been classified by Underwriters Laboratories as Class A roofing systems over non-combustible, insulated non-combustible, and insulated combustible decks, and as Class B roofing systems over combustible decks. Siplast Paradiene 20 TG/30 FR TG Roof Systems have been classified as Class C roofing systems over combustible, non-combustible, and insulated combustible decks.

Paradiene 20 TG meets or exceeds the requirements of ASTM D 6163 Type I, Grade S, for SBS-modified bituminous sheet materials using glass fiber reinforcements.

Siplast Roof Systems have also received the approval of many regional and local code authorities. Contact Siplast for more information.

COMMERCIAL PRODUCT INFORMATION

<table>
<thead>
<tr>
<th>Unit</th>
<th>Roll</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage</td>
<td>1.0 Square (9.3 m²)</td>
</tr>
<tr>
<td>Coverage Weight Per Square</td>
<td>Min: 76 lb (3.7 kg/m²)</td>
</tr>
<tr>
<td>Roll Length</td>
<td>Min: 33.5 ft (10.21 m)</td>
</tr>
<tr>
<td>Roll Width</td>
<td>Avg: 3.28 ft (1.00 m)</td>
</tr>
<tr>
<td>Thickness</td>
<td>Avg: 114 mils (2.9 mm) Min: 110 mils (2.8 mm)</td>
</tr>
<tr>
<td>Selavage Width</td>
<td>N/A</td>
</tr>
<tr>
<td>Selavage Surfacing</td>
<td>N/A</td>
</tr>
<tr>
<td>Top Surfacing</td>
<td>Silica Parting Agent</td>
</tr>
<tr>
<td>Back Surfacing</td>
<td>Polyolefin Film</td>
</tr>
<tr>
<td>Lines</td>
<td>Two laying lines are placed 3 in (7.6 cm) and 4 in (10.2 cm) from each edge of the material. The line color for this material is white.</td>
</tr>
<tr>
<td>Packaging</td>
<td>Rolls are wound onto a compressed paper tube. The rolls are placed upright on pallets cushioned with corrugated cardboard and are adhered with adhesive at the labels. The top of the palleted rolls is covered with foilized Kraft paper. The palleted material is protected by a heat shrink polyethylene shroud.</td>
</tr>
<tr>
<td>Pallet</td>
<td>41 in X 48 in (104 cm X 122 cm) wooden pallet</td>
</tr>
<tr>
<td>Number Rolls Per Pallet</td>
<td>25</td>
</tr>
<tr>
<td>Number Pallets Per Truckload</td>
<td>18</td>
</tr>
<tr>
<td>Minimum Roll Weight</td>
<td>76 lb (34.5 kg)</td>
</tr>
<tr>
<td>Storage and Handling</td>
<td>All Siplast roll roofing products should be stored on end on a clean flat surface. Care should be taken that rolls are not dropped on ends or edges and are not stored in a leaning position. Deformation resulting from these actions will make proper installation difficult. All roofing should be stored in a dry place, out of direct exposure to the elements, and should not be double stacked. Material should be handled in such a manner as to ensure that it remains dry prior to and during installation.</td>
</tr>
</tbody>
</table>


Rev 3/2014
# PARADIENE 20 TG

## Physical and Mechanical Properties

<table>
<thead>
<tr>
<th>Property (as Manufactured)</th>
<th>Values/Units</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (minimum)</td>
<td>110 mils (2.8 mm)</td>
<td>ASTM D 5147 section 6</td>
</tr>
<tr>
<td>Thickness (average)</td>
<td>114 mils (2.9 mm)</td>
<td>ASTM D 5147 section 6</td>
</tr>
<tr>
<td>vPeak Load @ 73°F (average)</td>
<td>30 lbf/inch (5.3 kN/m)</td>
<td>ASTM D 5147 section 6</td>
</tr>
<tr>
<td>vPeak Load @ 0°F (average)</td>
<td>75 lbf/inch (13.2 kN/m)</td>
<td>ASTM D 5147 section 6</td>
</tr>
<tr>
<td>vElongation @ Peak Load, 73°F (average)</td>
<td>3%</td>
<td>ASTM D 5147 section 6</td>
</tr>
<tr>
<td>vElongation @ Peak Load, 0°F (average)</td>
<td>3%</td>
<td>ASTM D 5147 section 6</td>
</tr>
<tr>
<td>vUltimate Elongation @ 73°F (average)</td>
<td>50%</td>
<td>ASTM D 5147 section 6</td>
</tr>
<tr>
<td>vTear Strength (average)</td>
<td>40 lbf (0.18 kN)</td>
<td>ASTM D 5147 section 8</td>
</tr>
<tr>
<td>Water Absorption (maximum)</td>
<td>1%</td>
<td>ASTM D 5147 section 10</td>
</tr>
<tr>
<td>Dimensional Stability (maximum)</td>
<td>0.1%</td>
<td>ASTM D 5147 section 11</td>
</tr>
<tr>
<td>Low Temperature Flexibility (minimum)</td>
<td>-15°F (-26°C)</td>
<td>ASTM D 5147 section 12</td>
</tr>
<tr>
<td>Compound Stability (minimum)</td>
<td>250°F (121°C)</td>
<td>ASTM D 5147 section 16</td>
</tr>
<tr>
<td>Coating Thickness - Back Surface</td>
<td>≥ 40 mils (1 mm)</td>
<td>ASTM D 5147 section 17</td>
</tr>
</tbody>
</table>

---

1. The value reported is the lower of either MD or XD.

---

Paradiene 20 TG, bonded to an acceptable Paradiene 30, Paradiene 40 FR, or Parafor 50 LT cap sheet with an approved method of attachment, passes ASTM D 5849 both as-manufactured and after heat conditioning according to ASTM D 5147.
**Product Description**
Paradiene 30 TG is a high performance, torch grade modified bitumen finish ply designed for use in homogeneous multi-layer modified bitumen roof membrane systems. Paradiene 30 TG consists of a lightweight random fibrous glass mat impregnated and coated with high quality styrene-butadiene-styrene (SBS) modified bitumen, and surfaced with ceramic granules. The back surface is coated with a high performance modified asphalt adhesive layer specifically formulated for torch applications. The adhesive layer is manufactured using a special process that embosses the surface with a grooved pattern to provide optimum burnoff of the plastic film and maximize application rates.

Paradiene 30 TG is available with Siplast RoofTag RFID roof asset technology on a Special-Made-To-Order basis. See RoofTag Commercial Product Data Sheet for more information.

**Product Uses**
Paradiene 30 TG is the finish ply of the Siplast Paradiene 20 TG/30 TG System, and is lapped 3 inches (7.6 cm) side and end. Siplast Paradiene 20 TG/30 TG Systems are torch applied to approved substrates. Contact Siplast for specific approval on product uses.

**Product Approvals**
Paradiene 30 TG is approved by FM Approvals (FM Standard 4470) for use in Siplast Paradiene 20 TG/30 TG Class 1 insulated steel roof deck constructions and insulated and non-insulated concrete roof deck constructions, subject to FM conditions and limitations.

Paradiene 30 TG is classified by Underwriters Laboratories for use in cULus Classified Siplast Paradiene 20 TG/30 TG Roof Systems. Siplast Paradiene 20 TG/30 TG Roof Systems have been classified as Class C roofing systems over combustible, non-combustible, and insulated combustible decks.

Paradiene 30 TG meets or exceeds the requirements of ASTM D 6163 Type I, Grade G, for SBS-modified bituminous sheet materials using glass fiber reinforcements.

Siplast Roof Systems also have received the approval of many regional and local authorities. Please contact Siplast for specific information as required.

---

**COMMERCIAL PRODUCT INFORMATION**

<table>
<thead>
<tr>
<th>Unit</th>
<th>Roll</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage</td>
<td>0.75 Square (7.0 m²)</td>
</tr>
<tr>
<td>Coverage Weight Per Square</td>
<td>Min: 112 lb (5.4 kg/m²)</td>
</tr>
<tr>
<td>Roll Length</td>
<td>Min: 25.25 ft (7.70 m)</td>
</tr>
<tr>
<td>Roll Width</td>
<td>Avg: 3.28 ft (1.00 m)</td>
</tr>
<tr>
<td>Thickness</td>
<td>Avg: 138 mils (3.5 mm)</td>
</tr>
<tr>
<td>Thickness at Selvage</td>
<td>Avg: 118 mils (3.0 mm)</td>
</tr>
<tr>
<td>Min: 114 mils (2.9 mm)</td>
<td></td>
</tr>
<tr>
<td>Selvage Width</td>
<td>Avg: 2.75 in (70 mm)</td>
</tr>
<tr>
<td>Selvage Surfacing</td>
<td>Burn-off Polyolefin Film</td>
</tr>
<tr>
<td>Top Surfacing</td>
<td>No. 11 ceramic granules, standard color finishes are #93 Bone White and #65 Cinnamon Brown. Contact Siplast for other available colors.</td>
</tr>
<tr>
<td>Back Surfacing</td>
<td>Polyolefin Film</td>
</tr>
<tr>
<td>Lines:</td>
<td>A laying line is placed 3 in (7.6 cm) from selvage edge of the material. The line color for this material is blue.</td>
</tr>
<tr>
<td>Packaging:</td>
<td>Rolls are wound onto a compressed paper tube. The rolls are placed upright on ends opposite the selvage on pallets cushioned with corrugated cardboard and are adhered with adhesive at the labels. The top of the palleted rolls is covered with foilized Kraft paper. The palleted material is protected by a heat shrink polyethylene shroud.</td>
</tr>
<tr>
<td>Pallet:</td>
<td>41 in X 48 in (104 cm X 122 cm) wooden pallet</td>
</tr>
<tr>
<td>Number Rolls Per Pallet:</td>
<td>25</td>
</tr>
<tr>
<td>Number Pallets Per Truckload:</td>
<td>18</td>
</tr>
<tr>
<td>Minimum Roll Weight:</td>
<td>84 lb (38.1 kg)</td>
</tr>
<tr>
<td>Storage and Handling:</td>
<td>All Siplast roll roofing products should be stored on end on a clean flat surface. Care should be taken that rolls are not dropped on ends or edges and are not stored in a leaning position. Deformation resulting from these actions will make proper installation difficult. All roofing should be stored in a dry place, out of direct exposure to the elements, and should not be double stacked. Material should be handled in such a manner as to ensure that it remains dry prior to and during installation.</td>
</tr>
</tbody>
</table>


Rev 7/2014
### Physical and Mechanical Properties

<table>
<thead>
<tr>
<th>Property (as Manufactured)</th>
<th>Values/Units</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (average)</td>
<td>138 mils (3.5 mm)</td>
<td>ASTM D 5147 section 6</td>
</tr>
<tr>
<td>¹Thickness at selvage (minimum) (average)</td>
<td>114 mils (2.9 mm) 118 mils (3.0 mm)</td>
<td>ASTM D 5147 section 6</td>
</tr>
<tr>
<td>²Peak Load @ 73°F (average)</td>
<td>30 lbf/inch (5.3 kN/m)</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td>²Peak Load @ 0°F (average)</td>
<td>75 lbf/inch (13.2 kN/m)</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td>²Elongation @ Peak Load, 73°F (average)</td>
<td>3%</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td>²Elongation @ Peak Load, 0°F (average)</td>
<td>3%</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td>²Ultimate Elongation @ 73°F (average)</td>
<td>55%</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td>²Tear Strength (average)</td>
<td>40 lbf (0.18 kN)</td>
<td>ASTM D 5147 section 8</td>
</tr>
<tr>
<td>Water Absorption (maximum)</td>
<td>1%</td>
<td>ASTM D 5147 section 10</td>
</tr>
<tr>
<td>Dimensional Stability (maximum)</td>
<td>0.1%</td>
<td>ASTM D 5147 section 11</td>
</tr>
<tr>
<td>Low Temperature Flexibility (maximum)</td>
<td>-15°F (-26°C)</td>
<td>ASTM D 5147 section 12</td>
</tr>
<tr>
<td>Granule Embedment Max. avg. loss Max. individual loss</td>
<td>1.5 grams per sample 2.0 grams per sample</td>
<td>ASTM D 5147 section 15</td>
</tr>
<tr>
<td>Compound Stability (minimum)</td>
<td>250°F (121°C)</td>
<td>ASTM D 5147 section 16</td>
</tr>
<tr>
<td>Coating Thickness - Back Surface</td>
<td>≥ 40 mils (1 mm)</td>
<td>ASTM D 5147 section 17</td>
</tr>
<tr>
<td>Cyclic Fatigue</td>
<td>Paradiene 30 TG, bonded to an acceptable Paradiene 20 base ply with an approved method of attachment, passes ASTM D 5849 both as-manufactured and after heat conditioning according to ASTM D 5147.</td>
<td></td>
</tr>
</tbody>
</table>

1. Measured on the selvage edge excluding the granule surfacing.
2. The value reported is the lower of either MD or XD.

Rev 7/2014
MANUFACTURER: Siplast, an Icopal Group Company
(800) 643-1591 or (800) 922-8800

ADDRESS: 1000 E. Rochelle Blvd., Irving, TX 75062

EMERGENCY PHONE NO.: CHEMTREC, (800) 424-9300 (U.S.), (703) 527-3887 (outside of U.S.)

PRODUCT CLASS: Modified Bitumen Membrane


Section II - Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>IRAC</th>
<th>Percent</th>
<th>ACGIH TLV (mg/m³)</th>
<th>OSHA PEL (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt</td>
<td>NO</td>
<td>13.6-48.3</td>
<td>0.5</td>
<td>5</td>
</tr>
<tr>
<td>Filler</td>
<td></td>
<td>16-29.7</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>SBS Polymer</td>
<td>NO</td>
<td>Proprietary</td>
<td>N/A*</td>
<td>N/A*</td>
</tr>
<tr>
<td>Reinforcement</td>
<td>NO</td>
<td>1.6-6.0</td>
<td>N/A*</td>
<td>N/A*</td>
</tr>
<tr>
<td>Surfacing</td>
<td>NO</td>
<td>0-30</td>
<td>10</td>
<td>3.3</td>
</tr>
<tr>
<td>Parting Agent</td>
<td>NO</td>
<td>5-42.5</td>
<td>0.1</td>
<td>10</td>
</tr>
</tbody>
</table>

Section III - Physical Data

Boiling Range of Asphalt: 750°F
Evaporation Rate: Not applicable
% Volatile by Volume: Not applicable
Weight per Gallon: Not applicable

Section IV - Fire and Explosion Data

DOT Category: Not applicable
Flash Point: +475°F by COC
Extinguishing Media: Water fog, foam, dry chemical or CO₂
Special Procedures: None
Unusual Hazards: None

Section V - Health Hazard Data

Inhalation of fumes released during heat welding of this product may cause temporary upper respiratory irritation. Remove affected individuals to fresh air.
Emergency and First Aid Procedures: Flush area with water if contact is made with asphalt during hot application.

Section VI - Reactivity Data

Stability: Stable X Unstable ______
Conditions to Avoid: Strong oxidizing agents and uncontrolled flame.
Hazardous Decomposition Products: H₂S released when heated. CO may be formed with incomplete combustion. Amount of H₂S released is negligible.
Hazardous Polymerization: May occur _____ Will not occur _ X_

Section VII - Spill or Leak Procedures

Steps to be Taken in Case Material is Released or Spilled: No hazards
Waste Disposal Method: Dump at an approved site that complies with local, state, and federal regulations. No special procedures.

Section VIII - Special Protection Information

Respiratory Protection: Not normally needed in a well-ventilated area. If TLV is exceeded, a NIOSH/MESA approved breathing apparatus is recommended.
Ventilation: General, since material is applied only in open areas.
Protective Gloves: Impervious in nature. For use in application and handling.
Eye Protection: Recommended during application.
Other Protective Equipment: None

Section IX - Special Precautions

Handling and Storage: None
Other: None

* Not available

The information and recommendations contained herein are, to the best of Siplast's knowledge and belief, accurate and reliable as of the date issued. Siplast does not warrant or guarantee their accuracy or reliability, and should not be liable for any loss or damage arising out of the use thereof. User should satisfy himself that he has all current data relevant to his particular use.

Rev 4/2014
PARATHERM & PARATHERM CG
POLYISOCYANURATE INSULATION

Commercial Product Data Sheet

Product Description
Paratherm is a rigid roof insulation board comprised of a closed cell polyisocyanurate foam core bonded on each side to fiber-reinforced organic felt facer. Paratherm CG has a coated fiberglass facer. The product provides high thermal R-value, code compliance, and superior physical properties at a low installed cost. Standard product has a compressive strength of 20 psi (Grade 2). Paratherm and Paratherm CG are also available in 25 psi (Grade 3).

Product Uses
Paratherm is used in combination with coverboards approved in advance by Siplast for all constructions requiring a single-source guarantee. Each panel of Paratherm must be secured to the roof deck with Factory Mutual Approved fasteners (appropriate to the deck type) and plates installed in accordance with current FM requirements. Alternatively, maximum 4 ft x 4 ft (1.22 m x 1.22 m) panels of Paratherm may be adhered to a prepared existing concrete deck with a full mopping of hot asphalt or approved insulation adhesive. Paratherm CG (coated fiberglass facer - non-organic) is required over new concrete substrates due to the anticipated high moisture content. This includes all layers where multiple layers of Paratherm are used. Contact Siplast for approvals on applications over new concrete decks or other product uses.

Product Approvals
Paratherm meets or exceeds the requirements of ASTM C 1289 Type II, Class 1, Grade 2. Paratherm CG meets or exceeds ASTM C 1289 Type II Class 2, Grade 2 Grade 3 product (25 psi) is also available. Paratherm is Factory Mutual Approved for use in Class 1 constructions when installed according to FM requirements. Paratherm has been classified by Underwriters Laboratories, Inc. as an approved roof insulation in all Siplast Class A roof constructions and Roof/Ceiling hourly fire-rated assemblies, and is classified by Underwriters Laboratories Canada.

Mechanical and physical properties are on the back side of this data sheet.

COMMERCIAL PRODUCT INFORMATION
Panel Size - Flat Panels: Available in 4' x 8' (1.22 m x 2.43 m) and 4' x 4' (1.22 m x 1.22 m) panels.

Thickness - Flat Panels: 1 inch (2.54 cm) to 4 inches (10.16 cm)

Multiple Layer Configurations: A maximum individual flat-stock panel thickness of 2.7 inches is recommended. For configurations requiring more than 2.7 inches of Paratherm, a multiple layer configuration is recommended.

Panel Size - Tapered Panels: Available in 4' x 4' (1.22 m x 1.22 m) panels.

Thickness - Tapered Panels: Panel thickness varies with taper/slope of the panel. Tapered panels are available to provide 1/16, 1/8, or 1/4 inch per foot slope (0.5%, 1%, or 2%). 1/16 inch slope systems should be used with caution since they have not shown to effectively improve drainage.

Packaging:
Paratherm is shipped to the job site protected by a plastic wrap, plastic bag, or both. This factory packaging is intended for handling the Paratherm in the manufacturing plant and during transit; it should not be relied upon as job site protection from the elements.

Storage & Handling:
Material delivery should be carefully coordinated with the schedule for roofing operations to minimize job site storage time. Interior storage offering dry, well-ventilated conditions should be considered when the product is to be stored for more than 14 days prior to installation. When short-term job site storage is necessary, Paratherm should be stored flat on raised pallets or platforms at least 4 inches above the ground. Pallets should be stored on a finished surface rather than on dirt or grass to avoid upward transpiration of moisture. Pallets should be covered with a waterproof covering, preferably using a breathable material such as canvas.

# PARATHERM POLYISOCYANURATE INSULATION

Physical and Mechanical Properties

## TYPICAL PROPERTIES AND CHARACTERISTICS

<table>
<thead>
<tr>
<th>Nominal Thickness inch (mm)</th>
<th>LTTR* ASTM C 1289-11 (CAN/ULC-S770 -09)</th>
<th>LTTR** (CAN/ULC-S770 -03)</th>
<th>Flute Span (max.) inch (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 (25)</td>
<td>5.6</td>
<td>6.0</td>
<td>2 5/8 (67)</td>
</tr>
<tr>
<td>1.2 (30)</td>
<td>6.7</td>
<td>7.2</td>
<td>2 5/8 (67)</td>
</tr>
<tr>
<td>1.5 (38)</td>
<td>8.5</td>
<td>9.0</td>
<td>3 3/8 (86)</td>
</tr>
<tr>
<td>1.8 (46)</td>
<td>10.2</td>
<td>10.9</td>
<td>3 3/8 (86)</td>
</tr>
<tr>
<td>2.0 (51)</td>
<td>11.4</td>
<td>12.1</td>
<td>3 3/8 (86)</td>
</tr>
<tr>
<td>2.2 (56)</td>
<td>12.6</td>
<td>13.4</td>
<td>3 3/8 (86)</td>
</tr>
<tr>
<td>2.3 (58)</td>
<td>13.2</td>
<td>14.0</td>
<td>3 5/8 (92)</td>
</tr>
<tr>
<td>2.5 (64)</td>
<td>14.4</td>
<td>15.3</td>
<td>3 5/8 (92)</td>
</tr>
<tr>
<td>2.6 (66)</td>
<td>15.0</td>
<td>15.9</td>
<td>3 5/8 (92)</td>
</tr>
<tr>
<td>2.7 (69)</td>
<td>15.6</td>
<td>16.6</td>
<td>3 5/8 (92)</td>
</tr>
</tbody>
</table>

The following are not recommended for use in a single layer application.

<table>
<thead>
<tr>
<th></th>
<th>LTTR* ASTM C 1289-11 (CAN/ULC-S770 -09)</th>
<th>LTTR** (CAN/ULC-S770 -03)</th>
<th>Flute Span (max.) inch (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.8 (71)</td>
<td>16.2</td>
<td>17.2</td>
<td>3 5/8 (92)</td>
</tr>
<tr>
<td>3.0 (76)</td>
<td>17.4</td>
<td>18.5</td>
<td>3 5/8 (92)</td>
</tr>
<tr>
<td>3.1 (78)</td>
<td>18.0</td>
<td>19.1</td>
<td>3 5/8 (92)</td>
</tr>
<tr>
<td>3.2 (81)</td>
<td>18.6</td>
<td>19.8</td>
<td>3 5/8 (92)</td>
</tr>
<tr>
<td>3.5 (89)</td>
<td>20.5</td>
<td>21.7</td>
<td>3 5/8 (92)</td>
</tr>
<tr>
<td>3.8 (97)</td>
<td>22.3</td>
<td>23.7</td>
<td>3 5/8 (92)</td>
</tr>
<tr>
<td>4.0 (102)</td>
<td>23.6</td>
<td>25.0</td>
<td>3 5/8 (92)</td>
</tr>
</tbody>
</table>

Information on other thicknesses available upon request.


** Long-term Thermal Resistance (LTTR) Values determined in conformance with CAN/ULC-S770-03.

## HIGH THERMAL VALUE CONFIGURATIONS

<table>
<thead>
<tr>
<th>LTTR</th>
<th>ASTM C 1289-11 (CAN/ULC-S770 -09)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 (20.4)</td>
<td>2 layers of 1.8&quot; Paratherm or Paratherm CG</td>
</tr>
<tr>
<td>25 (25.2)</td>
<td>2 layers of 2.2&quot; Paratherm or Paratherm CG</td>
</tr>
<tr>
<td>30</td>
<td>2 layers of 2.6&quot; Paratherm or Paratherm CG</td>
</tr>
<tr>
<td>35 (36)</td>
<td>2 layers of 3.1&quot; Paratherm or Paratherm CG</td>
</tr>
<tr>
<td>40 (41)</td>
<td>2 layers of 3.5&quot; Paratherm or Paratherm CG</td>
</tr>
</tbody>
</table>

Rev 12/13
MATERIAL SAFETY DATA SHEET

Section I

Manufacturer: Siplast, an Icopal Group Company
(800) 643-1591 or (800) 922-8800
Address: 1000 E. Rochelle Blvd., Irving, TX 75062-3940
Emergency Phone No.: CHEMTREC, (800) 424-9300 (U.S.), (703) 527-3887 (outside of U.S.)
Product Class: Polyisocyanurate Roof Insulation
Trade Name: Paratherm Polyisocyanurate Insulation

Section II - Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>NTP/IRAC OSHA CARC.</th>
<th>Percent</th>
<th>ACGIH TLV ppm</th>
<th>ACGIH TLV mg/m³</th>
<th>OSHA PEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyisocyanurate Foam</td>
<td>No</td>
<td>10-90</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Section III - Physical Data

Boiling Point: N/A
Freezing Point: N/A
Corrosivity: N/A
Evaporation Rate (Butyl Acetate = 1): N/A
Vapor Density (Air = 1): N/A
% Volatile by Volume: N/A
Sp. Gr.: 0.03
Solubility in H₂O: Not soluble
Vapor Pressure: N/A
Physical State: Solid
Odor and Appearance: Light tan foam plastic - no odor with cellulose/glass filler facings.

Section IV - Fire and Explosion Data

Flammability: Yes X No ___ If yes, under which conditions: Can be ignited by open flame.
Flashpoint (°C) and Method: N/A
Autoignition Temperature (°C): Not available
Lower Flammable Limit (% by Vol): N/A
Upper Flammable Limit (% by Vol): N/A

Hazardous Combustion Products: Carbon monoxide, carbon dioxide.

EXlosion DATA:
Sensitivity to impact: There is no evidence to show that this product is sensitive to physical shock.
Sensitivity to static discharge: There is no evidence to show that this product is sensitive to static discharge.

Extinquishing media: In case of fire, use dry chemicals, carbon dioxide, foam or water fog.

Special Fire Fighting Procedures: Fire fighters should wear self-contained breathing apparatus.
Unusual Fire and Explosion Hazards: Product will burn on exposure to open flame. Keep away from all open flames, welders' torches, etc.

Section V - Health Hazard Data

Route of Entry: Skin Contact X
Skin Absorption ___
Eye Contact X
Inhalation X
Ingestion ___

Effects of acute exposure to product: Mechanical irritant to skin, eyes, and upper respiratory system (especially when material is fabricated).
Effects of chronic exposure: Possible allergic reactions to respiratory system and skin with repeated exposure to this product.
Trade Name: Paratherm Polyisocyanurate Insulation
Page Two

Exposure Limits: N/A
Irritancy of Products: N/A
Sensitization to product: Possible respiratory and skin.
Carcinogenicity: No evidence

Teratogenicity: No evidence
Reproductive Toxicity: No evidence
Mutagenicity: No evidence
Synergistic products: None known
Tumorogenicity: No evidence

Emergency and First Aid Procedures:
SKIN: Wash with soap and water.
EYES: Flush with water for 15 minutes or until irritation ceases.
INHALATION: Remove affected person to fresh air.
Persons who develop symptoms of allergy, irritation, respiratory problems, or puffiness around the eyes should be examined by a physician. Respiratory symptoms and dermatitis associated with pre-existing medical conditions may be aggravated by exposure to this material.

Section VI - Reactivity Data
Stability: Stable X Unstable _____
Conditions to Avoid: Sparks, flames and ignition sources.
Materials to Avoid: Strong acid or base may degrade product.
Hazardous Decomposition Products: Toxic smoke or vapors, such as carbon monoxide or carbon dioxide, may be released in a fire.
Hazardous Polymerization:
May occur _____ Will not occur X

Section VII - Spill or Leak Procedures
Steps to be Taken in Case Material is Released or Spilled: Normal housekeeping
Waste Disposal Method: Dispose of in accordance with all local, state, and federal regulations.

Section VIII - Special Protection Information
Respirator: OSHA approved respirator or dust mask, especially when cutting.
Ventilation: Sufficient ventilation (when cutting) to keep exposure to nuisance dust below 5 mg/m³.
Gloves: Protective
Eye Protection: Safety glasses or goggles, especially when cutting.
Clothing: Protective
Footwear: Protective
Other Protective Equipment: None

Section IX - Special Precautions
Handling and Storage: No special equipment required. Protect from moisture.
Special Shipping Information: None

The information and recommendations contained herein are, to the best of Siplast's knowledge and belief, accurate and reliable as of the date issued. Siplast does not warrant or guarantee their accuracy or reliability, and should not be liable for any loss or damage arising out of the use thereof. User should satisfy himself that he has all current data relevant to his particular use.

Rev 9/2011
PARAFAST PA ROOFING FASTENER

Commercial Product Data Sheet

Product Description and Product Uses
The Parafast PA Roofing Fastener is a standard duty roofing screw that is pre-assembled with the Parafast 3-inch metal plate. The Parafast PA Roofing Fastener is designed to secure roof insulation and substrate panels, and base sheets in approved assemblies, to standard steel (18 ga. - 24 ga.), wood, and plywood roof decks. It is available in lengths from 2 1/4" to 8". It is Factory Mutual Approved and meets the code compliance requirements for Miami-Dade County, Florida.

Product Application
The Parafast PA Roofing Fastener must penetrate steel decks a minimum of 3/4", and wood plank decks a minimum of 1". The fastener must completely penetrate plywood decks and extend a minimum 1/2" beyond the underside of the plywood. Using a screw gun recommended for roofing fasteners, drive the fastener until a slight depression is seen around the plate. When fastening through stiff, high-density rigid insulation boards, watch for the plate to dimple.

Note: Care must be taken to not overdrive the fastener and fracture the surface skin or face of the panel. The fastener must be tight enough so that the plate doesn't turn.

For steel deck construction, Factory Mutual requires that the fastener penetrate the deck panel through the top flanges.

Physical Data
Thread Diameter: .220
Head Diameter: .435
Head Style: #3 Phillips Truss Head
Drive Bit: #3 Phillips bit drive included in each carton.

<table>
<thead>
<tr>
<th>Product No.</th>
<th>Length</th>
<th>Thread Length</th>
<th>Units/Box</th>
<th>Box Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>P214</td>
<td>2 1/4&quot;</td>
<td>Full</td>
<td>250</td>
<td>15 lb</td>
</tr>
<tr>
<td>P278</td>
<td>2 7/8&quot;</td>
<td>2 5/8&quot;</td>
<td>250</td>
<td>16 lb</td>
</tr>
<tr>
<td>P314</td>
<td>3 1/4&quot;</td>
<td>3&quot;</td>
<td>250</td>
<td>17 lb</td>
</tr>
<tr>
<td>P334</td>
<td>3 3/4&quot;</td>
<td>3&quot;</td>
<td>250</td>
<td>18 lb</td>
</tr>
<tr>
<td>P412</td>
<td>4 1/2&quot;</td>
<td>3&quot;</td>
<td>250</td>
<td>19 lb</td>
</tr>
<tr>
<td>P500</td>
<td>5&quot;</td>
<td>3&quot;</td>
<td>250</td>
<td>20 lb</td>
</tr>
<tr>
<td>P600</td>
<td>6&quot;</td>
<td>4&quot;</td>
<td>250</td>
<td>21 lb</td>
</tr>
<tr>
<td>P700</td>
<td>7&quot;</td>
<td>4&quot;</td>
<td>250</td>
<td>23 lb</td>
</tr>
<tr>
<td>P800</td>
<td>8&quot;</td>
<td>4&quot;</td>
<td>250</td>
<td>24 lb</td>
</tr>
</tbody>
</table>

Packaging: Corrugated boxes
Sizes: 2 1/4" - 3 1/4" (12 cm - 13 cm) wooden pallet

Note: Sizing selection procedure is located on the back side of this page.
PARAFAST PA ROOFING FASTENER LENGTH SELECTION PROCEDURE

1. If applicable, determine thickness of existing roofing material.
2. Add thickness of new insulation.
3. Add 3/4" minimum fastener penetration.
4. If odd size requirement, always size up in length, not down. See example.

<table>
<thead>
<tr>
<th>Example</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Roofing</td>
<td>1 3/4&quot;</td>
</tr>
<tr>
<td>New Insulation</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>Min. Embedment</td>
<td>3/4&quot;</td>
</tr>
<tr>
<td>Total Fastening Range</td>
<td>3&quot;</td>
</tr>
</tbody>
</table>

The proper fastener length for this example is 3 1/4".
effect on the performance of the product and the installation of roofing membranes. For example, hot asphalt applications can blister, torched modified bitumen may not properly bond; and adhesives for single ply membranes may not dry properly. Moisture accumulation may also significantly decrease wind uplift and vertical pull resistance in the system or assembly. DensDeck® Prime Roof Boards containing excessive free moisture content may need to be evaluated for structural stability to assure wind uplift performance.

Fire Resistance Classifications

DensDeck® Prime Roof Boards are excellent fire barriers over combustible and noncombustible roof decks, including steel decks.

UL 790 Classification: DensDeck® Prime Roof Boards have been classified by Underwriters Laboratories LLC (UL) for use as a fire barrier over combustible and noncombustible decks in accordance with the ANSI/UL 790 test standard. The UL classification includes a comprehensive Class A, B, or C rating. For additional information concerning the UL 790 classification, consult the UL Certification Directory.

UL 1296 Classification: DensDeck® Prime Roof Boards have also been classified by UL in roof deck constructions for internal (under deck) fire exposure in accordance with the ANSI/UL 1296 Steiner Tunnel test. For additional information concerning the UL 1295 classification, consult the UL Certification Directory.

FM Class 1 Approvals: DensDeck® Prime Roof Boards are included in numerous roofing assemblies with a Factory Mutual (FM) Class 1 fire rating, 1/4" (6.4 mm) DensDeck

Prime Roof Boards have passed testing under the FM Calorimeter Standard 4450 and have been approved by FM as such for insulated steel deck roofs when installed according to the conditions identified by FM. For more information concerning FM Approvals and FM Class 1 assemblies with DensDeck® Prime Roof Boards, consult FM or RoofNav®.

Type X: 5/8" (15.9 mm) DensDeck® Prime Fireguard® Roof Boards are manufactured to meet the "Type X" requirements of ASTM C1177 for increased fire resistance beyond regular gypsum board.

UL Fire Resistance Ratings: 5/8" (15.9 mm) DensDeck® Prime Fireguard Roof Boards are designated as Type DD by UL and included in assembly designs investigated by UL for hourly fire resistance ratings. 5/8" (15.9 mm) DensDeck® Prime Fireguard Roof Boards may also replace any unclassified 5/8" (15.9 mm) gypsum board in an assembly in the UL Fire Resistance Directory under the prefix "P46. Flame Spread and Smoke Developed. When tested in accordance with ASTM E84, DensDeck® Prime Roof Boards had Flame Spread 0, Smoke Developed 0.

Wind Uplift

DensDeck® Prime Roof Boards are included in numerous assemblies evaluated by FM or other independent laboratories for wind uplift performance. For information concerning such assemblies, please visit www.roofnav.com.

Physical Properties

<table>
<thead>
<tr>
<th>Properties</th>
<th>1/4&quot; (6.4 mm)</th>
<th>1/2&quot; (12.7 mm)</th>
<th>5/8&quot; (15.9 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness, nominal</td>
<td>1/4&quot; (6.4 mm) ± 1/16&quot; (1.6 mm)</td>
<td>1/2&quot; (12.7 mm) ± 1/32&quot; (0.8 mm)</td>
<td>5/8&quot; (15.9 mm) ± 1/32&quot; (0.8 mm)</td>
</tr>
<tr>
<td>Width, standard</td>
<td>4&quot; (1219 mm)</td>
<td>4&quot; (1219 mm)</td>
<td>4&quot; (1219 mm)</td>
</tr>
<tr>
<td>Length, standard</td>
<td>48&quot; (1219 mm) and 8' (2438 mm)</td>
<td>8' (2438 mm)</td>
<td>8' (2438 mm)</td>
</tr>
<tr>
<td>Weight, nominal, lbs./sq. ft. (Kg/m²)</td>
<td>1.2 (5.9)</td>
<td>2.0 (9.8)</td>
<td>2.5 (12.2)</td>
</tr>
<tr>
<td>Surfacing</td>
<td>Fiberglass mat with non-asphaltic coating</td>
<td>Fiberglass mat with non-asphaltic coating</td>
<td>Fiberglass mat with non-asphaltic coating</td>
</tr>
<tr>
<td>Flexural Strength, parallel, lbf./in. (N)</td>
<td>≥ 40 (178)</td>
<td>≥ 80 (356)</td>
<td>≥ 100 (444)</td>
</tr>
<tr>
<td>Flute Spanability</td>
<td>2-5/8&quot; (66.7 mm)</td>
<td>5&quot; (127 mm)</td>
<td>6&quot; (152 mm)</td>
</tr>
<tr>
<td>Permeance, perms (mg/Pa.s.m²)</td>
<td>&gt;30 (&gt;170)</td>
<td>&gt;23 (&gt;130)</td>
<td>&gt;17 (&gt;97)</td>
</tr>
<tr>
<td>R Value, Rf + F †/BTU (m²·K/W)</td>
<td>28</td>
<td>56</td>
<td>67</td>
</tr>
<tr>
<td>Linear Expansion with Change in Temp., in/&quot;F (mm/°C)</td>
<td>8.5 x 10⁻⁶ (15.3 x 10⁻⁶)</td>
<td>8.5 x 10⁻⁶ (15.3 x 10⁻⁶)</td>
<td>8.5 x 10⁻⁶ (15.3 x 10⁻⁶)</td>
</tr>
<tr>
<td>Linear Expansion with Change in Moisture, %</td>
<td>6.25 x 10⁻⁴</td>
<td>6.25 x 10⁻⁴</td>
<td>6.25 x 10⁻⁴</td>
</tr>
<tr>
<td>Water Absorption, % max</td>
<td>&lt;10</td>
<td>&lt;10</td>
<td>&lt;10</td>
</tr>
<tr>
<td>Compressive Strength, psi nominal</td>
<td>900</td>
<td>900</td>
<td>900</td>
</tr>
<tr>
<td>Surface Water Absorption, grams, nominal</td>
<td>&lt;2.0</td>
<td>&lt;2.0</td>
<td>&lt;2.0</td>
</tr>
<tr>
<td>Flame Spread, Smoke Developed (ASTM E84)</td>
<td>0/0</td>
<td>0/0</td>
<td>0/0</td>
</tr>
<tr>
<td>Bending Radius</td>
<td>4&quot; (1219 mm)</td>
<td>8' (1925 mm)</td>
<td>8' (2438 mm)</td>
</tr>
</tbody>
</table>

1. Tested in accordance with ASTM C473 method B.
2. Tested in accordance with ASTM E861.
3. Tested in accordance with ASTM E96 (dry cup method).
4. Tested in accordance with ASTM C518 (heat flow meter).
5. Specified values per ASTM C1177.
6. Tested in accordance with ASTM C473.

TRADEMARKS: DENSDECK, FIREGUARD and the GEORGIA-PACIFIC logo are trademarks owned by or licensed to Georgia-Pacific Gypsum LLC. ROOFNAV is a registered mark of FM Global.

WARRANTIES, REMEDIES AND TERMS OF SALE: For current warranty information for this product, please go to www.gpgypsum.com and select the product for warranty information. All sales of this product by Georgia-Pacific are subject to our Terms of Sale available at www.gpgypsum.com.

UPDATES AND CURRENT INFORMATION: The information in this document may change without notice. Visit our website at www.gpgypsum.com for updates and current information.

CAUTION: For product fire, safety and use information, go to www.buildgp.com/safetyinfo or call 1-800-225-6119.

FIRE SAFETY CAUTION: Passing a fire test in a controlled laboratory setting and/or certifying or labeling a product as having a one-hour, two-hour, or any other fire resistance or protection rating and, therefore, as acceptable for use in certain fire-rated assemblies/systems, does not mean that either a particular assembly/system incorporating the product, or any given piece of the product itself, will necessarily possess one-hour fire resistance, two-hour fire resistance, or any other specified fire resistance or protection in an actual fire. In the event of an actual fire, you should immediately take any and all actions necessary for your safety and the safety of others without regard for any fire rating of any product or assembly/system.
DensDeck® Prime Roof Board has been enhanced to provide a broader compatibility and higher performance with roofing adhesives. Face mat enhancements allow adhesives to be applied more uniformly and consistently. In adhered, single-ply membrane roofing, enhanced DensDeck Prime demonstrated an average of 24% better bond than the original products, when using solvent-based adhesives. (Average based on 60 sq.ft./gal coverage rates.) Choose DensDeck Prime Roof Boards for adhered and self-adhered “peel & stick” roofing systems, as well as hot mopped, cold mastic and torch-applied modified bitumen roofs. Enhanced DensDeck Prime Roof Boards create a stronger and more economical installation by reducing the amounts of mastic or adhesive used and potentially eliminates the field primer. Consult with membrane manufacturer for actual priming requirements.

DensDeck Prime Roof Boards are the first and only fiberglass mat gypsum roof boards with a 90-day weather exposure limited warranty when applied vertically on a parapet wall.** (Limited to 1/2” and 5/8” products only)

Primary Uses
Roof system manufacturers and designers have found DensDeck Prime Roof Board to be compatible with many types of roofing systems, including: modified asphalt, single-ply, metal systems, recover board, as well as an overlayment for polysoupyrene and polystyrene insulation. DensDeck Prime Roof Board can also be used as a form board for poured gypsum concrete deck in roof applications as well as a substrate for spray foam roofing systems. 1/2” (12.7 mm) and 5/8” (15.9 mm) DensDeck Prime Roof Board may also be used in vertical applications as a backer board or liner for the roof side of parapet walls.

DensDeck Prime Roof Board may allow the bonding of cold mastic modified bitumen and torching directly to the surface. Consult with the system manufacturer for recommendations on this application.

DensDeck Prime Roof Board is the preferred substrate for vapor retarders.

Standards and Code Approvals
DensDeck Prime Roof Boards are manufactured to meet ASTM C1177 and have the following approvals:
- Florida Product Approved
- Miami-Dade County Product Control Approved

Recommendations and Limitations
DensDeck Prime Roof Boards are manufactured to act with a properly designed roof system following good roofing practices. The actual use of DensDeck Prime Roof Board as a roofing component in any system or assembly is the responsibility of the roofing system’s design authority. Consult with the appropriate system manufacturer and/or design authority for system and assembly specifications and instructions on applying other products to DensDeck Prime Roof Board. Georgia-Pacific does not warrant and is not responsible for any systems or assemblies utilizing DensDeck Prime Roof Board or any component in such systems or assemblies other than DensDeck Prime Roof Board.

The need for a separator sheet between the DensDeck Prime Roof Board and the roofing membrane must be determined by the roof membrane manufacturer or roofing system designer.

* Testing was done in accordance with FM approvals 4470, Appendix C: Smaller Scale Tests, Membrane Diffusion Tests for Roofing Membranes and Substrates Using Tensile Loading.

** For complete warranty details, visit www.DensDeck.com. (Limited to 1/2” and 5/8” products only.)

Confirms any priming requirements with the membrane manufacturer. When applying solvent-based or primers, allow sufficient time for the solvent to flash off to avoid damage to roofing components.

DensDeck Prime Roof Boards should not be subjected to abnormal or excessive loads or foot traffic, such as, but not limited to, use on plaza decks or under steel-wheeled equipment that may fracture or damage the panels. Provide suitable roofing system support when required.

When using DensDeck Prime Roof Boards for hot-mopped applications, Georgia-Pacific recommends maximum asphalt application temperatures for Type III asphalt at 425°F (220°C) to 450°F (232°C). Application temperatures above these recommended temperatures may adversely affect roof system performance. For application temperatures in excess of 450°F (232°C) and for mopping of type IV asphalt, ribbon or spot mopping or the installation of a perforated base sheet are recommended methods. Consult and follow the roof system manufacturer’s specifications for full mopping applications and temperature requirements.

When using DensDeck Prime Roof Board as a substrate for torch applications, ensure that the product is dry and that the proper torching technique is used. Limit the heat to the DensDeck Prime Roof Board. Maintain a majority of the torch flame directly on the roll. Conditions beyond the control of Georgia-Pacific, such as weather conditions, dew, leaks, application temperatures and techniques may cause adverse effects with roofing systems.

Handling and Use—CAUTION
This product contains fiberglass facings which may cause skin irritation. Dust and fibers produced during the handling and installation of the product may cause skin, eye and respiratory tract irritation. Avoid breathing dust and minimize contact with skin and eyes. Wear long sleeve shirts, long pants and eye protection. Always maintain adequate ventilation. Use a dust mask or NIOSH/MSHA approved respirator as appropriate in dusty or poorly ventilated areas.

Moisture Management
DensDeck Prime Roof Boards, like other components used in roofing systems, must be protected from exposure to moisture before, during and after installation.

Remove the plastic packaging from all DensDeck Prime Roof Board immediately upon receipt of delivery. Failure to remove the plastic packaging may result in entrapment of condensation or moisture. DensDeck Prime Roof Board stored outside must be stored level and off the ground and protected by a breathable waterproof covering. Provide means for air circulation around and under stored bundles of DensDeck Prime Roof Board. DensDeck Prime Roof Board must be covered the same day as installed.

Avoid application of DensDeck Prime Roof Boards during rain, heavy fog and any other conditions that may deposit moisture on the surface, and avoid the overuse of non-vented, direct-fired heaters during winter months. When roofing systems are installed on new poured concrete or light weight concrete decks or when re-roofing over an existing concrete deck, a vapor barrier should be installed above the concrete to retard the migration of water from the concrete into the roof assembly. Always consult the roofing system manufacturer or design authority for specific instructions for applying other products to DensDeck Prime Roof Boards.

Moisture vapor movement by convection must be eliminated, and the flow of water by gravity through imperfections in the roof system must be controlled. After a leak has occurred, no condensation on the upper surface of the system should be tolerated, and the water introduced by the leak must be dissipated to the building interior in a minimum amount of time.

Although DensDeck Prime Roof Boards are engineered with fiberglass facings and high density gypsum cores, the presence of free moisture can have a detrimental...
1. Product and Company Identification

Material name: Glass Mat Faced Gypsum Panels
Product use: Products accommodate a wide range of wall, floor, ceiling and roof applications
Product list: See Product List found in Section 16
Manufacturer information: Georgia-Pacific Gypsum LLC
Georgia-Pacific Gypsum II LLC
133 Peachtree Street, NE
Atlanta, GA 3030
MSDS Request 404.652.5119
Technical Information 800.225.5119
Chemetrec - Emergency 800.424.9300

2. Hazards Identification

Emergency overview: CAUTION!
Cutting, sanding, or otherwise working with this product may generate large amounts of dust. Dust can be irritating to the eyes, skin, and respiratory system.

Potential health effects:
- Eyes: Dust may cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
- Skin: Dust and glass fibers may produce itching, rash, and redness. Handling can cause dry skin.
- Inhalation: Dust may cause respiratory tract irritation.
- Ingestion: Not applicable under normal conditions of use. May result in obstruction and temporary irritation of the digestive tract.

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS #</th>
<th>Percent/Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gypsum (Calcium Sulfate, Dihydrate)</td>
<td>10101-41-4</td>
<td>60 - 100</td>
</tr>
<tr>
<td>Vermiculite (Non-Asbestos Containing)**</td>
<td>1318-00-9</td>
<td>3 - 7</td>
</tr>
<tr>
<td>Crystalline Silica (Quartz)*</td>
<td>14808-60-7</td>
<td>1 - 5</td>
</tr>
<tr>
<td>Continuous Filament Glass Fiber</td>
<td>65997-17-3</td>
<td>1 - 5</td>
</tr>
</tbody>
</table>

Composition comments: 
** Found in products in List B, Section 16 of this MSDS. 
Gypsum (calcium sulfate, dihydrate) and vermiculite contain naturally occurring crystalline silica (quartz) which is listed as a lung carcinogen. See Section 8 for exposure information.

*The weight percent for crystalline silica represents total crystalline silica and not the respirable fraction. Testing conducted by Georgia-Pacific did not detect respirable crystalline silica during activities associated with the normal use of this product, however, jobsite air monitoring should be conducted to determine actual exposure when permissible exposure limits may be exceeded.

4. First Aid Measures

First aid procedures:
- Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.
- Skin contact: For skin contact, wash immediately with soap and water. Get medical attention if irritation develops or persists.
- Inhalation: Remove to fresh air. If symptoms persist, obtain medical attention.
- Ingestion: May result in obstruction and irritation if ingested. Get medical attention.

5. Fire Fighting Measures

Flammable properties: Not flammable by OSHA/WHMIS criteria.
Extinguishing media
 Suitable extinguishing media
 Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Fire fighting equipment/instructions
 Firefighters should wear full protective clothing including self contained breathing apparatus.

Explosion data
 Sensitivity to static discharge
 Not applicable.
 Sensitivity to mechanical impact
 Not applicable.

Hazardous combustion products
 May include, and are not limited to: calcium oxide and sulfur dioxide.

6. Accidental Release Measures

Personal precautions
 Use personal protection recommended in Section 8. Keep unnecessary personnel away from the release.

Environmental precautions
 Keep out of drains, sewers, ditches, and waterways.

Methods for containment
 Pick up large pieces, then place in a suitable container. Minimize dust generation.

Methods for cleaning up
 Sweep up or gather material and place in an appropriate container for disposal. Utilize wet methods, if appropriate, to minimize dust.

7. Handling and Storage

Handling
 Avoid contact with skin and eyes. Do not breathe dust. Use only in well-ventilated areas. Handle and open container with care. Wear appropriate NIOSH approved dust mask or filtering facepiece if dust is generated. Do not eat or drink while using the product. Wash hands before eating, drinking, or smoking.

Storage
 Store level and keep dry. Dewpoint or other conditions causing the presence of moisture can damage the product during storage.

8. Exposure Controls / Personal Protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>ACGIH Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRYSSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.025 mg/m³</td>
<td>(Respirable fraction)</td>
</tr>
<tr>
<td>GYPSUM (CALCIUM SULFATE, DIHYDRATE) (CAS 10101-41-4)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>(Inhalable fraction)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>U.S. - OSHA Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>GYPSUM (CALCIUM SULFATE, DIHYDRATE) (CAS 10101-41-4)</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>(Respirable fraction)</td>
</tr>
</tbody>
</table>

US OSHA Table Z-3: Calculated Time Weighted Average (TWA) (mg/m³)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRYSSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

US OSHA Table Z-3: Calculated Time Weighted Average (TWA) (Non-standard unit)

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRYSSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7)</td>
<td>TWA</td>
<td>3.3 mg/m³</td>
<td>(Respirable fraction)</td>
</tr>
</tbody>
</table>
Exposure guidelines

*Exposure limits for CRystalline Silica - The US OSHA exposure limits 8 hour TWA for CRystalline Silica (Quartz) are calculated from the following equations: 30/(%SiO2+2) mg/m3 for total dust, and 10/(%SiO2+2) mg/m3 for the respirable fraction.

*The weight percent for crystalline silica represents total crystalline silica and not the respirable fraction. Testing conducted by Georgia-Pacific did not detect respirable crystalline silica during activities associated with the normal use of this product, however, jobsite air monitoring should be conducted to determine actual exposure when permissible exposure limits may be exceeded.

Engineering controls

Score and snap method recommended. When using product, provide local and general exhaust ventilation to keep airborne dust concentrations below exposure limits. Use wet methods, if appropriate, to reduce the generation of dust.

Personal protective equipment

Eye / face protection

Safety glasses or goggles are recommended when using this product. Ensure compliance with OSHA’s PPE standard (29 CFR 1910.132 and 133) for eye and face protection. Safety shower/eye wash fountain is recommended in the workplace area (29 CFR 1910.151(c)).

Skin protection

Impervious protective clothing and gloves recommended to prevent drying or irritation of skin. Ensure compliance with OSHA’s PPE standards (29 CFR 1910.132 (general) and 138 (hand protection)). Safety shower/eye wash fountain is recommended in the workplace area (29 CFR 1910.151(c)).

Respiratory protection

A NIOSH approved dust mask or filtering facepiece is recommended in poorly ventilated areas or when permissible exposure limits may be exceeded. Respirators should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA’s respirator standard (29 CFR 1910.134) and ANSI’s standard for respiratory protection (Z88.2).

9. Physical & Chemical Properties

Appearance

Gypsum boards

Color

Facing color varies

Form

Solid

Odor

Low odor

Odor threshold

Not available.

pH

6 - 8

Melting point

Not available.

Boiling point

Not applicable

Flash point

Not applicable

Evaporation rate

Not applicable

Flammability

Not flammable

Flammability limits in air,
upper, % by volume

Not applicable

Flammability limits in air,
lower, % by volume

Not applicable

Vapor pressure

Not applicable

Vapor density

Not applicable

Specific gravity

2.2 - 2.4

Partition coefficient
(n-octanol/water)

Not available.

Solubility (water)

0.2 % @ 22°C

Auto-ignition temperature

Not applicable

10. Chemical Stability & Reactivity Information

Chemical stability

Stable at normal conditions.

Conditions of reactivity

Contact with strong acids produces carbon dioxide.

Incompatible materials

Acids.

Hazardous decomposition

products

May include and are not limited to: calcium oxide and sulfur dioxide.
11. Toxicological Information

Routes of exposure
Skin contact. Eye contact. Inhalation.

Toxicological information
No toxicological data available for this product. Toxicological information for components of this product is listed below.

Toxicological information (Ingredients)

**GYPSUM (CALCIUM SULFATE, DIHYDRATE) (CAS # 10101-41-4)**

Toxicology Data - Selected LD50s and LC50s
- Oral LD50 Mouse: 5824 mg/kg
- Oral LD50 Rat: 3000 mg/kg

**Sensitization**
Not expected to be hazardous by OSHA/WHMIS criteria.

**Chronic effects**
Not expected to be hazardous by OSHA/WHMIS criteria.

**Carcinogenicity**
Not expected to be hazardous by OSHA/WHMIS criteria.

Exposure to respirable crystalline silica in the form of quartz or cristobalite from occupational sources is listed by IARC and NTP as a lung carcinogen. Prolonged exposure to respirable crystalline silica has been known to cause silicosis, a lung disease, which may be disabling. While there may be a factor of individual susceptibility to a given exposure to a respirable silica dust, the risk of contracting silicosis and the severity of the disease is clearly related to the amount of respirable crystalline silica exposure and the length of time (usually years) of exposure.

**ACGIH Carcinogens**
- CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7)
  - US ACGIH Threshold Limit Values: A2 carcinogen

**IARC Monographs. Overall Evaluation of Carcinogenicity**
- CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7)
  - IARC Monographs: Overall evaluation 1 Volume 68, Volume 100C

**Mutagenicity**
Not expected to be hazardous by OSHA/WHMIS criteria.

**Reproductive effects**
Not expected to be hazardous by OSHA/WHMIS criteria.

**Teratogenicity**
Not expected to be hazardous by OSHA/WHMIS criteria.

**Synergistic materials**
Not available.

12. Ecological Information

**Ecotoxicity**
Not considered to be harmful to aquatic life.

<table>
<thead>
<tr>
<th>Ecotoxicological data Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GYPSUM (CALCIUM SULFATE, DIHYDRATE) (CAS 10101-41-4)</strong></td>
<td>Fish</td>
<td>2980 mg/l, 96 Hours</td>
</tr>
</tbody>
</table>

| Fish | LC50 |

13. Disposal Considerations

**Disposal instructions**
Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

14. Transport Information

**DOT**
Not regulated as dangerous goods.

**TDG**
Not regulated as dangerous goods.

15. Regulatory Information

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

<table>
<thead>
<tr>
<th>Hazard categories</th>
<th>Immediate Hazard - Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delayed Hazard</td>
<td>- No</td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>- No</td>
</tr>
<tr>
<td>Pressure Hazard</td>
<td>- No</td>
</tr>
<tr>
<td>Reactivity Hazard</td>
<td>- No</td>
</tr>
</tbody>
</table>

| Section 302 extremely hazardous substance | No |
| Section 311 hazardous chemical | Yes |
| Section 313 hazardous chemical | No |
Canadian regulations

Canada WHMIS Ingredient Disclosure: Threshold limits
CRystalline silica (Quartz)* (CAS 14808-60-7) 1%

WHMIS status
Controlled

Inventory status

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

Product list

Product List A
- DensArmor Plus® High Performance Interior Panel
- DensArmor Plus® Fireguard® Abuse-Resistant Panels
- DensArmor Plus® Fireguard® Impact-Resistant Panels
- DensArmor Plus® Fireguard® Interior Panels
- DensDeck® DuraGuard Roof Board
- DensDeck® Prime Roof Board
- DensDeck® Roof Board
- DensDeck® DuraGuard Fireguard® Roof Board
- DensDeck® Prime Fireguard® Roof Board
- DensDeck® Fireguard® Roof Board
- DensGlass® Fireguard® Sheathing
- DensGlass® Shaftliner
- DensGlass® Sheathing
- DensShield® Fireguard® Tile Backer
- DensShield® Tile Backer
- Fire-Rated GreenGlass® Prime Roof Board
- Fire-Rated GreenGlass® Sheathing
- Fire-Rated GreenGlass® Tile Backer
- Fire-Rated GreenGlass® Roof Board
- Fire-Rated GreenGlass® Interior Panels
- GreenGlass® Prime Roof Board
- GreenGlass® Roof Board
- GreenGlass® Sheathing
- GreenGlass® Tile Backer
- GreenGlass® Interior Panels

Product List B
- DensArmor Plus® Fireguard C® High-Performance Interior Panels
- GreenGlass® Shaftliner

HMIS® ratings
- Health: 1
- Flammability: 0
- Physical hazard: 0

NFPA ratings
- Health: 1
- Flammability: 0
- Instability: 0
Disclaimer

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Prepared by

Georgia-Pacific LLC
404.652.5119
Blueskin® SA
Self-Adhesive Air/Vapour Barrier Membrane

Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>Blue</td>
</tr>
<tr>
<td>Thickness</td>
<td>1.0 mm (40 mils)</td>
</tr>
<tr>
<td>Application Temp</td>
<td>Minimum + 5°C</td>
</tr>
<tr>
<td>Service Temp</td>
<td>Minus 40°C to 70°C</td>
</tr>
<tr>
<td>Elongation (ASTM D412-modified)</td>
<td>200% minimum</td>
</tr>
<tr>
<td>Tensile Strength (Membrane)</td>
<td>3.4 MPa minimum</td>
</tr>
<tr>
<td>Tensile Strength (Film) (ASTM D882)</td>
<td>40 MPa minimum</td>
</tr>
<tr>
<td>Minimum Puncture Resistance Membrane (ASTM E154)</td>
<td>178 N</td>
</tr>
<tr>
<td>Watertightness (CAN/CSGB-37.58-M86)</td>
<td>Pass</td>
</tr>
<tr>
<td>Nail Sealability (ASTM D1970)</td>
<td>Pass</td>
</tr>
<tr>
<td>Low Temperature Flexibility @ -30°C (CGSB 37-GP-56M)</td>
<td>Pass</td>
</tr>
<tr>
<td>Water Vapour Transmission (ASTM E96) water method</td>
<td>49 ng/Pa.s.m²</td>
</tr>
<tr>
<td>(ASTM E96) desiccant method</td>
<td>2 ng/Pa.s.m²</td>
</tr>
<tr>
<td>Lap Peel Strength @ 4°C (39.2°F) (ASTM D903 180° bend)</td>
<td>&gt; 4378.4 N/m (25.0 lbf/in)</td>
</tr>
<tr>
<td>Moisture absorption (ASTM D570)</td>
<td>0.2%</td>
</tr>
<tr>
<td>Air Leakage @ 75 Pa (ASTM E283-91)</td>
<td>0.003 L/s.m²</td>
</tr>
<tr>
<td>Air Leakage After 3000 Pa Test (ASTM E330-90)</td>
<td>No change</td>
</tr>
<tr>
<td>Assembly Air Leakage @ 75 Pa (ASTM E-2357)</td>
<td>0.005 L/s.m²</td>
</tr>
</tbody>
</table>

Packaging

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness</td>
<td>1.0 mm (40 mils)</td>
</tr>
<tr>
<td>Roll length</td>
<td>22.86 m (75 ft.)</td>
</tr>
<tr>
<td>Roll width (ASTM D882) (18&quot;)</td>
<td>1219 mm (48&quot;)</td>
</tr>
<tr>
<td>Top Surface (ASTM D1970) Blue film</td>
<td>300 mm (12&quot;), 225 mm (9&quot;)</td>
</tr>
<tr>
<td>Bottom Surface Siliconized Release Film</td>
<td>150 mm (6&quot;), 100 mm (4&quot;)</td>
</tr>
<tr>
<td>Gross Coverages (36&quot;)</td>
<td>914 mm (36&quot;)</td>
</tr>
<tr>
<td>(18&quot;)</td>
<td>457 mm (18&quot;)</td>
</tr>
<tr>
<td>Net Coverages* (36&quot;)</td>
<td>914 mm (36&quot;)</td>
</tr>
<tr>
<td>(18&quot;)</td>
<td>457 mm (18&quot;)</td>
</tr>
<tr>
<td>*Based on 50 mm (2&quot;) laps both sides and end.</td>
<td></td>
</tr>
</tbody>
</table>

Description

Blueskin® SA is a self-adhering membrane consisting of an SBS rubberized asphalt compound which is integrally laminated to a blue engineered thermoplastic film. Blueskin® SA is specifically designed to be self-adhered to a prepared substrate, providing an air/vapour/water barrier.

Features

- SBS modified membrane, flexible at low temperatures
- Impermeable to air, moisture vapour and water
- Assemblies of Blueskin SA, primer and sealant meet ASTM E-2357 air barrier performance standard
- Thickness controlled at point of manufacture
- Excellent adhesion to prepared substrates of concrete, concrete block, primed steel, aluminum mill finish, anodized aluminum, galvanized metal, gypsum board and plywood
- Excellent compatibility with most Bakor adhesives and liquid air barrier membranes
- Self-gasketing when penetrated and under compression with self-tapping screws

Henry Company Canada, 15 Wallsend Drive, Scarborough, ON M1E 3X6
Tel: 800-486-1278  Email: techservices@henry.com
www.bakor.com

REV: 03/20/13
Blueskin® SA Self-Adhesive Air/Vapour Barrier Membrane

Storage

Store rolls on end, on original pallets or elevated platform. Protect from weather or store in an enclosed area not subject to heat over 40°C or -10°C. Double stacked pallets are not recommended. If double stacking is necessary, use a plywood sheet to distribute the load.

Limitations

Not designed for permanent exposure. Good practice calls for covering as soon as possible. Not to be used in direct contact with flexible PVC/vinyl membranes or gaskets. Some sealants may discolor if in contact with the asphalt compound or may soften the asphalt compound. Contact sealant manufacturer for more information.

Uses

Blueskin® SA is designed for use as a self-adhered sheet air and vapour barrier. Its principal application is on walls of either masonry, concrete or gypsum board. It can also be used as a transition sheet in conjunction with Bakor Liquid Membranes where greater movement is anticipated, due to its high strength. Blueskin® SA is also used for tying into metal on curtain walls, windows and door frames.

Preparation

Acceptable substrates are precast concrete, cast-in place concrete, concrete block, primed steel, aluminum mill finish, anodized aluminum, galvanized metal, gypsum board including DensGlass Gold®.

All surfaces to receive Blueskin® SA must be clean of oil, dust and excess mortar. Strike masonry joints flush. Concrete surfaces must be smooth and without large voids, spalled areas or sharp protrusions. Concrete must be cured a minimum of 14 days and must be dry before Blueskin® SA is applied. Where curing compounds are used they must be clear resin based, without oil, wax or pigments. For best adhesion on Oriented Strand Board (OSB), install Blueskin® SA on smooth of OSB panel.

All surfaces to receive Blueskin® SA must be primed with Blueskin® Primer, applied by lambs wool roller, brush or spray equipment at the rate of 1 litre per 2-6 m² depending on porosity and texture of surface and allowed to dry for 30 minutes before Blueskin® SA is applied. Ensure that all primed surfaces receive Blueskin® SA in the same day. Alternatively, prime with Aquatac™. Allow to dry to a tacky film.

Application

Refer to Blueskin® SA Guide Specification for detailed application information. Material should be conditioned at room temperature for ease of application.

Blueskin® SA must be lapped a minimum of 50 mm on both sides and end laps. Position Blueskin® SA for alignment, remove protective film and press firmly in place. When Blueskin® SA is entirely in place, roll membrane including seams with a counter top roller to ensure full contact. When using Blueskin® SA with brick ties, position Blueskin® SA, press in place and cut for ties or projections. Seal around any openings and at leading edge at the end of the day’s work with Air-Bloc 21, Air-Bloc 21 FR, Bakor 230-21, POLYBITE® 570-05 or HE925 BES Sealant. Blueskin® SA applied to the underside of the substrate (i.e. ceilings) requires mechanical fastening through wood or galvanized metal strapping or have insulation mechanically fastened. Fastening must take place immediately after installation of Blueskin® SA. Space strapping on 450 mm centres, running perpendicular to the side laps.

Detail work must be carefully carried out to ensure continuous air tightness of Blueskin® SA. It is recommended that mechanical attachment be made to all window and door frames, or a properly designed sealant joint be provided.
Insulation Application over Membrane

The use of mechanical fasteners through Blueskin® SA along changes in plane, such as inside corners, may be required by some insulation manufacturers. Consult insulation manufacturer prior to installation of insulation.

*Insulation Clips:* Insulation clips should be mechanically fastened through Blueskin® SA into the substrate with a self-tapping screw. Apply number of insulation clips as recommended by the insulation manufacturer.

*Insulation Adhesive:* Bakor 230-21 Rigid Insulation Adhesive should be applied to insulation boards in a serpentine pattern to restrict movement of air behind the insulation. Alternatively, a full coat notched trowel application of Bakor 230-21 Rigid Insulation Adhesive may be applied to the back of the board. Press insulation firmly in place. Air-Bloc 21 or Air-Bloc 21 FR are also acceptable as adhesives.
**Blueskin® SA**

**Membrane pare-air/vapeur autoadhésive**

### Propriétés physiques

<table>
<thead>
<tr>
<th>Caractéristique</th>
<th>Valeur</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Couleur</td>
<td>Bleu</td>
<td>Réussi</td>
</tr>
<tr>
<td>Épaisseur (mm)</td>
<td>1,0 mm (40 mils)</td>
<td></td>
</tr>
<tr>
<td>Température d’application (°C)</td>
<td>5°C minimum</td>
<td></td>
</tr>
<tr>
<td>Température de service (°C)</td>
<td>-40°C à 70°C</td>
<td></td>
</tr>
<tr>
<td>Allongement à la rupture (ASTM D412 modifié)</td>
<td>200 % minimum</td>
<td></td>
</tr>
<tr>
<td>Résistance à la rupture (membrane) (ASTM D412 modifié)</td>
<td>3,4 MPa minimum</td>
<td></td>
</tr>
<tr>
<td>Résistance à la rupture (pellicule) (ASTM D882)</td>
<td>40 MPa minimum</td>
<td></td>
</tr>
<tr>
<td>Résistance au poinçonnement (membrane) (ASTM E154)</td>
<td>178 N minimum</td>
<td></td>
</tr>
<tr>
<td>Étanchéité à l’eau (CAN/CGSB-37.58-M86)</td>
<td>Réussi</td>
<td></td>
</tr>
<tr>
<td>Étanchéité autour des clous (ASTM D1970)</td>
<td>Réussi</td>
<td></td>
</tr>
<tr>
<td>Souplesse à basse température (-30°C) (ONGC 37-GP-56M)</td>
<td>Réussi</td>
<td></td>
</tr>
<tr>
<td>Permeabilité à la vapeur d’eau (ASTM E96 méthode de l’eau)</td>
<td>49 ng/Pa.s.m² (0,86 perm)</td>
<td></td>
</tr>
<tr>
<td>Permeabilité à la vapeur d’eau (ASTM E96 méthode desséchante)</td>
<td>2 ng/Pa.s.m² (0,03 perm)</td>
<td></td>
</tr>
<tr>
<td>Résistance des chevauchements au décollement à 4°C (39,2°F) (ASTM D903, pliage à 180°)</td>
<td>plus de 4378,4 (25,0) N/m</td>
<td></td>
</tr>
<tr>
<td>Absorption d’eau (ASTM D570)</td>
<td>0,2 %</td>
<td></td>
</tr>
<tr>
<td>Permeabilité à l’air après le test à 75 Pa (ASTM E283-91)</td>
<td>0,0003 L/s.m²</td>
<td></td>
</tr>
<tr>
<td>Permeabilité à l’air après le test à 3000 Pa (ASTM E330-90)</td>
<td>Aucun changement</td>
<td></td>
</tr>
<tr>
<td>Permeabilité à l’air de l’assemblage (ASTM E-2357)</td>
<td>0,005 L/s.m²</td>
<td></td>
</tr>
</tbody>
</table>

### Emballage

<table>
<thead>
<tr>
<th>Caractéristique</th>
<th>Valeur</th>
</tr>
</thead>
<tbody>
<tr>
<td>Épaisseur (mm)</td>
<td>1,0 mm (40 mils)</td>
</tr>
<tr>
<td>Longueur (rouleau)</td>
<td>22,86 m (75 pi)</td>
</tr>
<tr>
<td>Largeur (rouleau)</td>
<td>1219 mm (48 po)</td>
</tr>
<tr>
<td>- Surface supérieure</td>
<td>Pelle bleue</td>
</tr>
<tr>
<td>- Surface inférieure</td>
<td>Pelle de protection siliconée</td>
</tr>
<tr>
<td>- Pouvoir couvrant brut</td>
<td>914 mm (36 po)</td>
</tr>
<tr>
<td>- Pouvoir couvrant net*</td>
<td>457 mm (18 po)</td>
</tr>
<tr>
<td>- Calculé avec des chevauchements d’extrémité et latéraux de 50 mm (2 po)</td>
<td></td>
</tr>
</tbody>
</table>

### Description

**Blueskin® SA** est une membrane autoadhésive, constituée d’un composé de bitume caoutchouté SBS intégralement laminé à une pellicule thermoplastique bleue. Cette membrane est expressément conçue pour être posée par autoadhésion à un substrat préparé, servant ainsi de pare-air/vapeur/eau.

### Caractéristiques

- Membrane modifiée SBS, souplesse à basse température
- Imperméable à l’air, l’humidité et l’eau
- Assemblages de Blueskin SA, apprêt et scellant conformes à la norme sw performance pare-air ASTM E-2357
- Épaisseur contrôlée en usine
- Excellente adhérence aux substrats préparés tels que béton, blocs de béton, acier apprêté, aluminium fini au laminoir, aluminium anodisé, acier galvanisé, panneaux de gypse et de contreplaqué
- Tout à fait compatible avec la plupart des adhésifs et membranes pare-air liquides Bakor
- Autocatrisante lorsque traversée et sous compression par des vis autotaraudeuses

### Entreposage

Entreposer les rouleaux débout, sur les palettes originales ou sur des plates-formes surélevées. Protéger des intempéries ou entreposer à l’intérieur à une température supérieure à 40°C ou inférieure à -10°C. Il n’est pas recommandé d’empiler les palettes mais s’il faut le faire, utiliser un panneau de contreplaqué pour bien distribuer la charge.
Blueskin® SA Membrane pare-air/vapeur autoadhésive

Restrictions
La membrane Blueskin® SA n’a pas été conçue pour une exposition permanente. Les règles de l’art recommandent de la recourber dès que possible. À ne pas utiliser en contact direct avec des membranes ou joints d’étanchéité de PVC souple ou de vinyle. Il se peut que certains scellants se décolorent s’ils entrent en contact avec un composé bitumineux ou qu’ils ramollissent le composé bitumineux. Pour plus d’information, communiquer avec le fabricant du scellant.

Utilisations
Blueskin® SA est conçue pour être utilisée comme feuille autoadhésive pare-air/vapeur, principalement sur les surfaces des murs en maçonnerie, béton et panneaux de gypse. Grâce à sa grande résistance, elle peut aussi être utilisée comme membrane de raccordement avec les membranes liquides Bakor, là où un mouvement plus important est prévisible. Blueskin® SA sert également à raccorder les surfaces métalliques des murs rideaux, des fenêtres et des cadres de portes.

Préparation de la surface
Le béton préfabriqué ou coulé en place, les blocs de béton, l’acier apprêté, l’aluminium fini au laminoir, l’aluminium anodisé, l’acier galvanisé, les panneaux de gypse et de contreplaqué, y compris les panneaux Dens Glass Gold® sont des substrats acceptables.

Les surfaces destinées à recevoir la membrane Blueskin® SA doivent être exemptes d’huile, de poussière et d’excès de mortier. Araser les joints de mortier. Les surfaces de béton doivent être lisses et exemptes de grandes cavités, sections effritées ou saillies importantes. Laisser sécher le béton frais pendant au moins 14 jours. Il doit être sec avant d’y appliquer la membrane Blueskin® SA. Si un agent de cure est utilisé, il doit être à base de résine transparente et exempt d’huile, cire ou pigments. Pour une meilleure adhérence sur les panneaux OSB, poser la membrane Blueskin® SA sur la face lisse du panneau.

Aprêter toutes les surfaces destinées à recevoir la membrane Blueskin® SA avec l’Aprêt Blueskin® appliqué au rouleau en laine d’agneau, à la brosse ou au pulvérisateur, au taux de 1 litre par 2-6 m², selon la porosité et la texture de la surface. Laisser sécher 30 minutes avant d’appliquer la membrane. S’assurer que les surfaces aprêtées sont recouvertes de membrane Blueskin® SA le même jour. En alternative, aprêter à l’aide de Aquatac®. Laisser sécher jusqu’à l’obtention d’une pellicule collante.

Application
Consulter le devis type Blueskin® SA pour de l’information détaillée sur l’application. Les matériaux doivent être tempérés à la température ambiante pour faciliter l’application.

Chevaucher les joints latéraux et d’extrémité de la membrane Blueskin® SA sur un minimum de 50 mm. Aligner la membrane, retirer la pellicule de protection et presser fermement en place. Une fois la membrane collée, rouler toute la surface, incluant les chevauchements, avec un rouleau pour plastique stratifié pour assurer un contact total. Lorsque la membrane est utilisée avec des ancrages à maçonnerie, aligner la membrane, presser en place et couper aux ancrages et aux projections. À la fin de chaque journée de travail, sceller autour des ouvertures et à la ligne de rencontre de la membrane et du substrat avec Air-Bloc 21, Air-Bloc 21 FR, Bakor 230-21, POLYBITEME® 570-05 ou le scellant HE925 BE. Fixer mécaniquement la membrane Blueskin® SA posée en revers (au plafond, par exemple) avec des fournitures en bois traité ou en acier galvanisé ou encore de l’isolant ancré mécaniquement. Fixer immédiatement après la pose de la membrane. Espacer les fournitures à 450 mm c/c, perpendiculairement aux chevauchements latéraux.

Effectuer les travaux de finition avec minutie de façon à assurer la continuité de l’étanchéité de la membrane. Il est recommandé de fixer mécaniquement la membrane aux cadres de portes et de fenêtres ou de faire un joint de mastic d’étanchéité.

Pose d’isolant sur la membrane
Il se peut que des attaches mécaniques soient exigées par certains fabricants d’isolant pour fixer la membrane Blueskin® SA le long des angles rentrants par exemple. Consulter le fabricant d’isolant avant d’installer l’isolant.

Ancrements : fixer mécaniquement les ancrages à travers la membrane dans le substrat avec des vis autotaraudeuses. Utiliser le nombre d’ancrages recommandé par le fabricant de l’isolant.


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www.bakor.com   Révision : 20 mars 2013
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El Segundo, CA 90245-2724

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Site Web: www.henry.com www.bakor.com

En cas d'urgence (déversement, fuite, feu, explosion):
Composer le numéro suivant:
Au Canada, CANUTEC : 613-996-6666
Aux États-Unis, CHEMTREC : (800) 424-9300

Date de publication: le 10 février 2014
Nom du produit: BH200SA – BLUESKIN SA
Code du produit: BH200SA

Utilisations du produit/matériau
Sous-couche clouable

2. Composition/Information sur les ingrédients

<table>
<thead>
<tr>
<th>Ingrédient</th>
<th>Numéro CAS</th>
<th>Pourcentage du poids total</th>
</tr>
</thead>
<tbody>
<tr>
<td>bitume de pétrole</td>
<td>8052-42-4</td>
<td>30 - 50</td>
</tr>
<tr>
<td>armature</td>
<td>S/O - mélange</td>
<td>10 - 30</td>
</tr>
<tr>
<td>caoutchouc</td>
<td>S/O - mélange</td>
<td>1 - 5</td>
</tr>
<tr>
<td>SILICE, QUARTZ</td>
<td></td>
<td>30 - 50</td>
</tr>
</tbody>
</table>

CARACTÉRISTIQUES CRITIQUES


Apparence/Odeur: matériau en rouleau

3. Identification des risques

Voie(s) de pénétration primaire(s)
Inhalation – possible si le produit est dispersé dans l’air, mais considérée comme étant peu probable.

Risques pour les yeux
Les particules peuvent causer une irritation des yeux.

Risques pour la peau
Peut causer une irritation de la peau et une dermatite de contact lors d’un contact prolongé.

Risques reliés à l’ingestion
L’ingestion n’est pas considérée comme étant une voie d’exposition probable.

Risques reliés à l’inhalation
L’inhalation n’est pas considérée comme étant une voie d’exposition probable lorsque le produit est utilisé dans des conditions normales.

Effets chroniques/Effets cancérigènes
Ce produit ou l’un de ses ingrédients, présent à 0,1% ou plus, est inscrit sur la liste des produits cancérigènes du NTP (National Toxicology Program), du CIRC (Centre international de recherche sur le cancer) ou de l’OSHA (Occupational Safety and Health Administration). Consulter la section 11 (Information toxicologique) pour plus de détails.
4. Premiers soins

**Yeux**
S’il y a contact, ouvrir grand les paupières et rincer immédiatement les yeux à grande eau pendant au moins 15 minutes. Si une irritation se développe et persiste, obtenir immédiatement des soins médicaux.

**Peau**
Retirer les vêtements et les souliers contaminés. Laver la zone touchée avec du savon et de l’eau.

**Ingestion**
Obtenir immédiatement des soins médicaux. NE PAS FAIRE VOMIR. Ne jamais faire ingérer quoi que ce soit à une victime inconsciente.

**Inhalation**
Amener la personne incommodée à l’air frais. Si elle respire difficilement, lui administrer de l’oxygène. Si elle ne respire pas, lui donner la respiration artificielle. Obtenir immédiatement des soins médicaux.

5. Mesures de lutte contre l’incendie

**Point d’inflammabilité** : >204°C (>399°F)
**Point d’auto-inflammation** : 370-480°C (698-896°F)
**Classe d’inflammabilité** : ininflammable
**Limite inférieure d’explosivité** : ne s’applique pas
**Limite supérieure d’explosivité** : ne s’applique pas

**Risques de feu et d’explosion**
Lors d’un feu, du monoxyde de carbone, du dioxyde de carbone, des oxydes d’azote et de soufre, de l’hydrogène sulfuré et des gaz irritants et toxiques peuvent être relâchés.

**Agents extincteurs**
Dioxyde de carbone, eau ou poudre extintice.

**Instructions en cas d’incendie**
Les pompiers devraient porter des appareils respiratoires autonomes et une tenue de protection complète.

6. Mesures à prendre lors de fuites accidentelles

Ne s’applique pas. Matériau en rouleau.

7. Manutention et entreposage

**Précautions lors de la manutention et de l’entreposage**
Les contenants doivent être très bien fermés. Entreposer dans un endroit frais, sec et largement ventilé. À tenir loin de la chaleur, des étincelles et des flammes. N’utiliser qu’avec une ventilation adéquate.

8. Mesures de protection personnelle contre l’exposition

**Mesures d’ingénierie**
Utiliser en présence d’appareil de ventilation générale et locale par aspiration.

**Protection des yeux et du visage**
Il est recommandé de porter des lunettes protectrices avec écrans latéraux.

**Protection de la peau**
Utiliser des gants et un tablier de protection afin d’empêcher tout contact avec la peau.

**Protection des voies respiratoires**
Règle générale, aucune protection n’est nécessaire. L’utilisation d’un respirateur pourrait s’avérer nécessaire lors d’opérations de transformation comme le découpage, le ponçage, le polissage, etc. Le niveau de protection des voies respiratoires requis doit être évalué selon les expositions aux produits chimiques par un professionnel de la santé ou de la sécurité.

Les limites d’exposition en milieu de travail pour les ingrédients individuels sont énumérées ci-après.

- fumée de bitume
  - ACGIH TLV-TWA 0,5 mg/m³ (fraction et vapeur inhalables)
8. Mesures de protection personnelle contre l’exposition (suite)

**Ingrédient(s) – Limites d’exposition**
- bitume de pétrole
  - OSHA PEL-TWA 5 mg/m³
  - ACGIH TLV-TWA 0,5 mg/m³ (benzène soluble en aérosol)

9. Propriétés physiques et chimiques

**Apparence**
- Matériau en rouleau (sable sur les deux faces)

**Odeur**
- Légère odeur de pétrole

**Type de produits chimiques : mélange**
- État physique : solide
- Point d’ébullition : 343-538°C (650-1000°F)
- Densité relative : 1,1-1,2
- Pourcentage de matières volatiles : 0 %
- Pression de vapeur : ne s’applique pas
- Densité de vapeur : non disponible
- Facteur pH : non disponible
- Solubilité : insoluble
- Vitesse d’évaporation : non disponible

10. Stabilité et réactivité

**Stabilité** : stable

**Polymérisation dangereuse** : on ne s’attend pas à ce qu’elle se produise.

**Conditions à éviter (stabilité)**
- Températures extrêmes, flammes nues et oxydants forts.

**Produits de décomposition dangereux**
- On ne s’attend pas à ce que la décomposition se produise si le produit est manutentionné et entreposé correctement.

**Conditions à éviter (polymérisation)**
- Combustion incomplète

11. Information toxicologique

**Effets chroniques/effets cancérogènes**
- Il a été établi que la présence de silice, quartz dans le présent produit, à des concentrations égales ou supérieures à 0,1 %, est carcinogène, comme suit : CIRC : Groupe 1 ; NTP : inscrit sur la liste ; OSHA : non réglementé ; ACGIH : A2. Elle peut être relâchée si le matériau est découpé, moulu ou poncé. Porter un masque anti poussières approuvé par la NIOSH lors de ces opérations.

**Information toxicologique diverse**
- Dans l’ensemble, des essais toxicologiques n’ont pas été effectués sur le présent produit. Les données toxicologiques disponibles pour les ingrédients individuels sont résumées ci-après, le cas échéant.

12. Information écologique

Aucune information n’a été identifiée.

13. Considérations relatives à la mise au rebut

Mettre au rebut conformément aux lois gouvernementales municipales, provinciales et fédérales applicables.
14. Information concernant le transport

<table>
<thead>
<tr>
<th>Mode de transport</th>
<th>Non réglementé</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voie terrestre</td>
<td>Non réglementé</td>
</tr>
<tr>
<td>IMDG</td>
<td>Non réglementé</td>
</tr>
<tr>
<td>IATA</td>
<td>Non réglementé</td>
</tr>
</tbody>
</table>

15. Information sur la réglementation

**Information sur la réglementation des États-Unis**
Il se peut que le bitume contienne des produits chimiques en quantité détectable, reconnus par l'État de Californie pour causer le cancer ou constituer un danger pour la reproduction.

**Ingrédient(s) – Information sur la réglementation selon l’État (États-Unis)**
- Bitume de pétrole
  - Californie – Proposition 65
- Caoutchouc
  - New Jersey – Risque dans le lieu de travail
  - Ville de New York – Substance dangereuse

**Information sur la réglementation canadienne**
Le présent produit a été classifié conformément aux critères de risque du CPR. La présente fiche signalétique contient toute l'information requise par le CPR. Classification SIMDUT : Non classifié ou contrôlé.

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**NFPA**

**SIMD**

<table>
<thead>
<tr>
<th>Santé</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammabilité</td>
<td>1</td>
</tr>
<tr>
<td>Réactivité</td>
<td>0</td>
</tr>
<tr>
<td>Protection individuelle</td>
<td></td>
</tr>
</tbody>
</table>

16. Autre information

Révision/Information du rédacteur
La présente fiche signalétique remplace la fiche signalétique précédente en date du 2 mars 2011.

Avis de non-responsabilité

Bien que le présent document ait été préparé avec une diligence raisonnable, nous ne consentons aucune garantie et ne faisons aucune représentation quant à l'exactitude ou l'intégralité de l'information aux présentes, et n'assumons aucune responsabilité quant à la pertinence de la présente information pour les fins prévues de l'utilisateur ou pour les conséquences de son utilisation. Il revient à chaque individu de déterminer la pertinence de la présente information pour ses fins personnelles.

HENRY COMPANY
PARAFOR 30 TG
Commercial Product Data Sheet

Product Description
Parafor 30 TG is a high performance, modified bitumen finish ply designed for use in homogeneous multi-layer modified bitumen roof membrane systems. Parafor 30 TG consists of a fiberglass scrim/polyester mat composite impregnated and coated with high quality styrene-butadiene-styrene (SBS) modified bitumen, and surfaced with ceramic granules. The back surface is manufactured using a special process that embosses the surface with a grooved pattern to provide optimum burnoff of the plastic film and maximize application rates.

Parafor 30 TG is available with Siplast RoofTag RFID roof asset technology on a Special-Made-To-Order basis. See RoofTag Commercial Product Data Sheet for more information.

Product Uses
Parafor 30 TG is the finish ply of the Siplast Paradiene 20/Parafor 30 TG System and is used as a base flashing where granule-surfaced flashing sheets are required. Parafor 30 TG is lapped 3 inches (7.6 cm) at sides and 6 inches (15.2 cm) at ends. Parafor 30 TG is torch applied. Contact Siplast for specific approval on other product uses.

Product Approvals
Parafor 30 TG is approved by FM Approvals (FM Standard 4470) for use in Parafor Class 1 insulated steel roof deck constructions and insulated and non-insulated concrete roof deck constructions, subject to FM conditions and limitations.

Parafor 30 TG is classified by Underwriters Laboratories for use in UL 164 classified Siplast Parafor Roof Systems. Parafor 30 TG has been classified as a Class C roofing system over combustible, non-combustible, and insulated combustible decks.

Parafor 30 TG meets or exceeds the requirements of ASTM D 6164 Type I, Grade G for SBS-modified bituminous sheet materials using a polyester reinforcement.

Siplast Roof Systems also have received the approval of many regional and local authorities. Please contact Siplast for specific information as required.

COMMERCIAL PRODUCT INFORMATION

<table>
<thead>
<tr>
<th>Unit</th>
<th>Roll</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage:</td>
<td>1.0 Square</td>
</tr>
<tr>
<td>Coverage Weight Per Square:</td>
<td>Min: 114 lb (5.5 kg/m²)</td>
</tr>
<tr>
<td>Roll Length:</td>
<td>Min: 32.8 ft</td>
</tr>
<tr>
<td>Roll Width:</td>
<td>Avg: 3.28 ft</td>
</tr>
<tr>
<td>Thickness:</td>
<td>Avg: 122 mils</td>
</tr>
<tr>
<td>Thickness at Selvage:</td>
<td>Min: 118 mils</td>
</tr>
<tr>
<td>Selvage Width:</td>
<td>Avg: 2.75 in</td>
</tr>
<tr>
<td>Selvage Surfacing:</td>
<td>Burn-off Polyolefin Film</td>
</tr>
<tr>
<td>Top Surfacing:</td>
<td>No. 11 ceramic granules, standard color finishes are #93 Bone White and #65 Cinnamon Brown. Contact Siplast for other available colors.</td>
</tr>
<tr>
<td>Back Surfacing:</td>
<td>Polyolefin burnoff film</td>
</tr>
<tr>
<td>Lines:</td>
<td>A laying line is placed 3 inches (7.6 cm) from the selvage edge of the material. The line color for this material is blue.</td>
</tr>
<tr>
<td>Packaging:</td>
<td>Rolls are wound onto a compressed paper tube. The rolls are placed upright on end opposite the selvage on pallets cushioned with corrugated cardboard and are adhered with adhesive at the labels. The top of the palleted rolls is covered with foiled Kraft paper. The palleted material is protected by a heat shrink polyethylene shroud.</td>
</tr>
<tr>
<td>Pallet:</td>
<td>41 in X 48 in (104 cm X 122 cm) wooden pallet.</td>
</tr>
<tr>
<td>Number Rolls Per Pallet:</td>
<td>20</td>
</tr>
<tr>
<td>Number Pallets Per Truckload:</td>
<td>18</td>
</tr>
<tr>
<td>Minimum Roll Weight:</td>
<td>114 lb (51.7 kg)</td>
</tr>
</tbody>
</table>

Storage and Handling: All Siplast roll roofing products should be stored on end on a clean flat surface. Care should be taken that rolls are not dropped on ends or edges and are not stored in a leaning position. Deformation resulting from these actions will make proper installation difficult. All roofing should be stored in a dry place, out of direct exposure to the elements, and should not be double stacked. Material should be handled in such a manner as to ensure that it remains dry prior to and during installation.

Rev 7/2014

Siplast
1000 E. Rochelle Blvd. • Irving, Texas 75062-3940 • 469-995-2200 • www.siplast.com
In Canada: 201 Bewicke Ave., Suite 210 • North Vancouver, BC V7M 3M7 • Toll Free 1-877-233-2338
Customer Service in North America: Toll Free 1-800-922-8800

An Icopal Group Company

Current copies of all Siplast Commercial Product Data Sheets are posted on the Siplast Canada Web site at www.siplast.com.
# PARAFORE 30 TG

Physical and Mechanical Properties

<table>
<thead>
<tr>
<th>Property (as Manufactured)</th>
<th>Values/Units</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (average)</td>
<td>161 mils (4.1 mm)</td>
<td>ASTM D 5147 section 6</td>
</tr>
<tr>
<td>Thickness at selvage (minimum) (average)</td>
<td>118 mils (3.0 mm) 122 mils (3.1 mm)</td>
<td>ASTM D 5147 section 6</td>
</tr>
<tr>
<td>Peak Load @ 73°F (average)</td>
<td>65 lbf/inch (10.5 kN/m)</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td>Peak Load @ 0°F (average)</td>
<td>115 lbf/inch (20.1 kN/m)</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td>Elongation @ Peak Load, 73°F (average)</td>
<td>40%</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td>Elongation @ Peak Load, 0°F (average)</td>
<td>40%</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td>Ultimate Elongation @ 73°F (average)</td>
<td>90%</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td>Tear Strength (average)</td>
<td>100 lbf (0.45 kN)</td>
<td>ASTM D 5147 section 8</td>
</tr>
<tr>
<td>Water Absorption (maximum)</td>
<td>1%</td>
<td>ASTM D 5147 section 10</td>
</tr>
<tr>
<td>Dimensional Stability (maximum)</td>
<td>0.5%</td>
<td>ASTM D 5147 section 11</td>
</tr>
<tr>
<td>Low Temperature Flexibility (maximum)</td>
<td>-15°F (-26°C)</td>
<td>ASTM D 5147 section 12</td>
</tr>
<tr>
<td>Granule Embedment Max. avg. loss Max. individual loss</td>
<td>1.5 grams per sample 2.0 grams per sample</td>
<td>ASTM D 5147 section 15</td>
</tr>
<tr>
<td>Compound Stability (minimum)</td>
<td>250°F (121°C)</td>
<td>ASTM D 5147 section 16</td>
</tr>
<tr>
<td>Cyclic Fatigue</td>
<td>Parafor 30 TG utilized as a single-layer membrane, or bonded to an acceptable Paradiene 20 base ply with an approved method of attachment, passes ASTM D 5849 both as-manufactured and after heat conditioning according to ASTM D 5147.</td>
<td></td>
</tr>
</tbody>
</table>

Test methods and tolerances: ASTM D 5147, and ASTM D 146 (product weight only)

1. The value reported is the lower of either MD or XD.
MATERIAL SAFETY DATA SHEET

Manufacturer: Siplast, an Icopal Group Company
(800) 643-1591 or (800) 922-8800

Address: 1000 E. Rochelle Blvd., Irving, TX 75062

Emergency Phone No.: CHEMTREC, (800) 424-9300 (U.S.), (703) 527-3887 (outside of U.S.)

Product Class: Modified Bitumen Membrane


Section II - Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>IRAC</th>
<th>Percent</th>
<th>ACGIH TLV (mg/m³)</th>
<th>OSHA PEL (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt</td>
<td>NO</td>
<td>13.6-48.3</td>
<td>0.5</td>
<td>5</td>
</tr>
<tr>
<td>Filler</td>
<td>NO</td>
<td>16-29.7</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>SBS Polymer</td>
<td>NO</td>
<td>Proprietary</td>
<td>N/A*</td>
<td>N/A*</td>
</tr>
<tr>
<td>Reinforcement</td>
<td>NO</td>
<td>1.6-6.0</td>
<td>N/A*</td>
<td>N/A*</td>
</tr>
<tr>
<td>Surfacing</td>
<td>NO</td>
<td>0-30</td>
<td>10</td>
<td>3.3</td>
</tr>
<tr>
<td>Parting Agent</td>
<td>NO</td>
<td>5-42.5</td>
<td>0.1</td>
<td>10</td>
</tr>
</tbody>
</table>

Section III - Physical Data

Boiling Range of Asphalt: 750°F
Evaporation Rate: Not applicable
% Volatile by Volume: Not applicable
Weight per Gallon: Not applicable

Section IV - Fire and Explosion Data

DOT Category: Not applicable
Flash Point: +475°F by COC
Extinguishing Media: Water fog, foam, dry chemical or CO₂
Special Procedures: None
Unusual Hazards: None

Section V - Health Hazard Data

Inhalation of fumes released during heat welding of this product may cause temporary upper respiratory irritation. Remove affected individuals to fresh air.
Emergency and First Aid Procedures: Flush area with water if contact is made with asphalt during hot application.

Section VI - Reactivity Data

Stability: Stable __ X Unstable ______
Conditions to Avoid: Strong oxidizing agents and uncontrolled flame.
Hazardous Decomposition Products: H₂S released when heated. CO may be formed with incomplete combustion. Amount of H₂S released is negligible.
Hazardous Polymerization: May occur ____ Will not occur __ X

Section VII - Spill or Leak Procedures

Steps to be Taken in Case Material is Released or Spilled: No hazards
Waste Disposal Method: Dump at an approved site that complies with local, state, and federal regulations. No special procedures.

Section VIII - Special Protection Information

Respiratory Protection: Not normally needed in a well-ventilated area. If TLV is exceeded, a NIOSH/MESA approved breathing apparatus is recommended.
Ventilation: General, since material is applied only in open areas.
Protective Gloves: Impervious in nature. For use in application and handling.
Eye Protection: Recommended during application.
Other Protective Equipment: None

Section IX - Special Precautions

Handling and Storage: None
Other: None
* Not available

The information and recommendations contained herein are, to the best of Siplast's knowledge and belief, accurate and reliable as of the date issued. Siplast does not warrant or guarantee their accuracy or reliability, and should not be liable for any loss or damage arising out of the use thereof. User should satisfy himself that he has all current data relevant to his particular use.

Rev 4/2014
PARADIENE 20 TG
Commercial Product Data Sheet

Product Description
Paradiene 20 TG is a high performance torch grade modified bitumen base ply designed for use in homogeneous multi-layer modified bitumen roof membrane systems. Paradiene 20 TG consists of a lightweight random fibrous glass mat impregnated and coated with high quality styrene-butadiene-styrene (SBS) modified bitumen. The top surface is covered with a silica parting agent, and the back surface is coated with a high performance modified asphalt adhesive layer specifically formulated for torch applications. The adhesive layer is manufactured using a special process that embosses the surface with a grooved pattern to provide optimum burnoff of the plastic film and maximize application rates.

Paradiene 20 TG is available with Siplast Rooftag RFID roof asset technology on a Special-Made-To-Order basis. See Rooftag Commercial Product Data Sheet for more information.

Product Uses
Paradiene 20 TG is the first ply of all Siplast Paradiene 20 TG/30 TG Systems, and is lapped 3 inches (7.6 cm) side and end. Paradiene 20 TG is torch applied to approved substrates. Contact Siplast for specific approval on product uses.

Product Approvals
Paradiene 20 TG is approved by FM Approvals (FM Standard 4470) for use in Siplast Paradiene 20 TG/30 TG and Paradiene 20 TG/30 FR TG Class 1 insulated steel roof deck constructions and insulated and non-insulated concrete roof deck constructions, subject to FM conditions and limitations.

Contact Siplast for specific information regarding FM Class 1 windstorm resistance classifications.

Paradiene 20 TG is classified by Underwriters Laboratories for use in UL Classified Siplast Paradiene 20 TG/30 TG and Paradiene 20 TG/30 FR TG Roof Systems. Siplast Paradiene 20 TG/30 FR TG Roof Systems have been classified by Underwriters Laboratories as Class A roofing systems over non-combustible, insulated non-combustible, and insulated combustible decks, and as Class B roofing systems over combustible decks. Siplast Paradiene 20 TG/30 TG Roof Systems have been classified as Class C roofing systems over combustible, non-combustible, and insulated combustible decks.

Paradiene 20 TG meets or exceeds the requirements of ASTM D 6163 Type I, Grade S, for SBS-modified bituminous sheet materials using glass fiber reinforcements.

Siplast Roof Systems have also received the approval of many regional and local code authorities. Contact Siplast for more information.

COMMERCIAL PRODUCT INFORMATION

<table>
<thead>
<tr>
<th>Unit</th>
<th>Roll</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coverage:</td>
<td>1.0 Square (9.3 m²)</td>
</tr>
<tr>
<td>Coverage Weight Per Square:</td>
<td>Min: 76 lb (3.7 kg/m²)</td>
</tr>
<tr>
<td>Roll Length:</td>
<td>Min: 33.5 ft (10.21 m)</td>
</tr>
<tr>
<td>Roll Width:</td>
<td>Avg: 3.28 ft (1.00 m)</td>
</tr>
<tr>
<td>Thickness:</td>
<td>Avg: 114 mils (2.9 mm)</td>
</tr>
<tr>
<td></td>
<td>Min: 110 mils (2.8 mm)</td>
</tr>
<tr>
<td>Selvage Width:</td>
<td>N/A</td>
</tr>
<tr>
<td>Selvage Surfacing:</td>
<td>N/A</td>
</tr>
<tr>
<td>Top Surfacing:</td>
<td>Silica Parting Agent</td>
</tr>
<tr>
<td>Back Surfacing:</td>
<td>Polyelefin Film</td>
</tr>
</tbody>
</table>

Lines: Two laying lines are placed 3 in (7.6 cm) and 4 in (10.2 cm) from each edge of the material. The line color for this material is white.

Packaging: Rolls are wound onto a compressed paper tube. The rolls are placed upright on pallets cushioned with corrugated cardboard and are adhered with adhesive at the labels. The top of the palleted rolls is covered with foilized Kraft paper. The palleted materials are protected by a heat shrink polyethylene shroud.

Pallet: 41 in X 48 in (104 cm X 122 cm) wooden pallet
Number Rolls Per Pallet: 25
Number Pallets Per Truckload: 18
Minimum Roll Weight: 76 lb (34.5 kg)

Storage and Handling: All Siplast roll roofing products should be stored on end on a clean flat surface. Care should be taken that rolls are not dropped on ends or edges and are not stored in a leaning position. Deformation resulting from these actions will make proper installation difficult. All roofing should be stored in a dry place, out of direct exposure to the elements, and should not be double stacked. Material should be handled in such a manner as to ensure that it remains dry prior to and during installation.

Current copies of all Siplast Commercial Product Data Sheets are posted on the Siplast Web site at www.siplast.com.

Rev 3/2014
# PARADIENE 20 TG

## Physical and Mechanical Properties

<table>
<thead>
<tr>
<th>Property (as Manufactured)</th>
<th>Values/Units</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness (minimum)</td>
<td>110 mils (2.8 mm)</td>
<td>ASTM D 5147 section 6</td>
</tr>
<tr>
<td>Thickness (average)</td>
<td>114 mils (2.9 mm)</td>
<td>ASTM D 5147 section 6</td>
</tr>
<tr>
<td>Peak Load @ 73°F (average)</td>
<td>30 lbf/inch (5.3 kN/m)</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td>Peak Load @ 0°F (average)</td>
<td>75 lbf/inch (13.2 kN/m)</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td>Elongation @ Peak Load, 73°F (average)</td>
<td>3%</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td>Elongation @ Peak Load, 0°F (average)</td>
<td>3%</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td>Ultimate Elongation @ 73°F (average)</td>
<td>50%</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td>Tear Strength (average)</td>
<td>40 lbf (0.18 kN)</td>
<td>ASTM D 5147 section 8</td>
</tr>
<tr>
<td>Water Absorption (maximum)</td>
<td>1%</td>
<td>ASTM D 5147 section 10</td>
</tr>
<tr>
<td>Dimensional Stability (maximum)</td>
<td>0.1%</td>
<td>ASTM D 5147 section 11</td>
</tr>
<tr>
<td>Low Temperature Flexibility (maximum)</td>
<td>-15°F (-26°C)</td>
<td>ASTM D 5147 section 12</td>
</tr>
<tr>
<td>Compound Stability (minimum)</td>
<td>250°F (121°C)</td>
<td>ASTM D 5147 section 16</td>
</tr>
<tr>
<td>Coating Thickness - Back Surface</td>
<td>≥ 40 mils (1 mm)</td>
<td>ASTM D 5147 section 17</td>
</tr>
<tr>
<td>Cyclic Fatigue</td>
<td>Paradiene 20 TG, bonded to an acceptable Paradiene 30, Paradiene 40 FR, or Parafor 50 LT cap sheet with an approved method of attachment, passes ASTM D 5849 both as-manufactured and after heat conditioning according to ASTM D 5147.</td>
<td></td>
</tr>
</tbody>
</table>

1. The value reported is the lower of either MD or XD.

Rev 3/2014
MATERIAL SAFETY DATA SHEET

Manufacturer: Siplast, an Icopal Group Company
(800) 643-1591 or (800) 922-8800
Address: 1000 E. Rochelle Blvd., Irving, TX 75062
Emergency Phone No.; CHEMTREC, (800) 424-9300 (U.S.), (703) 527-3887 (outside of U.S.)
Product Class: Modified Bitumen Membrane

Section II - Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>IRAC</th>
<th>Percent</th>
<th>ACGIH TLV (mg/m³)</th>
<th>OSHA PEL (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt</td>
<td>NO</td>
<td>13.6-48.3</td>
<td>0.5</td>
<td>5</td>
</tr>
<tr>
<td>Filler</td>
<td>NO</td>
<td>16-29.7</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>SBS Polymer</td>
<td>NO</td>
<td>Proprietary</td>
<td>N/A*</td>
<td>N/A*</td>
</tr>
<tr>
<td>Reinforcement</td>
<td>NO</td>
<td>1.6-6.0</td>
<td>N/A*</td>
<td>N/A*</td>
</tr>
<tr>
<td>Surfacing</td>
<td>NO</td>
<td>0-30</td>
<td>10</td>
<td>3.3</td>
</tr>
<tr>
<td>Parting Agent</td>
<td>NO</td>
<td>5-42.5</td>
<td>0.1</td>
<td>10</td>
</tr>
</tbody>
</table>

Section III - Physical Data

Boiling Range of Asphalt: 750°F
Evaporation Rate: Not applicable
% Volatile by Volume: Not applicable
Weight per Gallon: Not applicable

Section IV - Fire and Explosion Data

DOT Category: Not applicable
Flash Point: +475°F by COC
Extinguishing Media: Water fog, foam, dry chemical or CO₂
Special Procedures: None
Unusual Hazards: None

Section V - Health Hazard Data

Inhalation of fumes released during heat welding of this product may cause temporary upper respiratory irritation. Remove affected individuals to fresh air. Emergency and First Aid Procedures: Flush area with water if contact is made with asphalt during hot application.

Section VI - Reactivity Data

Stability: Stable X Unstable
Conditions to Avoid: Strong oxidizing agents and uncontrollable flame.
Hazardous Decomposition Products: H₂S released when heated. CO may be formed with incomplete combustion. Amount of H₂S released is negligible.
Hazardous Polymerization: May occur __ Will not occur X

Section VII - Spill or Leak Procedures

Steps to be Taken in Case Material is Released or Spilled: No hazards
Waste Disposal Method: Dump at an approved site that complies with local, state, and federal regulations. No special procedures.

Section VIII - Special Protection Information

Respiratory Protection: Not normally needed in a well-ventilated area. If TLV is exceeded, a NIOSH/MESA approved breathing apparatus is recommended.
Ventilation: General, since material is applied only in open areas.
Protective Gloves: Impervious in nature. For use in application and handling.
Eye Protection: Recommended during application.
Other Protective Equipment: None

Section IX - Special Precautions

Handling and Storage: None
Other: None

* Not available

The information and recommendations contained herein are, to the best of Siplast's knowledge and belief, accurate and reliable as of the date issued. Siplast does not warrant or guarantee their accuracy or reliability, and should not be liable for any loss or damage arising out of the use thereof. User should satisfy himself that he has all current data relevant to his particular use.

Rev 4/2014
# Product Data Specifications

## OlyBond500 Insulation Adhesive

### Part 1 General

#### 1.01 Description
OlyBond500 is a two-component polyurethane adhesive used to adhere a variety of board stocks to most roof substrates in both new and re-roof applications. It can also be used to adhere insulation board to insulation board. OlyBond500 is dispensed in 34- to 1-inch bands that spread to several inches while rising ¾- to 1-inch above the substrate. Place the board stock into the adhesive and walk into place. A chemical cure takes place securing the board in approximately 4 to 8 minutes after application, depending on temperature and weather conditions.

#### 1.02 Typical Physical Properties

<table>
<thead>
<tr>
<th>Physical Property</th>
<th>Test Method</th>
<th>Typical Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>ASTM D-1822</td>
<td>3.2 lb/ft³</td>
</tr>
<tr>
<td>Compressive Strength</td>
<td>ASTM D-1821</td>
<td>38 psi @ 6% deflection</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>ASTM D-1623</td>
<td>35 psi</td>
</tr>
<tr>
<td>Water Absorption</td>
<td>ASTM D-2842</td>
<td>5.1%</td>
</tr>
<tr>
<td>Closed Cell Content</td>
<td>ASTM D-6226</td>
<td>90% min.</td>
</tr>
<tr>
<td>R-Value</td>
<td>ASTM C-518</td>
<td>3.8 inch (new)</td>
</tr>
<tr>
<td>VOC Content</td>
<td>ASTM D-2369</td>
<td>5 g/L</td>
</tr>
<tr>
<td>Weight/Gallon</td>
<td>Part 1 Component</td>
<td>10.32 lbs.</td>
</tr>
<tr>
<td></td>
<td>Part 2 Component</td>
<td>8.54 lbs.</td>
</tr>
</tbody>
</table>

#### 1.03 Packaging

1. Package Sizes:
   - 10 gallon Bag-in-Box sets for use with the PaceCart 2® (5 gal. Part 1; 5 gal. Part 2).
   - 1500 ml SpotShot cartridge sets for use in specially designed applicators.

2. Formulas* (Part 2 component, 5 gallon Bag-in-Box):
   - Regular (40°F +)
   - Regular (40°F +)
   - Winter (0°F – 65°F)

#### 1.04 Quality Assurance
The OlyBond500 adhesive must be installed in compliance with the information outlined on the OlyBond500 Request for Warranty form and approved in writing by an authorized representative of OMG, Inc.

#### 1.05 Submittals
To insure compliance with the OMG warranty requirements, the following information must be submitted to OMG for review prior to installation, and preferably prior to bid:

1. Request for Warranty form filled out with the correct project information.
2. Unusual projects such as air pressurized buildings, cold storage buildings, buildings that have large openings (e.g., where the total wall openings exceed 10% of the total wall area on which the openings are located), may require additional review time.

#### 1.06 Job Conditions

1. Insure that you have the correct OlyBond500 formula for the surface and ambient temperature.
   - Bag-in-Box: Regular (40°F +)
   - SpotShot: Regular (40°F +) or Winter (0°F – 65°F)

2. On retrofit-recover projects, the existing roofing material must be investigated to insure adequate attachment of existing system. All wet material must be identified and removed prior to the application of the OlyBond500 adhesive.
3. Existing Phenolic Insulation must be removed.

4. Coordination between trades is essential to avoid unnecessary rooftop traffic.

1.07 STORAGE AND HANDLING

1. Store in a cool, dry location at temperatures between 55°F and 85°F. Protect from freezing at all times. If properly stored, the shelf life for unopened product is 18 months from the date of manufacture.

2. Keep containers closed. Contamination by moisture or basic compounds can cause dangerous pressure build-up in a closed container.

3. The minimum product temperature before application should be 72°F. The minimum ambient and surface temperatures should be 40°F and rising unless the SpotShot winter formulation is being used.

1.08 APPROVALS

OlyBond500 is approved by most roof system manufacturers and is Factory Mutual, Florida Building Code, Miami Dade and UL approved.

1.09 FIRST AID

In case of contact with eyes, immediately flush eyes with running water for at least 15 minutes. Call a physician immediately. In case of contact with skin, wash affected area with soap and water. Remove all contaminated clothing and shoes and clean before re-use. If swallowed, give large amounts of water to dilute. If vomiting occurs, give more water. Call a physician immediately.

1.10 DISPOSAL

PMDI in Part 1 component may cause pollution. Do not discharge into lakes, streams, ponds or public waters. Spilled material, unused contents and empty containers should be neutralized and disposed of in accordance with local, state and federal regulations.

1.11 WARRANTY

OMG issues a 10 year limited material warranty on all OlyBond500 purchases. A full adhesion warranty is available by contacting OMG prior to starting the project and submitting a completed Request for Warranty form.

Part 2 Product

2.01 COMPOSITION AND MATERIALS

OlyBond500 is a dual-component, reaction cure polyurethane adhesive. The blowing agent is water. OlyBond500 does not contain HCFC and has low VOCs.

OlyBond500 is available in 10 gallon sets of Part 1 (diisocyanate, 5 gallons), and Part 2 (resin, 5 gallons). OlyBond500 is also available in 1500 ml SpotShot cartridge sets (4 cartridges/case).

2.02 COMPATIBILITY

1. Roof Decks and Substrates:
   - Structural concrete
   - Gypsum
   - Cementitious wood fiber plank
   - Lightweight insulating concrete
   - Steel (22 gauge or thicker with approved cross section)
   - Plywood (¾-inch thick min.)
   - Smooth surface BUR
   - Smooth and granular surface modified bitumen (properly prepared)
   - Existing sprayed in place polyurethane foam
   - Base sheets
   - Most vapor barriers (including asphaltic and fleece-top)

2. Roof Insulation and Cover Board:
   - Expanded Polystyrene
   - Polyisocyanurate
   - High Density Wood Fiber
   - DensDeck®
   - Perlite
   - Securock®
   - Certain Extruded Polystyrene

Any substrate or insulation not listed must be reviewed by OMG. Call 800-633-3800.

2.03 LIMITATIONS

1. OlyBond500 is not recommended for use with isocyanurate board stock larger than 4 feet x 4 feet.

2. OlyBond500 (regular grade) is not recommended for application when ambient or substrate temperatures are below 40°F.

3. OlyBond500 SpotShot winter formulation is specifically designed to be applied between 0°F and 85°F.
4. OlyBond500 is not recommended for use during wet weather.
5. OlyBond500 cannot be used on wet surfaces.
6. OlyBond500 cannot be used on dirty or grease-laden surfaces.
7. OlyBond500 is not recommended for use on any roof deck that shows signs of deterioration or loss of structural integrity.
8. OlyBond500 is not recommended for use after the expiration date. Contact OMG at 800-633-3800 for options and instructions.

Part 3 Execution

3.01 ROOF DECK CRITERIA
1. The building owner or general contractor shall provide a proper substrate. The structure shall be sufficient to withstand normal construction load and live loads.
2. Defects in the deck must be documented and reported to the specifier, general contractor, roof cover manufacturer and OMG, Inc. The application of OlyBond500 shall not proceed unless the defects are corrected.
3. It is the responsibility of the roofing contractor to ensure that the existing roof is adequately attached to the building and meets all the requirements for an acceptable surface.
4. Acceptable decks are structural concrete, gypsum, cementitious wood fiber plank, lightweight insulating concrete, minimum 22-gauge steel, minimum ¼-inch plywood.

3.02 SURFACE PREPARATION
1. General. All surfaces must be dry and free of any debris, dirt, oil or grease before applying OlyBond500.
2. Specific Conditions
   a. Steel. The bonding surface of steel decks must be dry and free of debris, dirt, grease and oil. On new steel, the shop coating/mill oil must be removed. The bonding surface must be free of any cleaner before applying OlyBond500.
   b. Existing Smooth Asphaltic Surfaces. The surface must be dry and free of debris, dirt, grease and oil.
   c. Existing Polyurethane Foam. The surface of the polyurethane roof, including the coating, should be removed with a scarifier (minimum ½ inch). The bonding surface should be blown clean before applying OlyBond500.
   d. Metal. OlyBond500 has excellent adhesion to clean metal. It is recommended that all non-ferrous metals (aluminum, copper, stainless, etc.) be primed to further increase adhesion. Accepted primers include epoxy, chlorinated rubber, and wash primer.
   e. Concrete. All concrete surfaces must be fully cured prior to applying OlyBond500.
   f. Other. For other substrates not listed, contact OMG at 800-633-3800.

3.03 INSULATION
Review the roofing insulation plan. Polyisocyanurate insulation boards cannot be larger than 4 feet x 4 feet. Multiple layers of boards should use the staggered joint method of application. Compatible insulation other than polyisocyanurate can be 4 feet x 8 feet maximum size.

3.04 PRODUCT INSTALLATION
1. Using PaceCart 2
   b. Open flow valves on the dispenser completely and turn machine on. This allows adhesive to be pumped at a 1:1 ratio through the disposable mix tip and onto the substrate in a semi-liquid state.
   c. Apply fluid mixture in ¼ to 1 inch wide wet beads spaced maximum of 12 inches on center that spreads in excess of 2 inches wide while rising ¼ to 1 inch.
   d. Lay insulation board into place and walk-in to assure complete adhesion. Curing typically occurs in 4 to 8 minutes depending on temperature and weather conditions.
   e. Check with roof system manufacturer for project-specific spacing requirements.
2. Using SpotShot Applicator
   a. Attach the disposable mix tip to the top of the SpotShot tube. Insert the tube into SpotShot dispensing tool and dispense onto the substrate. Apply fluid mixture in rows spaced maximum of 12 inches on center that spread to several inches wide while rising ¼ to 1 inch.
b. Lay insulation board into place and walk-in to assure complete adhesion. Curing typically occurs in 4 to 8 minutes depending on temperature and weather conditions.

c. Check with roof system manufacturer for project-specific spacing requirements.

3.05 TYPICAL APPLICATION RATES

Application rates vary depending on surface roughness and absorption rate of the substrate. Typical coverage rates for OlyBond500 dispensed through the PaceCart 2 are 10–20 squares per 10 gallon Bag-in-Box sets. Typical coverage rates for OlyBond500 SpotShot dispensed through applicators is 4–6 squares per case (4 sets of 1500 ml cartridges). All coverage rates are based on 12 inch on center maximum spacing. See chart below for typical application rates on specific substrates.

<table>
<thead>
<tr>
<th>APPLICATION RATES</th>
<th>TYPICAL COVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Bag-in-Box Dispensed from PaceCart 2)</td>
<td>Squares/Gallon</td>
</tr>
<tr>
<td>Insulation to Concrete</td>
<td>1.7 to 2</td>
</tr>
<tr>
<td>Insulation to Insulation</td>
<td>1.7 to 2</td>
</tr>
<tr>
<td>Insulation to Smooth BUR</td>
<td>1.5 to 1.7</td>
</tr>
<tr>
<td>Insulation to Modified Bitumen</td>
<td>1.5 to 1.7</td>
</tr>
<tr>
<td>Insulation to Gypsum</td>
<td>1 to 1.2</td>
</tr>
<tr>
<td>Insulation to Lightweight Concrete*</td>
<td>1 to 1.7</td>
</tr>
<tr>
<td>Insulation to Wood</td>
<td>1.7 to 2</td>
</tr>
<tr>
<td>Insulation to Cementitious Wood Fiber</td>
<td>1 to 1.2</td>
</tr>
<tr>
<td>Insulation to Steel</td>
<td>1 to 1.2</td>
</tr>
</tbody>
</table>

*Coverage rate may vary substantially based on the absorption rate and/or the surface conditions of the LWC.

3.06 REACTION TIME

It is important to monitor the speed of the reaction in relation to the temperature (substrate and ambient) at time of application to ensure a complete reaction. Note the charts below for correct ‘Part 2’ component selection:

<table>
<thead>
<tr>
<th>TYPICAL REACTION TIME CHARACTERISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. 5 Gallon Bag-in-Box Packaging</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEMPERATURE</th>
<th>PART 2 FORMULA</th>
<th>TACK FREE TIME (minutes)</th>
<th>SET UP TIME (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40°F +</td>
<td>R</td>
<td>3–5</td>
<td>10–12</td>
</tr>
</tbody>
</table>

B. 1500 ml SpotShot Cartridges

<table>
<thead>
<tr>
<th>TEMPERATURE</th>
<th>PART 2 FORMULA</th>
<th>TACK FREE TIME (minutes)</th>
<th>SET UP TIME (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0°F – 65°F</td>
<td>W</td>
<td>3–4</td>
<td>10–12</td>
</tr>
<tr>
<td>40°F +</td>
<td>R</td>
<td>3–5</td>
<td>10–12</td>
</tr>
</tbody>
</table>

Important: When applying OlyBond500, board stock must be placed into the adhesive shortly after it has reached its maximum rise while it is still wet and tacky and before it reaches its tack free state.

3.07 AVAILABILITY AND COST

OlyBond500 is available throughout the USA and Canada. For availability and pricing contact OMG, Inc. at 800-633-3800. Deliveries directly to job sites and to specific locations are available.

3.08 PRECAUTIONS

1. IN CASE OF FIRE: Use water spray, foam or CO₂. Firefighters should be equipped with self-contained breathing apparatus and turnout gear for protection against PMDI vapors and toxic decomposition products. Avoid water contamination in closed container or confined areas.

2. DO NOT LEAVE ADHESIVE EXPOSED OR UNPROTECTED. Polyurethane foam or isocyanurate foam products may present a serious fire hazard if exposed or unprotected. Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any of these materials should carefully determine whether there is a potential fire hazard associated with such product in a specific usage and utilize all appropriate precautionary and safety measures as outline in local, state and federal regulations. When not in use keep stored containers closed.

PATENT NOTICE

The OMG PaceCart® dispensing cart and the Bag-in-Box OlyBond500® Part 1/Part 2 adhesive system, including the adhesive dispensing method, are covered by one or more of U.S. Patent Nos. 5,220,526; 5,113,385; 5,132,693; 8,167,170 and 8,474,658.
SAFETY DATA SHEET

OlyBond500 SpotShot (part 1)

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: OlyBond500 SpotShot (part 1)

MANUFACTURER
ITW Polymers Sealants North America
6900 Bleck Drive
Rockford, MN 55373
Service Number: (800) 403-7747

24 HR. EMERGENCY TELEPHONE NUMBERS
INFOTRAC: (800) 535-5053

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

IMMEDIATE CONCERNS: WARNING! Contains Diphenylmethane Disocyanate (CAS No. 101-68-8). May cause respiratory tract irritation. May cause allergic respiratory reaction. Harmful if inhaled. Respiratory sensitizer. May cause lung damage. Lung damage and respiratory sensitization may be permanent. May cause skin irritation. May cause allergic skin reaction. Skin sensitizer. Animal tests and other research indicate that skin contact with MDI can cause isocyanate desensitization and respiratory reaction.

POTENTIAL HEALTH EFFECTS

EYES: May cause eye irritation. Permanent corneal injury is unlikely.

SKIN: May cause skin irritation upon contact. May cause allergic reaction in susceptible individuals. May stain the skin.

SKIN ABSORPTION: A single prolonged exposure is not likely to result in material being absorbed through the skin in harmful quantities.

INGESTION: Single dose oral toxicity is low. Can result in irritation and corrosive action in the mouth, stomach and digestive tract. However, it is not considered a common occupational route of exposure.

INHALATION: MDI vapors or mist concentration at or above the TLV can irritate (burning sensation) the mucous membrane in the respiratory tract causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function. Persons with pre-existing non-specific bronchial hyper-reactivity can respond to concentrations well below the TLV with similar symptoms as well as asthma attacks. Exposure well above the TLV may lead to bronchitis, bronchial spasm, and pulmonary edema. These effects are usually reversible. Chemical or hypersensitive pneumonitis, with flu-like symptoms (e.g. fever, chills) has also been reported. These symptoms can be delayed up to several hours after exposure. As a result of previous repeated overexposure or a single large dose, certain individuals develop isocyanate sensitization (chemical asthma), which will cause them to react to a later exposure to isocyanate at levels well below the TLV. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increase lung sensitivity can persist for weeks and in severe cases for several years. Overexposure to isocyanates has also been reported to cause lung damage (decrease in lung function), which may be permanent. Sensitization can be either temporary or permanent.

ROUTES OF ENTRY: Eye and Skin Contact, Inhalation and Ingestion

IRRITANCY: Eye and skin irritation.

SENSITIZATION: May cause allergic respiratory and skin reaction. Respiratory and skin sensitizer.
SAFETY DATA SHEET

OlyBond500 SpotShot (part 1)

3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Wt.%</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymeric Isocyanates</td>
<td>&lt; 55</td>
<td>9016-87-9</td>
</tr>
<tr>
<td>Methylene Bisphenyl Isocyanate</td>
<td>38</td>
<td>101-68-8</td>
</tr>
<tr>
<td>DiphenylMethylene Disocyanate Mixed Isomers</td>
<td>&lt; 10</td>
<td>26447-40-5</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

EYES: Immediately flush eyes with plenty of tempered water (at least 15-20 minutes) lifting upper and lower eye lids occasionally. Get immediate medical attention.

SKIN: Immediately flush skin with plenty of water. Remove clothing. Get medical attention immediately. Wash clothing separately before reuse.

INGESTION: If swallowed, do NOT induce vomiting. Give victim two glasses (16 ounces) of water or milk. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention. Asthmatic type symptoms may develop and may be immediate or delayed up to several hours. Treatment is essentially symptomatic.

SIGNs AND SYMPTOMS OF OVEREXPOSURE

EYES: Causes eye irritation.

SKIN: Contact causes skin irritation.

SKIN ABSORPTION: None Expected.

INGESTION: None known, not likely route of entry.

INHALATION: Review inhalation signs and symptoms of MDI under Potential Health Effects.

NOTES TO PHYSICIAN: Medical supervision of all employees who handle or come into contact with isocyanates is recommended. This should include pre-employment and periodic medical examinations with respiratory function tests (FEV, FVC as minimum). Persons with asthmatic type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or sensitization should be excluded from working with MDI. Once a person is diagnosed as sensitized, no further exposure can be permitted.

IF ADDITIONAL INFORMATION ABOUT THIS MIXTURE IS REQUIRED, CONTACT ITW POLYMERS SEALANTS NORTH AMERICA AT (800) 403-7747

5. FIRE FIGHTING MEASURES

FLAMMABLE CLASS: Class IIIB

GENERAL HAZARD: Combustible Liquid.

EXTINGUISHING MEDIA: Water spray, carbon dioxide, dry chemical or foam.

OTHER CONSIDERATIONS: MDI reacts exothermically with water, which may create excessive pressure in containers.

EXPLOSION HAZARDS: Decomposition products may cause a health hazard. Down wind personnel must be evacuated. Do not reseal contaminated containers, as pressure build-up may rupture them.

FIRE FIGHTING PROCEDURES: As in any fire, wear self-contained breathing apparatus with pressure-demand,
SAFETY DATA SHEET

OlyBond500 SpotShot (part 1)

full face piece SCBA (MSHA/NIOSH approved or equivalent) and full protective gear.

SENSITIVE TO STATIC DISCHARGE: Not Applicable

SENSITIVITY TO IMPACT: None known.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon Dioxide, Carbon Monoxide, Nitrogen Oxide, Isocyanate Vapors and Mist, Traces of HCN.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Absorb the isocyanate with sawdust or other absorbent and shovel into open top containers. Do not make containers pressure tight. Transport to a well ventilated area, preferably outside, and treat with neutralizing solution consisting of a mixture of 90% water, 8% concentrated ammonium hydroxide or sodium carbonate, and 2% liquid detergent. Add about 10 parts of neutralizer per part of isocyanate by mixing. Allow to stand for 48 hours, allowing evolved carbon dioxide to escape.

LARGE SPILL: Keep spectators away. Only those persons who are adequately trained, authorized and wearing the required personal protective equipment (PPE) should participate in spill response and clean-up. Know and prepare for spill response before using or handling this product. Dike and contain spill with inert material (e.g. sand, earth). Transfer liquids to covered and labeled containers for disposal. Use appropriate PPE. Place absorbent diking materials in covered containers for disposal. Prevent contamination of sewers, streams, and groundwater with spilled material or used absorbent.

If temporary control of isocyanate vapor is required, a blanket of protein foam (available at most Fire Departments) may be placed over the spill.

7. HANDLING AND STORAGE

GENERAL PROCEDURES: For professional or industrial use only. Follow label instructions. Keep out of the reach of children. Not for consumption. No smoking. Do not breathe vapors. Avoid contact with body. Empty containers must not be washed and re-used for any purpose. Contact lens wearers must wear protective eye wear around chemical vapors and liquid. Wash hands thoroughly after handling. To prevent build-up of vapors, use adequate natural and/or mechanical ventilation (e.g. open all windows and doors to achieve cross ventilation).

HANDLING: Follow all SDS/label precautions even after container is emptied because they may retain product residues. Containers should be tightly closed to prevent contamination with foreign materials and moisture. Employee education and training in the safe handling of this product are required under the Federal OSHA Hazard Communication Standard. Avoid contact of liquid with eyes and prolonged skin exposure.

STORAGE: Keep container closed when not in use. Store in a dry well ventilated area, out of the sun and away from ignition sources. Do not remove or deface label. Prevent water or moist air from entering container.

STORAGE TEMPERATURE: 12.8°C (55°F) Minimum to 29.4°C (84.9°F) Maximum

SHELF LIFE: 18 months from manufacture date @ 29.4°C

8. EXPOSURE CONTROLS / PERSONAL PROTECTION
SAFETY DATA SHEET

OlyBond500 SpotShot (part 1)

EXPOSURE GUIDELINES

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>EXPOSURE LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OSHA PEL</td>
</tr>
<tr>
<td></td>
<td>ppm</td>
</tr>
<tr>
<td>Methylene Bisphenyl Isocyanate</td>
<td>TWA 0.02 ppm</td>
</tr>
</tbody>
</table>

Footnotes:
1. NL = Not Listed

ENGINEERING CONTROLS: Local exhaust ventilation or other engineering controls are recommended to maintain levels below the TLV whenever MDI is processed, heated or spray applied. For spray applications, an air-supplied respirator must be worn. Standard reference sources regarding industrial ventilation (i.e. ACGIH Industrial Ventilation) should be consulted for guidance about proper ventilation.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Wear safety glasses with side shields, goggles, or a full-face shield. Do not wear contact lenses.

SKIN: Wear chemical resistant gloves such as latex, butyl rubber or nitrile rubber. Wear chemical protective clothing & boots to prevent repeated or prolonged skin contact.

RESPIRATORY: Where vapor concentrations exceed or are likely to exceed the occupational exposure limits, a NIOSH approved continuous flow supplied air respirator, hood or helmet is recommended. A NIOSH approved self-contained positive pressure breathing apparatus with full face piece is required for spills and/or emergencies. MDI has poor warning properties, since the concentration at which MDI can be smelled is substantially higher that the maximum exposure limit. A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator’s use.

WORK HYGIENIC PRACTICES: Use good hygiene practices when handling this material. Wash hands thoroughly after use.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

ODOR: Aromatic

ODOR THRESHOLD: Not Determined

COLOR: Dark Brown

pH: Not Determined

PERCENT VOLATILE: Not Determined
SAFETY DATA SHEET

OlyBond500 SpotShot (part 1)

FLASHPOINT AND METHOD: 220°C (428°F) to 220°C (428°F) COC (Cleveland Open Cup)
FLAMMABLE LIMITS: Not Determined
AUTOIGNITION TEMPERATURE: Not Applicable
VAPOR PRESSURE: Not Determined
VAPOR DENSITY: Not Determined
BOILING POINT: >= (200°F)
FREEZING POINT: Not Determined
MELTING POINT: Not Determined
POUR POINT: Not Determined
SOLUBILITY IN WATER: Reacts with water
EVAPORATION RATE: Not Determined
DENSITY: 10.16 lbs/gal-Part 1
PARTICLE SIZE: Not Determined
SPECIFIC GRAVITY: 1.22
VISCOSITY #1: 150 to 350 cps
MOLECULAR WEIGHT: Not Determined
(VOC): 11,000 gr/L EPA Method 24 VOC
COEFF. OIL/WATER: Not Determined
OXIDIZING PROPERTIES: Not Determined

10. STABILITY AND REACTIVITY

STABLE: Yes
HAZARDOUS POLYMERIZATION: No
STABILITY: Stable.
POLYMERIZATION: Product will not undergo polymerization.
POSSIBILITY OF HAZARDOUS REACTIONS: None Expected.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, nitrogen oxide, isocyanate vapors and mist, traces of HCN.
INCOMPATIBLE MATERIALS: Reacts with water, with the formation of carbon dioxide. Risk of bursting. Reacts with alcohols, acids, alkalies, and amines. Risk of exothermic reaction. Risk of violent reaction. Contact with certain rubbers and plastics can cause brittleness of the substance with subsequent loss in strength.

11. TOXICOLOGICAL INFORMATION

ACUTE
SAFETY DATA SHEET

OlyBond500 SpotShot (part 1)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ORAL LD$_{50}$ (rat)</th>
<th>DERMAL LD$_{50}$ (rabbit)</th>
<th>INHALATION LC$_{50}$ (rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymeric Isocyanates</td>
<td>No data</td>
<td>g/kg (rabbits)</td>
<td>No data</td>
</tr>
<tr>
<td>Methylene Bisphenyl Isocyanate</td>
<td>&gt; 5000 mg/kg (rats)</td>
<td>No data</td>
<td>&gt; 2240 mg/cub m (1-hr dose - rat)</td>
</tr>
<tr>
<td>Diphenylmethane Diisocyanate Mixed Isomers</td>
<td>&gt; 10000 mg/kg (rats)</td>
<td>g/kg (rabbits)</td>
<td>&gt; 2240 mg/cub m (1-hr dose - rat)</td>
</tr>
</tbody>
</table>

IRRITATION: Mild to moderate eyes and skin irritation.
SENSITIZATION: Respiratory and Skin Sensitizer

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: This product contains components that may be harmful to aquatic organisms and may cause long term adverse effects in the aquatic environment.

ECOTOXICOLOGICAL INFORMATION: Contains components that are potentially toxic to freshwater and saltwater ecosystems.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose of in accordance with all local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)
PROPER SHIPPING NAME: Not Regulated
MARINE POLLUTANT #1: None

15. REGULATORY INFORMATION

UNITED STATES
SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)
FIRE: No PRESSURE GENERATING: No REACTIVITY: Yes ACUTE: Yes CHRONIC: Yes

EPCRA SECTION 313 SUPPLIER NOTIFICATION

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Wt.%</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymeric Isocyanates</td>
<td>&lt; 55</td>
<td>9016-87-9</td>
</tr>
<tr>
<td>Methylene Bisphenyl Isocyanate</td>
<td>38</td>
<td>101-68-8</td>
</tr>
</tbody>
</table>

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)
## SAFETY DATA SHEET

**Date Issued**: 6/11/2014  
**MSDS No**: OlyBond 500-1  
**Date Revised**: 6/11/2014  
**Revision No**: 5

### OlyBond500 SpotShot (part 1)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Wt.%</th>
<th>CERCLA RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene Bisphenyl Isocyanate</td>
<td>38</td>
<td>5000 lbs.</td>
</tr>
<tr>
<td>Diphenylmethane Diisocyanate Mixed Isomers</td>
<td>&lt; 10</td>
<td>5000 lbs.</td>
</tr>
</tbody>
</table>

### TSCA (TOXIC SUBSTANCE CONTROL ACT)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymeric Isocyanates</td>
<td>9016-87-9</td>
</tr>
<tr>
<td>Methylene Bisphenyl Isocyanate</td>
<td>101-68-8</td>
</tr>
<tr>
<td>Diphenylmethane Diisocyanate Mixed Isomers</td>
<td>26447-40-5</td>
</tr>
</tbody>
</table>

### CLEAN AIR ACT

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Wt.%</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene Bisphenyl Isocyanate</td>
<td>38</td>
<td>101-68-8</td>
</tr>
</tbody>
</table>

### CANADA

**WHMIS HAZARD SYMBOL AND CLASSIFICATION**

![Toxic]

### 16. OTHER INFORMATION

**INFORMATION CONTACT**: (800) 403-7747  
**REVISION SUMMARY**: This MSDS replaces the 4/29/2014 MSDS. Revised: **Section 1**: Date Issued.

### HMIS RATING

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>FLAMMABILITY</th>
<th>PHYSICAL HAZARD</th>
<th>PERSONAL PROTECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>1</td>
<td>B</td>
</tr>
</tbody>
</table>

### NFPA CODES

![Diagram]

**GENERAL STATEMENTS**: Keep out of reach of children  
For professional or industrial use only

**MANUFACTURER DISCLAIMER**: This document may be used to comply with OSHA’s Hazardous Communication Standard, 29 CFR 1910.1200.

To the best of our knowledge, the information contained in this SDS is accurate. It is intended to assist the user in his/her evaluation of the product’s hazards and safety precautions to be taken in its use. The data in this SDS relate only to the specific material designated herein. We do not assume liability for the use of, or reliance on this
SAFETY DATA SHEET

OlyBond500 SpotShot (part 1)

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of ITW Polymers Sealants North America. The data on this sheet relates only to the specific material designated herein. ITW Polymers Sealants North America assumes no legal responsibility for use or reliance upon these data.
SAFETY DATA SHEET

Product Name: OlyBond500 SpotShot (part 2)

Manufacturer
ITW Polymers Sealants North America
6900 Bleck Drive
Rockford, MN 55373
Service Number: (800) 403-7747

24 HR. EMERGENCY TELEPHONE NUMBERS
INFOTRAC: (800) 535-5053

1. PRODUCT AND COMPANY IDENTIFICATION

2. HAZARDS IDENTIFICATION

Emergency Overview

Immediate Concerns: CAUTION! May cause eye, skin, nose and throat irritation.

Potential Health Effects

Eyes: May cause eye irritation upon contact.
Skin: May cause skin irritation.
Ingestion: May cause damage to mucous membranes if swallowed.
Inhalation: Short-term harmful health effects are not expected from vapor generated at ambient temperatures.

Routes of Entry: Eye and Skin Contact, Inhalation and Ingestion

3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Wt.%</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyether Polyol</td>
<td>&lt; 70</td>
<td>9082-00-2</td>
</tr>
<tr>
<td>Polypropylene Glycol</td>
<td>&lt; 20</td>
<td>25322-69-4</td>
</tr>
<tr>
<td>Diethylene Glycol</td>
<td>&lt; 10</td>
<td>111-46-6</td>
</tr>
<tr>
<td>Dipropylene Glycol</td>
<td>&lt; 10</td>
<td>25265-71-8</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Eyes: Immediately flush eyes with plenty of tempered water (at least 15-20 minutes) lifting upper and lower eye lids occasionally. Get immediate medical attention.

Skin: Immediately flush skin with plenty of water. Remove clothing. Get medical attention immediately. Wash clothing separately before reuse.

Ingestion: Do not induce vomiting. Get medical attention immediately. Never give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

5. FIRE FIGHTING MEASURES

Flammable Class: Not Applicable
SAFETY DATA SHEET

OlyBond500 SpotShot (part 2)

EXTINGUISHING MEDIA: Water spray, carbon dioxide, dry chemical or foam. Do not use a direct water steam.

EXPLOSION HAZARDS: Decomposition products may cause a health hazard.

FIRE FIGHTING PROCEDURES: As in any fire, wear self-contained breathing apparatus pressure-demand, (MSHA/NIOSH approved or equivalent) and full protective gear. After water evaporates, remaining material will burn.

SENSITIVE TO STATIC DISCHARGE: None Expected.

HAZARDOUS DECOMPOSITION PRODUCTS: Fumes, smoke, carbon monoxide and carbon dioxide may form when heated to decomposition.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Dike area to contain spill. Take precautions as necessary to prevent contamination of ground and surface waters. Recover spilled material on absorbent, such as sawdust or vermiculite, and sweep into closed containers for disposal. Do not flush to sewer. If area of spill is porous, remove as much contaminated earth and gravel, etc. as necessary and place in closed containers for disposal. Only those persons who are adequately trained, authorized, and wearing the appropriate personal protective equipment (PPE) should participate in spill response and clean-up.

LARGE SPILL: Keep spectators away. Only those persons who are adequately trained, authorized and wearing the required personal protective equipment (PPE) should participate in spill response and clean-up. Know and prepare for spill response before using or handling this product. Dike and contain spill with inert material (e.g. sand, earth). Transfer liquids to covered and labeled containers for disposal. Use appropriate PPE. Place absorbent diking materials in covered containers for disposal. Prevent contamination of sewers, streams, and groundwater with spilled material or used absorbent.

7. HANDLING AND STORAGE

GENERAL PROCEDURES: For professional or industrial use only. Follow label instructions. Keep out of the reach of children. Not for consumption. No smoking. Do not breathe vapors. Avoid contact with body. Empty containers must not be washed and re-used for any purpose. Contact lens wearers must wear protective eye wear around chemical vapors and liquid. Wash hands thoroughly after handling. To prevent build-up of vapors, use adequate natural and/or mechanical ventilation (e.g. open all windows and doors to achieve cross ventilation).

HANDLING: Follow all SDS/label precautions even after container is emptied because they may retain product residues. Containers should be tightly closed to prevent contamination with foreign materials and moisture. Employee education and training in the safe handling of this product are required under the Federal OSHA Hazard Communication Standard. Avoid contact of liquid with eyes and prolonged skin exposure.

STORAGE: Keep container closed when not in use. Store in a dry well ventilated area, out of the sun and away from ignition sources. Do not remove or deface label. Prevent water or moist air from entering container.

STORAGE TEMPERATURE: 12.8°C (55°F) Minimum to 29.4°C (84.9°F) Maximum

SHELF LIFE: 18 months from manufacture date @ 29.4 C

8. EXPOSURE CONTROLS / PERSONAL PROTECTION
# SAFETY DATA SHEET

**OlyBond500 SpotShot (part 2)**

---

## EXPOSURE GUIDELINES

### OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>EXPOSURE LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OSHA PEL</td>
</tr>
<tr>
<td></td>
<td>ppm</td>
</tr>
</tbody>
</table>

**Footnotes:**
1. NL = Not Listed

---

## ENGINEERING CONTROLS:
Natural ventilation should be adequate under normal conditions.

## PERSONAL PROTECTIVE EQUIPMENT

**EYES AND FACE:** Wear safety glasses with side shields, goggles, or a full-face shield. Do not wear contact lenses.

**SKIN:** Wear chemical resistant gloves such as latex, butyl rubber, nitrile rubber, polyvinyl alcohol. Wear chemical protective clothing & boots to prevent repeated or prolonged skin contact.

**RESPIRATORY:** This material does not have established exposure limits. Wear a positive pressure air-supplied respirator in situations where there may be potential for airborne exposure.

## WORK HYGIENIC PRACTICES:
Use good hygiene practices when handling this material. Wash hands thoroughly after use.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**PHYSICAL STATE:** Liquid

**ODOR:** Mildly sweet odor

**ODOR THRESHOLD:** Not Determined

**COLOR:** Red

**pH:** Not Determined

**PERCENT VOLATILE:** Not Determined

**FLASHPOINT AND METHOD:** 190.6°C (375.1°F)

**FLAMMABLE LIMITS:** N/D

**AUTOIGNITION TEMPERATURE:** Not Applicable

**VAPOR PRESSURE:** Not Determined

**VAPOR DENSITY:** Not Determined

**BOILING POINT:** Not Determined
SAFETY DATA SHEET

OlyBond500 SpotShot (part 2)

FREEZING POINT: Not Determined
MELTING POINT: Not Determined
POUR POINT: Not Determined
SOLUBILITY IN WATER: Not Determined
EVAPORATION RATE: Not Determined
DENSITY: 8.50 lbs/gal
PARTICLE SIZE: Not Determined
SPECIFIC GRAVITY: 1.019
VISCOITY #1: 390 to 530 cps
MOLECULAR WEIGHT: Not Determined
(VOC): 11.000 gr/L EPA Method 24 VOC
COEFF. OIL/WATER: Not Determined
OXIDIZING PROPERTIES: Not Determined

10. STABILITY AND REACTIVITY

STABLE: Yes
HAZARDOUS POLYMERIZATION: No
STABILITY: Stable.
POLYMERIZATION: Product will not undergo polymerization.
CONDITIONS TO AVOID: High temperatures.
POSSIBILITY OF HAZARDOUS REACTIONS: None Expected.
HAZARDOUS DECOMPOSITION PRODUCTS: Decomposition will not occur if handled and stored properly. Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.
INCOMPATIBLE MATERIALS: Alkali or alkaline earth metals, strong acids, copper, brass, elastomers

11. TOXICOLOGICAL INFORMATION

ACUTE

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ORAL LD₅₀ (rat)</th>
<th>DERMAL LD₅₀ (rabbit)</th>
<th>INHALATION LC₅₀ (rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polypropylene Glycol</td>
<td>No data</td>
<td>No data</td>
<td>No data</td>
</tr>
<tr>
<td>Diethylene Glycol</td>
<td>12565 mg/kg</td>
<td>11890 mg/kg</td>
<td>No data</td>
</tr>
<tr>
<td>Dipropylene Glycol</td>
<td>14800 mg/kg (rats)</td>
<td>&gt; 20000 mg/kg (rabbits)</td>
<td>&gt; 20 ml/kg (rabbit)</td>
</tr>
</tbody>
</table>

IRRITATION: Mild to moderate eyes and skin irritation.

12. ECOLOGICAL INFORMATION
SAFETY DATA SHEET

OlyBond500 SpotShot (part 2)

ENVIRONMENTAL DATA: This product contains components that may be harmful to aquatic organisms and may cause long term adverse effects in the aquatic environment.

ECOTOXICOLOGICAL INFORMATION: Contains components that are potentially toxic to freshwater and saltwater ecosystems.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose of in accordance with all local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)
PROPER SHIPPING NAME: Not Regulated
PACKING GROUP: N/A
MARINE POLLUTANT #1: None

15. REGULATORY INFORMATION

UNITED STATES
SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)
FIRE: No PRESSURE GENERATING: No REACTIVITY: No ACUTE: Yes CHRONIC: Yes
313 REPORTABLE INGREDIENTS: None

TSCA (TOXIC SUBSTANCE CONTROL ACT)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyether Polyol</td>
<td>9082-00-2</td>
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<td>Polypropylene Glycol</td>
<td>25322-69-4</td>
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<tr>
<td>Dipropylene Glycol</td>
<td>25265-71-8</td>
</tr>
</tbody>
</table>

CLEAN AIR ACT

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Wt.%</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethylene Glycol</td>
<td>&lt; 10</td>
<td>111-46-6</td>
</tr>
</tbody>
</table>

CANADA

WHMIS HAZARD SYMBOL AND CLASSIFICATION

Toxic

16. OTHER INFORMATION

INFORMATION CONTACT: (781) 878-7015
SAFETY DATA SHEET

OlyBond500 SpotShot (part 2)

**REVISION SUMMARY:** This MSDS replaces the 4/4/2014 MSDS.

**HMIS RATING**

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEALTH</td>
<td>*1</td>
</tr>
<tr>
<td>FLAMMABILITY</td>
<td>1</td>
</tr>
<tr>
<td>PHYSICAL HAZARD</td>
<td>0</td>
</tr>
<tr>
<td>PERSONAL PROTECTION</td>
<td>B</td>
</tr>
</tbody>
</table>

**NFPA CODES**

<table>
<thead>
<tr>
<th>Category</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>1</td>
</tr>
<tr>
<td>Flammability</td>
<td>1</td>
</tr>
<tr>
<td>Physical Hazard</td>
<td>0</td>
</tr>
</tbody>
</table>

**GENERAL STATEMENTS:** Keep out of reach of children
For professional or industrial use only

**MANUFACTURER DISCLAIMER:** This document may be used to comply with OSHA's Hazardous Communication Standard, 29 CFR 1910.1200.

To the best of our knowledge, the information contained in this SDS is accurate. It is intended to assist the user in his/her evaluation of the product's hazards and safety precautions to be taken in its use. The data in this SDS relate only to the specific material designated herein. We do not assume liability for the use of, or reliance on this information, nor do we guarantee its accuracy or completeness.

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MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identification
Product Name: OlyBond Classic, Part A (Dark Brown)
Product Number: 55 gallon drum
Chemical Name: Polymeric MDI
Chemical Family: POLYETHYLENE POLYPHENYLISOCYANATE
CAS Number: Mixture

Company Identification
ERSystems - Blastomeric Roofing Systems, Inc.
6900 Bleck Dr
Rockford, MN 55373 USA
1-800-403-7747 (For product information)
1-800-535-5053 Infotrac (For emergencies)

SPECIAL NOTES:
Part A of two part polyurethane system. Polymethylene polyphenylisocyanate.

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT LISTING:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Amount</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4'-DIPHENYLMETHANE DILSOYANATE</td>
<td>38.0%</td>
<td>101-68-8</td>
</tr>
<tr>
<td>POLYMERIC MDI</td>
<td>&lt; 55.0%</td>
<td>9016-87-9</td>
</tr>
<tr>
<td>MDI MIXED ISOMERS</td>
<td>&lt; 10.0%</td>
<td>26447-40-5</td>
</tr>
</tbody>
</table>

(See Section 8 for exposure guidelines)

(See Section 15 for regulatory information)

HAZARDS DISCLOSURE

This product contains hazardous materials as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200.

As defined under Sara 311 and 312, this product contains materials that are acute, chronic, reactive hazards.
3. HAZARDS IDENTIFICATION

************************ EMERGENCY OVERVIEW ************************

* CAUTION *
* *
* Contains Diphenylmethane Diisocyanate. Inhalation *
* of MDI mists or vapors may cause respiratory *
* irritation, breathlessness, chest discomfort and *
* reduced pulmonary function. Overexposure well *
* above the PEL may result in bronchitis, bronchial *
* spasms and pulmonary edema. Long-term exposure to *
* isocyanates has been reported to cause lung damage, *
* including reduced lung function which may be *
* permanent. Acute or chronic overexposure to *
* isocyanates may cause sensitization in some *
* individuals, resulting in allergic respiratory *
* reactions including wheezing, shortness of breath, *
* and difficulty breathing.
* *
*************************

HMIS Rating - Health: 2
   Flammability: 1
   Reactivity: 1

NFPA/HMIS Definitions: (0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

POTENTIAL HEALTH EFFECTS

EYE:
Contact may cause eye irritation. May result in corneal opacity (clouding of the eye surface).

SKIN:
Causes skin burns, irritation, and possible allergic reaction. In those who have developed skin sensitization, these symptoms can develop as a result of contact with a very small amount of the liquid material.

INHALATION:
Inhalation of MDI vapors may cause irritation of the mucous membranes of the nose, throat or trachea, breathlessness, chest discomfort, difficult breathing and reduced pulmonary function.
(section 3 continued)

INGESTION:
Harmful if swallowed. Can burn mouth, throat, and stomach. Gastrointestinal symptoms include nausea, vomiting and abdominal pain.

CHRONIC EFFECTS:
As a result of previous repeated overexposures or a single large dose, certain individuals will develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the PEL/TLV. These symptoms, which include chest tightness, wheezing, cough, shortness of breath, or asthmatic attack, could be immediate or delayed up to several hours after exposure. Chronic overexposure to isocyanates has also been reported to cause lung damage, including a decrease in lung function, which may be permanent. Sensitization may be either temporary or permanent. Prolonged contact can cause reddening, swelling, rash, scaling, or blistering. In those who have developed skin sensitization, these symptoms can develop as a result of contact with very small amounts of liquid material.

REPRODUCTIVE HAZARDS:
No birth defects or teratogenic effects were reported in a teratology study with rats exposed to 1, 4 and 12 mg/m3 polymeric MDI for 6 hr/day on days 6-15 of gestation. Embryotoxicity and fetotoxicity was reported at the top dose in the presence of maternal toxicity.

CARCINOGENICITY INFORMATION:
Results from a lifetime inhalation study in rats indicate that MDI aerosol was carcinogenic at 6 mg/m3, the highest dose tested. This is well above the recommended TLV of 5 ppb (0.05 mg/m3). Only irritation was noted at the lower concentrations of 0.2 and 1 mg/m3.

MEDICAL CONDITIONS AGRAVATED BY EXPOSURE:
Individuals who are sensitized to isocyanates and those with preexisting lung disease or conditions, including non-specific bronchial hyperreactivity or asthma, must avoid all exposure to isocyanates.

4. FIRST AID MEASURES

EYE CONTACT FIRST AID:
After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get immediate medical attention.

SKIN CONTACT FIRST AID:
Remove contaminated clothing and shoes. Wash affected area immediately with large amounts of soap and water. Get medical attention immediately.
(section 4 continued)

**INHALATION FIRST AID:**
If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get immediate medical attention.

**INGESTION FIRST AID:**
If swallowed, immediately give 2 glasses of water. Do not induce vomiting. Contact a physician. Never give anything by mouth to an unconscious person. Get immediate medical attention.

**NOTES TO PHYSICIAN:**
There is no antidote to counteract the effects of MDI. Care should be supportive and treatment should be based on the judgment of the physician in response to the action of the patient.

5. **FIRE FIGHTING MEASURES**

**FLAMMABLE PROPERTIES**
COC Flash Point: 220 C (428.0 F)
Autoignition Temperature: N/A

**FLAMMABLE LIMITS IN AIR**
LEL: N/A
UEL: N/A

**FLAMMABLE PROPERTIES:**
Full emergency equipment with self contained breathing apparatus and full protective clothing should be worn. At temperatures greater than 400 F material may polymerize causing pressure build up in closed containers. Explosive rupture is possible. Use cold water to cool containers exposed to fire.

**EXTINGUISHING MEDIA:**
Water, carbon dioxide, foam or dry powder.

**FIRE & EXPLOSION HAZARDS:**
Material will burn in a fire.

**FIRE FIGHTING INSTRUCTIONS:**
As in any fire, wear self-contained breathing apparatus pressure-demand MSHA/NIOSH (approved or equivalent) and full protective gear.

**COMBUSTION PRODUCTS:**
During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxide, Isocyanate, Hydrogen cyanide, Carbon monoxide, Carbon dioxide.
(section 5 continued)

MISCELLANEOUS:
Reacts with water to form carbon dioxide gas, which may create excessive pressure in containers. Reacts exothermically with polyol and alcohols. Reacts exothermically and possibly violently with acids, amines and alkaline solutions.

6. ACCIDENTAL RELEASE MEASURES

SAFEGUARDS (PERSONNEL):
Evacuate non-emergency personnel to a safe area. Avoid breathing vapor. Ventilate spill area. Wear safety goggles. Wear appropriate personal protective equipment.

INITIAL CONTAINMENT:
Contain spilled material. Absorb spills with inert material. Place in closed containers but do not seal.

LARGE SPILLS PROCEDURE:
Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Place in closed containers but do not seal. Neutralize spill with mixture of 90% water, 3-8% ammonia and 2-7% detergent. Add at a 10 to 1 ratio and let stand for 48 hrs allowing CO2 to escape.

MISCELLANEOUS:
Do not discharge into drains/surface waters/groundwater.

7. HANDLING AND STORAGE

RECOMMENDED STORAGE TEMPERATURE
Minimum: 12.8 C (55.0 F)
Maximum: 29.4 C (84.9 F)

SHELF LIFE: (in original, sealed containers)
18 months @ 29.4 C

HANDLING (PERSONNEL):
Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Wash hands thoroughly after handling. Do not reuse this container.

HANDLING (PHYSICAL ASPECTS):
Provide appropriate ventilation. Close container after each use. Keep container closed to avoid contamination. Keep out of reach of children.
(section 7 continued)

**STORAGE PRECAUTIONS:**
Avoid extreme temperatures. Keep container closed when not in use. Store in a cool dry place.

**SPECIAL SENSITIVITY:**
All handling equipment should be electrically grounded.

**MISCELLANEOUS:**
Protect from moisture.

8. **EXPOSURE CONTROLS / PERSONAL PROTECTION**

**ENGINEERING CONTROLS:**
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

**EYE / FACE PROTECTION REQUIREMENTS:**
Wear safety glasses. A respiratory protection program that meets OSHA's 29 CFR 1910-134 and ANSI Z88-2 requirements must be followed whenever workplace conditions warrant a respirator's use.

**SKIN PROTECTION REQUIREMENTS:**
Selection of specific items such as gloves, boots, apron or full-body suit will depend on operation.

**RESPIRATORY PROTECTION REQUIREMENTS:**
When there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

**EXPOSURE GUIDELINES:**
No Information Available.

**MISCELLANEOUS:**
Components with workplace control parameters:

Diphenylmethane-4, 4' diisocyanate (MDI) OSHA CLV 0.02 ppm 0.2 mg/m3, ACGIH TWA value 0.005 ppm.
9. PHYSICAL AND CHEMICAL PROPERTIES

FORM ....................: Liquid
COLOR ....................: Dark Brown
ODOR .....................: Aromatic
BOILING POINT ..........: 200 °C @ 5 mm Hg
VAPOR PRESSURE ..........: 0.00001 mm Hg @ 20 °C
SOLUBILITY IN WATER ...: Reacts with water
SPECIFIC GRAVITY ........: 1.22 (Water = 1)
BULK DENSITY ...........: 10.16 lb/USg
MELTING/FREEZING POINT : 3 °C
VISCOITY .................: 150-350 cps

10. STABILITY AND REACTIVITY

STABILITY:  
Stable.

POLYMERIZATION:  
May occur.

INCOMPATIBILITY WITH OTHER MATERIALS:  

DECOMPOSITION:  
Hazardous decomposition products: carbon monoxide, hydrogen cyanide, nitrogen oxides, aromatic isocyanates, gases/vapors.

CONDITIONS TO AVOID:  
Avoid moisture.

11. TOXICOLOGICAL INFORMATION

SKIN EFFECTS:  
Typical for this family of materials. LD50, Rabbit > 2000 mg/kg.

ACUTE ORAL EFFECTS:  
LD50/rat: > 10,000 mg/kg. Practically nontoxic.

ACUTE INHALATION EFFECTS:  
LD50/rat: > 2.240 mg/l / 1h  
Moderately toxic.
12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE:
In the aquatic and terrestrial environment, movement is expected to be limited by its reaction with water forming predominantly insoluble polyureas.

MISCELLANEOUS:
Acute and prolonged toxicity to fish: Static zebra fish/LC50 (24 hrs.) > 500 mg/l Practically nontoxic.

Acute and prolonged toxicity to aquatic invertebrates: Daphnia magna EC50 (24 hrs.): > 500 mg/l Practically nontoxic.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:
Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

CONTAINER DISPOSAL:
Steel drums must be emptied and can be sent to a licensed drum reconditioner for reuse, a scrap metal dealer, or an approved landfill. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

MISCELLANEOUS:
Waste disposal of substance: Incinerate of dispose if in a licensed facility. Do not discharge substance into sewer system.

14. TRANSPORTATION INFORMATION

PRODUCT LABEL ...: OlyBond Classic, Part A (Dark Brown)

15. REGULATORY INFORMATION

Canadian Disclosure List
4,4'-DIPHENYL METHANE DIISOCYANATE (101-68-8)

SARA Title III - Section 313
4,4'-DIPHENYL METHANE DIISOCYANATE (101-68-8)
Polymeric MDI (9016-87-9)

CERCLA Hazardous Substances
4,4'-DIPHENYL METHANE DIISOCYANATE (101-68-8) -- RQ 5000 lbs.
(section 15 continued)

Title V

4,4'-DIPHENYL METHANE DIISOCYANATE (101-68-8)

SC Toxic Air Pollutants List

4,4'-DIPHENYL METHANE DIISOCYANATE (101-68-8)

MISCELLANEOUS INFORMATION:


SARA hazard categories (EPCRA 311/312): Acute, Chronic.

SARA Section 313 (Emergency Planning and Community Right-to-Know Act of 1986): This product contains the following substances which are subject to the reporting requirements of Section 313. Chemical name: Diisocyanate Compound Category.

CERCLA: This product contains the following substances which are subject to CERCLA Section 103 reporting requirements and which are listed in 40 CFR 302.4: 4-4'-methylene diphenyl diisocyanate CAS# 101-68-8 amount >55% < 65% CERCLA RQ 5000 LBS.

State Right-to-Know: MA, NJ, PA CAS# 101-68-8 Diphenyl methane-4-4'-diisocyanate (MDI). Other state regulations may apply. Check individual state requirements.

California Proposition 65 this product contains no chemical(s) known to the state of California to cause cancer and birth defects or other reproductive harm.

This material or all of its components are listed on the Inventory of Existing Chemical Substances under the Toxic Substance Control Act (TSCA).

16. OTHER INFORMATION

PREPARED BY ..........: Chemist
APPROVED BY ..........: Laura Vollenweider
TITLE ...............: Chemist
APPROVAL DATE ......: July 19, 2011
SUPERCEDES DATE ...: March 8, 2011
MSDS NUMBER ........: foam00
RTN NUMBER ..........: 00000210 (Official Copy)

ADDITIONAL INFORMATION:
The data in this Material Safety Data Sheet relates only to the specific material designated herein.
To the best of our knowledge, the information contained in this MSDS is accurate. It is intended to assist the user in his evaluation of the product's hazards, and safety precautions to be taken in its use. The data in this MSDS relate only to the specific material designated herein. We do not assume liability for the use of, or reliance on this information, nor do we guarantee its accuracy or completeness.

END OF MSDS
MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identification
Product Name: OlyBond Classic Part B (Red)
Product Number: 55 gallon Drum
Chemical Name: Polyurethane System Resin Component
CAS Number: Blend

Company Identification
ER Systems- Elastomeric Roofing Systems
6900 Black Drive
Rockford, MN 55373
1-800-403-7747 (For product information)
1-800-535-5053 Infotrac (For emergencies)

SPECIAL NOTES:
Polyurethane foam system resin component. Part B (Part 2) of a two part system.

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT LISTING:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Amount</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIETHYLENE GLYCOL</td>
<td>&lt; 10.0 %</td>
<td>111-46-6</td>
</tr>
<tr>
<td>DIPROPYLENE GLYCOL</td>
<td>&lt; 15.0 %</td>
<td>25265-71-8</td>
</tr>
<tr>
<td>2,2,4-TRIMETHYL-1,3-PENTANEDIOL DIISOBUT</td>
<td>&lt; 10.0 %</td>
<td>6846-50-0</td>
</tr>
<tr>
<td>POLYETHER POLYOL</td>
<td>&lt; 70.0 %</td>
<td>9082-00-2</td>
</tr>
<tr>
<td>PROPRIETARY BLEND OF MATERIALS</td>
<td>&lt; 3.0 %</td>
<td></td>
</tr>
</tbody>
</table>

(See Section 8 for exposure guidelines)
(See Section 15 for regulatory information)

HAZARDS DISCLOSURE

This product contains hazardous materials as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200.

As defined under Sara 311 and 312, this product contains materials that are acute, chronic hazards.
3. HAZARDS IDENTIFICATION

************************************************ EMERGENCY OVERVIEW ********************

* *
* CAUTION *
* *
* * May be harmful if swallowed. May cause skin, eye *
* and respiratory tract irritation. May affect the *
* central nervous system causing dizziness, headache *
* or nausea. *
* *
************************************************

HMIS Rating -

- Health: 1
- Flammability: 1
- Reactivity: 0
- Personal Protection Index: 5

POTENTIAL HEALTH EFFECTS

EYE:
Contact may cause eye irritation and injury.

SKIN:
May be a skin irritant. A single, prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

INHALATION:
Avoid breathing vapors or mists. Prolonged or excessive inhalation may cause respiratory tract irritation.

INGESTION:
Harmful if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE:
Incidental ingestion of small amounts of diethylene glycol is not likely to cause any significant health effects. Ingestion of large quantities may result in nausea and vomiting. Changes in urine output appearance and abdominal or back pain are evidence of severe poisoning. Human deaths have occurred at a average ingested amount of 1.2 g/kg.

CARCINOGENICITY INFORMATION:
No known cancer hazards.

TARGET ORGAN:
Diethylene Glycol: High concentrations may lead to central nervous system effects nausea and headaches. Ingestion of large quantities may be harmful or, in extreme cases, fatal. May also effects on liver and kidney.
(section 3 continued)

MISCELLANEOUS:
Routes of exposure: skin, eyes, inhalation and ingestion.

4. FIRST AID MEASURES

EYE CONTACT FIRST AID:
After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get immediate medical attention.

SKIN CONTACT FIRST AID:
Immediately wash skin with plenty of soap and water while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.

INHALATION FIRST AID:
Remove to fresh air if effects occur. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

INGESTION FIRST AID:
If swallowed get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES
PMCC Flash Point: 190.6 C (375.1 F)
Autoignition Temperature: N/A

FLAMMABLE LIMITS IN AIR
LEL: %
UEL: %

FLAMMABLE PROPERTIES:
Full emergency equipment with self contained breathing apparatus and full protective clothing should be worn.

EXTINGUISHING MEDIA:
Water, carbon dioxide, foam or dry powder. Do not use a direct water stream.

FIRE FIGHTING INSTRUCTIONS:
As in any fire, wear self-contained breathing apparatus pressure-demand MSHA/NIOSH (approved or equivalent) and full protective gear.
(section 5 continued)

COMBUSTION PRODUCTS:
During fire, smoke may contain the original material in addition to unidentified toxic and/or irritating compounds.

6. ACCIDENTAL RELEASE MEASURES

SAFEGUARDS (PERSONNEL):
Isolate spill area. May be a slipping hazard.

INITIAL Containment:
Contain spilled material. Absorb spills with inert material.

LARGE SPILLS PROCEDURE:
Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

SMALL SPILLS PROCEDURE:
Absorb spills with inert material. Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

7. HANDLING AND STORAGE

RECOMMENDED STORAGE TEMPERATURE
Minimum: 12.8 C (55.0 F)
Maximum: 29.4 C (84.9 F)

SHELF LIFE: (in original, sealed containers)
18 months @ 29.4 C

HANDLING (PERSONNEL):
Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after handling.

HANDLING (PHYSICAL ASPECTS):
Provide appropriate ventilation. Close container after each use. Keep container closed to avoid contamination. Keep out of reach of children.

STORAGE PRECAUTIONS:
Avoid extreme temperatures. Keep container closed when not in use. Store in a cool dry place.
8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:
Local exhaust ventilation may be necessary to any air contaminate to within their TLVs during the use of this product.

EYE / FACE PROTECTION REQUIREMENTS:
Wear safety glasses. A respiratory protection program that meets OSHA's 29 CFR 1910-134 and ANSI Z88-2 requirements must be followed whenever workplace conditions warrant a respirator's use.

SKIN PROTECTION REQUIREMENTS:
Selection of specific items such as gloves, boots, apron or full-body suit will depend on operation. Wash hands thoroughly after handling. Product produces slippery conditions.

RESPIRATORY PROTECTION REQUIREMENTS:
When there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

MISCELLANEOUS:
Wash hands before eating, drinking, smoking and using the toilet. Launder contaminated clothing before re-use.

EXPOSURE GUIDELINES:
DIETHYLENE GLYCOL
OSHA TWA: 10 mg/m^3

MISCELLANEOUS:
Exposure limit: DEG WEEL TWA 10mg/m3.

9. PHYSICAL AND CHEMICAL PROPERTIES

FORM ..................: Liquid
COLOR .................: Red
ODOR ..................: Slight, sweet odor
BOILING POINT .......: NA F
SOLUBILITY IN WATER ...: Slight
SPECIFIC GRAVITY ......: 1.020 (Water = 1)
BULK DENSITY ..........: 8.5 lbs./gallon
VISCOITY ..............: 400-600 cps

10. STABILITY AND REACTIVITY

STABILITY:
Stable under normal conditions of use. Do not heat.
(section 10 continued)

INCOMPATIBILITY WITH OTHER MATERIALS:
Avoid contact with strong oxidizing agents. Avoid contact with strong acids and bases.

DECOMPOSITION:
Decomposition will not occur if handled and stored properly. Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

CONDITIONS TO AVOID:
High temperatures.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS:
Irritating to eyes.

SKIN EFFECTS:
Irritating to skin. dermal toxicity (LD50): rabbit > 12,000 mg/kg (low).

ACUTE ORAL EFFECTS:
DEG: Low toxicity LD 50 > 12,000 mg/kg rat. Estimated fatal dose for human adult is 100 ml (1/2 cup).

ACUTE INHALATION EFFECTS:
Inhalation of vapours and mists may cause irritation to the respiratory tract. Diethylene glycol (LC50): 4h, rat >4.4 mg/l.

REPRODUCTION AND BIRTH EFFECTS:
Diethylene glycol: Affects reproductive systems in animals: considered to be secondary to other toxic effects.

CHRONIC EFFECTS /:
Diethylene glycol repeated dose toxicity: Shown effects on: Kidney, liver, central nervous system.

GENETIC TOXICITY:
No evidence.

12. ECOLOGICAL INFORMATION
(section 12 continued)

ENVIRONMENTAL HAZARDS:
Based largely on information for similar material, material is practically non-toxic to aquatic organisms on an acute basis.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:
Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

14. TRANSPORTATION INFORMATION

PRODUCT LABEL ...............: OlyBond Classic Part B (Red)
D.O.T. SHIPPING NAME ......: N/A
TECHNICAL SHIPPING NAME ...: N/A
D.O.T. HAZARD CLASS .......: N/A
UN NUMBER .................: N/A

15. REGULATORY INFORMATION

REGULATORY DISCLOSURES:

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313: To the best of our knowledge, this product does not contain chemicals at the levels which require reporting under the statute.

Supplemental State Compliance Information: Massachusetts CAS# 34590-94-8 0.008-0.04% by weight Dipropylene glycol monomethyl ether.

New Jersey: CAS# 69430-40-6 0.08-0.25% by weight Silicone glycol, CAS# 79313-21-6 0.025-0.18% by weight Dipropylene glycol monomethyl monallyl ether, CAS# 63148-62-9 0.008-0.04% by weight Polydimethylsiloxane, CAS# 34590-94-8 0.008-0.04% by weight Dipropylene glycol monomethyl ether.

Pennsylvania: CAS# 69430-40-6 0.08-0.25% by weight Silicone glycol, CAS# 79313-21-6 0.025-0.18% by weight Dipropylene glycol monomethyl monallyl ether, CAS# 63148-62-9 0.008-0.04% by weight Polydimethylsiloxane, CAS# 34590-94-8 0.008-0.04% by weight Dipropylene glycol monomethyl ether.
(section 15 continued)

Other state regulations may apply. Check individual state requirements.

Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) Section 103: To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

California Proposition 65 (Safe Drinking and Toxic Enforcement Act of 1986) To the best of our knowledge this product contains no listed substances known to the state of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

MISCELLANEOUS INFORMATION:
This material or all of its components are listed on the Inventory of Existing Chemical Substances under the Toxic Substance Control Act (TSCA).

16. OTHER INFORMATION

PREPARED BY .......: Chemist
APPROVED BY .......: Laura Vollenweider
TITLE ............: Chemist
APPROVAL DATE ......: July 19, 2011
SUPERCEDES DATE ....: March 8, 2011
RTN NUMBER ........: 00000209 (Official Copy)

ADDITIONAL INFORMATION:
The data in this Material Safety Data Sheet relates only to the specific material designated herein.

To the best of our knowledge, the information contained in this MSDS is accurate. It is intended to assist the user in his evaluation of the product's hazards, and safety precautions to be taken in its use. The data in this MSDS relate only to the specific material designated herein. We do not assume liability for the use of, or reliance on this information, nor do we guarantee its accuracy or completeness.

END OF MSDS
Section I

Manufacturer: Siplast, an Icopal Group Company
(800) 643-1591 or (800) 922-8800
Address: 1000 E. Rochelle Blvd., Irving, TX 75062-3940
Emergency Phone No.: CHEMTREC, (800) 424-9300 (U.S.), (703) 527-3887 (outside of U.S.)
Product Class: Polyisocyanurate Roof Insulation
Trade Name: Paratherm Polyisocyanurate Insulation

Section II - Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>NTP/IRAC</th>
<th>OSHA CARC.</th>
<th>Percent</th>
<th>ACGIH TLV ppm</th>
<th>ACGIH TLV mg/m³</th>
<th>OSHA PEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyisocyanurate Foam</td>
<td>No</td>
<td>10-90</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Section III - Physical Data

Boiling Point: N/A
Freezing Point: N/A
Corrosivity: N/A
Evaporation Rate (Butyl Acetate = 1): N/A
Vapor Density (Air = 1): N/A
% Volatile by Volume: N/A
Sp. Gr.: 0.03
Solubility in H₂O: Not soluble
Vapor Pressure: N/A
Physical State: Solid
Odor and Appearance: Light tan foam plastic - no odor with cellulose/glass filler facings.

Section IV - Fire and Explosion Data

Flammability: Yes X No  If yes, under which conditions: Can be ignited by open flame.
Flashpoint (°C) and Method: N/A
Autoignition Temperature (°C): Not available
Lower Flammable Limit (% by Vol): N/A
Upper Flammable Limit (% by Vol): N/A

Hazardous Combustion Products: Carbon monoxide, carbon dioxide.

EXPLOSION DATA:
Sensitivity to impact: There is no evidence to show that this product is sensitive to physical shock.
Sensitivity to static discharge: There is no evidence to show that this product is sensitive to static discharge.

Extinguishing media: In case of fire, use dry chemicals, carbon dioxide, foam or water fog.

Special Fire Fighting Procedures: Fire fighters should wear self-contained breathing apparatus.
Unusual Fire and Explosion Hazards: Product will burn on exposure to open flame. Keep away from all open flames, welders' torches, etc.

Section V - Health Hazard Data

Route of Entry: Skin Contact  X  
Skin Absorption  
Eye Contact X 
Inhalation X  
Ingestion  

Effects of acute exposure to product: Mechanical irritant to skin, eyes, and upper respiratory system (especially when material is fabricated).
Effects of chronic exposure: Possible allergic reactions to respiratory system and skin with repeated exposure to this product.
Exposure Limits: N/A
Irritancy of Products: N/A
Sensitization to product: Possible respiratory and skin.
Carcinogenicity: No evidence
Teratogenicity: No evidence
Reproductive Toxicity: No evidence
Mutagenicity: No evidence
Synergistic products: None known
Tumorigenicity: No evidence

Emergency and First Aid Procedures:
SKIN: Wash with soap and water.
EYES: Flush with water for 15 minutes or until irritation ceases.
INHALATION: Remove affected person to fresh air. Persons who develop symptoms of allergy, irritation, respiratory problems, or puffiness around the eyes should be examined by a physician. Respiratory symptoms and dermatitis associated with pre-existing medical conditions may be aggravated by exposure to this material.

Section VI - Reactivity Data
Stability: Stable X Unstable ______
Conditions to Avoid: Sparks, flames and ignition sources.
Materials to Avoid: Strong acid or base may degrade product.
Hazardous Decomposition Products: Toxic smoke or vapors, such as carbon monoxide or carbon dioxide, may be released in a fire.
Hazardous Polymerization: May occur _____ Will not occur X

Section VII - Spill or Leak Procedures
Steps to be Taken in Case Material is Released or Spilled: Normal housekeeping
Waste Disposal Method: Dispose of in accordance with all local, state, and federal regulations.

Section VIII - Special Protection Information
Respirator: OSHA approved respirator or dust mask, especially when cutting.
Ventilation: Sufficient ventilation (when cutting) to keep exposure to nuisance dust below 5 mg/m³.
Gloves: Protective
Eye Protection: Safety glasses or goggles, especially when cutting.
Clothing: Protective
Footwear: Protective
Other Protective Equipment: None

Section IX - Special Precautions
Handling and Storage: No special equipment required. Protect from moisture.
Special Shipping Information: None

The information and recommendations contained herein are, to the best of Siplast's knowledge and belief, accurate and reliable as of the date issued. Siplast does not warrant or guarantee their accuracy or reliability, and should not be liable for any loss or damage arising out of the use thereof. User should satisfy himself that he has all current data relevant to his particular use.
ARTICLE PREFACE

This product, under normal use and conditions, is considered an “Article” under the Occupational Health and Safety Administration’s Hazard Communication Standard (29CFR 1910.1200c). Based upon the company’s hazards assessment, knowledge of the product and uses, this product does not pose a physical or health hazard to employees and or end users. Consequently there is no regulatory requirement to develop an MSDS with respect to this product. This non-hazardous MSDS is being provided solely because certain end users require a MSDS regardless of no hazards, lack of regulatory requirements and the above determination.

For purposes of this Article Preface, “Article” means a manufactured item other than a fluid or particle: (i) which is formed to a specific shape or design during manufacture; (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical, and does not pose a physical hazard or health risk to employees.

SECTION 1: PRODUCT IDENTIFICATION

<table>
<thead>
<tr>
<th>Product Name</th>
<th>OMG Roofing Fasteners</th>
<th>CAS#: Mixture/None Assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic Name</td>
<td>Screws</td>
<td>Formula: Article</td>
</tr>
<tr>
<td>Chemical Name</td>
<td>N/A</td>
<td>Hazard Label: Not Required</td>
</tr>
</tbody>
</table>

**Trade Names:** Standard Roofing Fastener, Standard Roofgrip Fastener, Heavy Duty Roofing Fastener, Extra Heavy Duty Roofing Fastener, Super Extra Heavy Duty Roofing Fastener, XHD Fastener, RetroDriller Fastener, CD-10, Fluted Nail, Purlin Fastener, Lite-Deck Fastener, CR Base Sheet Fastener, Stainless Steel Roofing Fastener, OlyLok Locking Impact Nail, Masonry Anchor, Polymer Gyptec, ASAP Fasteners, Toggle Bolts, HeadLOK, Sheet Metal Screws.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>OMG, Inc.</th>
<th>Issue Date: 3/6/2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td>153 Bowles Rd</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agawam, MA 01001</td>
<td></td>
</tr>
</tbody>
</table>

Website: [www.olyfast.com](http://www.olyfast.com)
SECTION 2: INGREDIENTS

This product does not contain any ingredients regulated by the Community Right-to-Know Reporting Requirements of the U.S. Environmental Protection Agency (42 CFR 313 and 40 CFR 372).

In addition, the supplier is not aware of any ingredients contained in the product that are hazardous to health or the environment when the product is used as directed.

SECTION 3: HAZARD IDENTIFICATION

Potential Health Effects

Used as expected and/or directed, this product is not expected to release or otherwise result in exposure to a hazardous chemical.

The screws may have sharp points.

SECTION 4: FIRST AID MEASURES

Seek medical attention immediately if necessary.

Basic first aid measures should be followed in the event of minor cuts and/or punctures.

NOTE: Normal use does not require welding, burning, or grinding. At elevated temperatures, the fastener coatings may emit toxic gases or fumes. Should an end user engage in such activities, which would not be consistent with the products normal use and application, the end user would be responsible for determining exposure potential and limits and any other applicable regulatory requirements.

SECTION 5: FIRE FIGHTING MEASURES

Summary: No special procedures are expected to be necessary for this product. Normal fire fighting procedures should be followed to avoid inhalation of smoke and gases.

Unusual Fire/Explosion Hazards: There is no potential for fire or explosion.

Flammable Properties and Explosive Limits:
Flash Point: Not applicable
FP Test Method: Not applicable
Autoignition Temperature: Not determined
Decomposition Temperature: Not determined

Lower Explosive Limit (LEL): Not applicable
Upper Explosive Limit (UEL): Not applicable
Flame Classification: Not determined
Flame Propagation: Not determined
SECTION 6: ACCIDENTAL SPILL/RELEASE MEASURES

Spills: No special precautions are necessary for spills of bulk material.

Waste Disposal: Follow federal, state and local regulations regarding disposal. Scrap metal can be reclaimed for reuse.

SECTION 7: HANDLING AND STORAGE

Handling and Storage: No special precautions required under normal conditions.

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

Used as expected and/or directed, this product is not expected to release or otherwise result in exposure to a hazardous chemical.

Persons handling the product are responsible for determining whether personal protective equipment is necessary based on the circumstances of use.

When necessary, persons may require appropriate gloves to prevent cuts and/or punctures.

Safety glasses should always be worn when using power tools.

NOTE: Normal use does not require welding, burning, or grinding. At elevated temperatures, the fastener coatings may emit toxic gases or fumes. Should an end user engage in such activities, which would not be consistent with the products normal use and application, the end user would be responsible for determining exposure potential and limits and any other applicable regulatory requirements.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point (°F/°C): Not determined
Melting Point: Not applicable
Saturation in Air (%): Not applicable
Solids Content: Not applicable
Vapor Density (Air = 1): Not applicable
Viscosity: Not applicable
Volatile by Volume (%): 0
Evaporation Rate (Butyl acetate = 1): Not applicable
pH: Not applicable
Specific Gravity (Water = 1): Variable
Vapor Pressure: Not applicable
VOC’s (g/liter): Not applicable
Water Solubility (%): Insoluble

Appearance and Odor: Various shapes, designs and colors with metal and plastic parts.
SECTION 10: STABILITY AND REACTIVITY

Product is stable. Hazardous polymerization will not occur.
Reactivity: This product is not reactive.
Hazardous Decomposition Products: None known.

SECTION 11: TOXICOLOGICAL INFORMATION

Potential Chronic Health Effects: None known
Miscellaneous Toxicological Information: None known
Conditions Aggravated by Exposure: None known

SECTION 12: ECOLOGICAL INFORMATION

No known significant effects or critical hazards.

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose in accordance with applicable federal, state and local government regulations. Waste generators must determine whether a discarded material is classified as a hazardous waste. USEPA guidelines for the classification determination are listed at 40 CFR 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

SECTION 14: TRANSPORT INFORMATION

Transportation Summary: This product is not regulated by the U.S. Department of Transportation.

SECTION 15: REGULATORY INFORMATION

U. S. REGULATIONS

Federal Regulations: The Occupational Safety and Health Administration (OSHA), National Toxicology Program (NTP), International Agency for Research on Cancer (IARC), and American Conference of Governmental Industrial Hygienists (ACGIH) have not classified this product as a carcinogen.

Environmental Regulations: There are no components in this product regulated by the Environmental Protection Agency (EPA) under the Superfund Amendments and Reauthorization Act (SARA Title III); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or the Toxic Substance Control Act (TSCA).
SECTION 16: OTHER INFORMATION

Hazardous Material Information System (USA):

<table>
<thead>
<tr>
<th>HMIS RATING</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>1</td>
</tr>
<tr>
<td>Flammability</td>
<td>0</td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
</tr>
<tr>
<td>Personal Protective Equipment</td>
<td>A</td>
</tr>
</tbody>
</table>

EMERGENCY ASSISTANCE

This Material Data Safety Sheet (“MSDS”) provides general information regarding our products and their use. The safety measures outlined are meant to apply to routine use and any minor injuries and/or accidents that result. Users should seek emergency help immediately for any other injury or accident.

USER RESPONSIBILITY

This MSDS provides health and safety information. The product listed is to be used in applications consistent with our product literature. Persons handling the product must be informed of the recommended safety precautions and must have access to this information. Please contact OMG, Inc. (“OMG” and/or “the Company”) regarding other uses. Exposures must be evaluated so appropriate and safe handling and training programs can be established.

DISCLAIMER

Our products and the information contained herein are supplied on the condition that the persons receiving same will make their own determination as to suitability for their purposes prior to use. In no event will OMG be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information from this sheet or the products to which the information refers. OMG does not warrant the accuracy or timeliness of the information in this sheet and has no liability for any errors or omissions in these materials.

THIS SHEET IS PROVIDED ON AN "AS IS" BASIS. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION PROVIDED OR THE PRODUCTS TO WHICH INFORMATION REFERS.
General Product Information:

ROXUL® products are mineral wool fiber insulations made from basalt rock and slag. This combination results in a non-combustible product with a melting point of approximately 2150°F (1177°C), which gives it excellent fire resistance properties. ROXUL mineral wool is a water repellent yet vapor permeable material.

Description & Common Applications:

ROXUL TOPROCK® DD Plus is a rigid mineral wool insulation board with a rigid upper layer for durability and enhanced strength. It is intended for commercial and industrial roof insulation applications. It is suitable for both new building and re-roofing applications. TOPROCK® DD Plus is impregnated with a bitumen layer which is compatible with torch or mop applied membrane.

Compliance and Performance:

- **ASTM C 726**: Standard Specification for Mineral Fiber Roof Insulation Boards
  - Complies
- **FM Approvals 4470**: Approval Standard for Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction
  - Complies
- **FM Approvals 4470 NCC – (Noncombustible Core) Rated Roof Insulation Complies
- **ASTM E 84 (UL 723)**: Surface Burning Characteristics
  - Flame Spread = 0
  - Smoke Developed = 0
- **CAN/ULC-114**: Non-Combustibility in Building Materials
  - Non-Combustible
- **CAN/ULC-S107-03**: Fire Tests of Roof Coverings
  - Class A
- **CAN/ULC-S126-06**: Fire Spread Under Roof Deck Assemblies
  - Construction C7, C18, C28, C38
- **UL 790 (ASTM E 108)**: Standard Test Methods for Fire Tests of Roof Coverings
  - See UL Roofing and Materials Directory for Assembly Details
- **UL 263 (ASTM E 119)**: Fire Tests of Building Construction and Materials
  - See UL Fire Resistance Directory at the following link for assembly details: [http://database.ul.com/cgi-bin/XYV/template/LISCANADA/1FRAME/index.html](http://database.ul.com/cgi-bin/XYV/template/LISCANADA/1FRAME/index.html)

Dimensional Stability:

- **ASTM C 356**: Linear Shrinkage 24 Hrs. @ 1200°F (650°C)
  - 0.71 %
- **ASTM D 2126**: Linear change 7 days @ 40°F (-40°C) ambient RH
  - Linear change 7 days @ 200°F (93°C) ambient RH
  - Linear change 7 days @ 158°F (70°C) 97% RH
  - 0.1 %
  - 0.1 %
  - 0.0 %

Hail Performance:

- **FM 4470**: Test Standard for Susceptibility to Hail Damage
  - Class 1 – SH (Severe Hail)
- **FM 4473**: Impact Resistance by Impacting with Freezer Ice Balls
  - Class 4
- **UL 2218**: Impact Resistance of Prepared Roof Covering Materials
  - Class 4

Moisture Resistance:

- **ASTM C 1104**: Water Vapor Sorption
  - 0.15 %
- **ASTM E 96**: Water Vapor Transmission, Desiccant Method
  - 2330 ng/Pa.s.m² (41 Perm)
- **ASTM C 209**: Water Absorption
  - <1.0 %

Thermal Resistance:

- **ASTM C 518 (C 177)**: Mean Temperature
  - R-value/inch
  - RSI value/25.4 mm
  - 25°F (-4°C)
  - 4.3 hr.ft².F/Btu
  - 0.74 m²K/W
  - 40°F (4°C)
  - 4.2 hr.ft².F/Btu
  - 0.72 m²K/W
  - 75°F (24°C)
  - 3.8 hr.ft².F/Btu
  - 0.68 m²K/W
  - 110°F (43°C)
  - 3.6 hr.ft².F/Btu
  - 0.64 m²K/W

*MASTER FORMAT 1995 EDITION **MASTER FORMAT 2004 EDITION *** all tests based on uncoated mineral wool
Corrosive Resistance:
ASTM C 665 Corrosiveness to Steel Non-corrosive

Acoustical Performance:

<table>
<thead>
<tr>
<th>Thickness</th>
<th>125 Hz</th>
<th>250 Hz</th>
<th>500 Hz</th>
<th>1000 Hz</th>
<th>2000 Hz</th>
<th>4000 Hz</th>
<th>NRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0&quot;</td>
<td>0.50</td>
<td>0.71</td>
<td>0.85</td>
<td>0.90</td>
<td>0.96</td>
<td>1.01</td>
<td>0.85</td>
</tr>
</tbody>
</table>

STC Values: Contact ROXUL for further details

Compressive Strength:
ASTM C 165 at 10% 20 psi (140 kPa)
(Top Layer) at 25% 37 psi (250 kPa)
Entire Board at 10% 11 psi (75 kPa)
               at 25% 15 psi (105 kPa)

Point Load @ 5mm compression 30 psi (205 kPa)
EN 12430

Density:
ASTM C 612-09 – Actual
Top Layer 13.75 lb/ft² 220 kg/m²
Bottom Layer 10.0 lb/ft² 160 kg/m²

Dimensions:
48" (width) x 48" (length)
1219 mm (width) x 1219 mm (length)

Thickness:
Product thickness is available in 2" to 6" with 1/2" increments

For additional sizes, please contact ROXUL at 1-800-265-6878

Key Application Qualifiers:
• Does not require cover board
• Will not promote blistering
• Does not off gas
• Will not warp or cup
• Dimensionally stable
• High impact resistance
• Low moisture sorption
• Non-corrosive
• Fire resistant
• Made from natural & recycled materials

Limitations:
This product should not be exposed to weather during shipment, storage or installation. At the completion of a day’s work, all exposed edges should be temporarily sealed by lapping roof membrane over them. The products are not intended for use as a structural roof deck or for use under heavy traffic areas.

On-Site Storage:
The factory packaging is intended for the protection of the insulation boards during transit and is not intended for job site protection against the elements. When product is stored outdoors, the plastic shroud must be slit and the insulation protected by a waterproof, breathable covering such as a tarpaulin. Insulation must be stored minimum 4 in. (102 mm) above ground and kept on a solid flat surface.

Other ROXUL Products:
Please consult ROXUL for all your insulation needs. We have an extensive range of products for all applications from pipe insulation to commercial products to residential batts. ROXUL invites all inquiries and will act promptly to service all of your requirements.

Note: As ROXUL Inc. has no control over installation design and workmanship, accessory materials or application conditions, ROXUL Inc. does not warranty the performance or results of any installation containing ROXUL Inc’s. products. ROXUL Inc’s. overall liability and the remedies available are limited by the general terms and conditions of sale. This warranty is in lieu of all other warranties and conditions expressed or implied, including the warranties of merchantability and fitness for a particular purpose.

ROXUL INC. Milton, Ontario Tel: 905-878-8474 Fax: 905-878-8077
www.roxul.com Tel: 1-800-265-6878 Fax: 1-800-991-0110

Revised: July 05, 2013
Supersedes: May 25, 2012
Vapor-Bloc® SA
Self-Adhesive Vapour Barrier Membrane

Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Colour</td>
<td>Blue</td>
<td></td>
</tr>
<tr>
<td>-Thickmess</td>
<td>0.8 mm (30 mils)</td>
<td></td>
</tr>
<tr>
<td>-Application Temperature</td>
<td>Minimum -12°C</td>
<td></td>
</tr>
<tr>
<td>-Service Temperature</td>
<td>Minus 40°C to 70°C</td>
<td></td>
</tr>
<tr>
<td>-Elongation (ASTM D412 - modified)</td>
<td>180% Minimum</td>
<td></td>
</tr>
<tr>
<td>-Tensile Strength (Membrane)</td>
<td>3.4 MPa minimum</td>
<td></td>
</tr>
<tr>
<td>-Tensile Strength (Film)</td>
<td>40 MPa minimum</td>
<td></td>
</tr>
<tr>
<td>-Low Temperature Flexibility @ -30°C</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>-Water Vapour Transmission</td>
<td>ASTM E96</td>
<td>2.8 ng/Pa.m².s</td>
</tr>
<tr>
<td>-Lap Peel Strength @ 4°C</td>
<td>ASTM D903 180° bend</td>
<td>1750 N/m width</td>
</tr>
<tr>
<td>-Moisture Absorption</td>
<td>ASTM D570-81</td>
<td>0.1%</td>
</tr>
<tr>
<td>-Minimum Puncture Resistance (Membrane)</td>
<td>178 N</td>
<td></td>
</tr>
<tr>
<td>ASTM E154</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Packaging

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Thickmess</td>
<td>0.8 mm (30 mils)</td>
<td></td>
</tr>
<tr>
<td>-Roll Length</td>
<td>22.86 m (75 ft.)</td>
<td></td>
</tr>
<tr>
<td>-Roll Width</td>
<td>1210 mm (48&quot;)</td>
<td></td>
</tr>
<tr>
<td>-Top Surface</td>
<td>Blue Cross-Laminated</td>
<td>Blue Cross-Laminated</td>
</tr>
<tr>
<td>-Bottom Surface</td>
<td>Polyethylene</td>
<td>Polyethylene</td>
</tr>
</tbody>
</table>

Description

Vapor-Bloc® SA is a self-adhered vapour barrier membrane consisting of an SBS rubberized asphalt compound which is integrally laminated to a blue cross-laminated polyethylene film. The membrane is specifically designed to be self-adhered to a prepared substrate.

Features

- 48" wide roll provides increased coverage over steel decks
- SBS modified membrane can be applied in temperatures as low as -12°C
- Excellent adhesion to prepared substrates of steel decks, gypsum board, concrete, plywood
- Excellent compatibility with Bakor adhesives and air barrier membranes
- Self adhesive, no flame required

Uses

Vapor-Bloc® SA is a self-adhered vapour barrier membrane designed to be adhered directly to roof decks. Ideal application surfaces include steel decks, gypsum board and plywood or certain insulation panels prior to the application of finished roof coverings. The main function of Vapor-Bloc® SA is to serve as a full coverage vapour barrier and secondary waterproofing layer in the composition of roof assemblies.

Storage

Store rolls on end, in original packaging. Protect from weather or store in an enclosed area not subject to heat over 49°C.
Vapor-Bloc® SA Self-Adhesive Vapour Barrier Membrane

Preparation

All substrates are to be free of dust, oil, dirt, debris and moisture. All protrusions must be removed to provide a smooth surface. On re-roofing applications, remove old shingles, nails and other loose materials.

Concrete must be cured a minimum of 14 days and must be dry before Vapor-Bloc® SA is applied. Where curing compounds are used they must be clear resin based, without oil, wax or pigments.

For best adhesion on Oriented Strand Board (OSB), install the panel with the smooth side out.

Generally, no priming is required on steel decks in roofing applications. Priming is recommended to enhance adhesion on DensDeck®, oriented strand board (OSB), concrete or masonry substrates. Prime such surfaces with Blueskin® Primer, Aquatac™ or Hi-Tac™ Primer and allow to dry to a tacky film. Primed surfaces not covered by membrane during the same working day must be reprimed.

Application

Vapor-Bloc® SA is designed to be adhered directly to clean steel roofing decks. Other acceptable substrates include plywood, wood plank, wood composition, concrete, gypsum board sheathing, glass faced gypsum sheathing and masonry.

Vapor-Bloc® SA must be lapped 50 mm on both side and end laps. Position membrane for alignment with protective film in place. Roll back, remove protective film and press firmly in place. When membrane is entirely in place, apply firm pressure over entire surface in contact with substrate to ensure full contact. Orient laps shingle fashion to shed water. Membrane applied to the underside of the substrate (i.e. ceilings) requires mechanical fastening through treated wood or galvanized metal strapping or have insulation mechanically fastened. Fastening must take place immediately after installation of membrane.

Lap End Seals: Alternatively, seal end laps with POLYBITUME® 570-05 Polymer Modified Sealing Compound or HE925 BES Sealant.

Limitations

Not resistant to oils and solvents. New dimensional lumber decks may contain knots with resin levels that can attack and severely soften the Vapor-Bloc® SA bitumen compound. Henry will not be responsible for these areas.

Vapor-Bloc® SA should not be used in direct contact with flexible PVC/vinyl membranes. Vapor-Bloc® SA is designed only for exposure of up to six weeks. Vapor-Bloc® SA is not suited for permanent exposure to ultraviolet light and should be covered as soon as practical after application. Some sealants may discolor if in contact with the asphalt compound or may soften the asphalt compound. Contact sealant manufacturer for more information.

Statement of Responsibility

The technical and application information herein is based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product’s suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use. Henry Company data sheets are updated on a regular basis; it is the user’s responsibility to obtain and to confirm the most recent version. Information contained in this data sheet may change without notice.
1. Product And Company Identification

**Supplier**
HENRY COMPANY
909 N. Sepulveda Blvd., Suite 650
El Segundo, CA 90245-2724
Company Contact: Technical Services
Telephone Number: (800) 486-1278
Web Site: www.henry.com www.bakor.com

**Manufacturer**
HENRY COMPANY
909 N. Sepulveda Blvd., Suite 650
El Segundo, CA 90245-2724
Company Contact: Technical Services
Telephone Number: (800) 486-1278
Web Site: www.henry.com www.bakor.com

**Supplier Emergency Contacts & Phone Number**
CHEMTREC: (800) 424-9300
CHEMTREC: (703) 527-3887
CANUTEC: (613) 996-6666

**Manufacturer Emergency Contacts & Phone Number**
CHEMTREC: (800) 424-9300
CHEMTREC: (703) 527-3887
CANUTEC: (613) 996-6666

**Issue Date:** 09/10/2011

**Product Name:** BK7000 - BAKOR VAPOR BLOC SA
**Product Code:** BK7000

**Product/Material Uses:**
Roofing Membrane

2. Composition/Information On Ingredients

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS Number</th>
<th>Percent Of Total Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>asphalt, petroleum</td>
<td>8052-42-4</td>
<td>50 - 70</td>
</tr>
<tr>
<td>mineral oil</td>
<td>64742-52-5</td>
<td>5 - 15</td>
</tr>
<tr>
<td>siliconized release paper</td>
<td>Not Establis</td>
<td>5 - 10</td>
</tr>
<tr>
<td>high density polyethylene</td>
<td>9002-88-4</td>
<td>5 - 10</td>
</tr>
<tr>
<td>rubber compounds</td>
<td>NA - Mixture</td>
<td>5 - 15</td>
</tr>
</tbody>
</table>

**EMERGENCY OVERVIEW**

CAUTION! This product contains asphalt. Some asphalt contains sulfur compounds which may form hydrogen sulfide when heated or burned. Prolonged direct skin and eye contact may cause irritation.

Appearance/Odor: Rolled material.

3. Hazards Identification

**Primary Routes(s) Of Entry**
Inhalation - possible if product becomes airborne, but considered unlikely.

**Eye Hazards**
Particles may cause eye irritation.

**Skin Hazards**
May cause skin irritation and contact dermatitis upon prolonged contact.

**Ingestion Hazards**
Not a probable route of exposure.
3. Hazards Identification - Continued

**Inhalation Hazards**
Not a probable route of exposure under normal conditions of use.

**Chronic/Carcinogenicity Effects**
None of the ingredients of this product comprising over 0.1% are classified as carcinogenic according to OSHA, National Toxicology Program (NTP), International Agency for Research on Cancer (IARC) or the American Conference of Governmental Industrial Hygienists (ACGIH).

4. First Aid Measures

**Eye**
In case of contact, hold eyelids apart and immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately if irritation develops and persists.

**Skin**
Remove contaminated clothing and shoes. Wash affected areas with soap and water.

**Ingestion**
Get medical attention immediately. DO NOT INDUCE VOMITING. Never give anything by mouth to an unconscious victim.

**Inhalation**
Inhalation not likely due to nature of material. If particles generated from grinding or sanding are inhaled, remove the person from the contaminated area to fresh air.

5. Fire Fighting Measures

**Flammability Class:** Non Flammable

**Fire And Explosion Hazards**
During a fire carbon monoxide, carbon dioxide, oxides of nitrogen and sulfur, hydrogen sulfide, and irritating and/or toxic gases may be generated.

**Extinguishing Media**
Carbon dioxide, water, or dry chemical.

**Fire Fighting Instructions**
Firefighters should wear self-contained breathing apparatus and full protective gear.

6. Accidental Release Measures
Collect and dispose in accordance with applicable regulations. Avoid release to waterways and sewers.

7. Handling And Storage

**Handling And Storage Precautions**
Keep containers tightly closed. Store in a cool, dry, well-ventilated area. Protect from heat sparks, or flame. Use only with adequate ventilation.

8. Exposure Controls/Personal Protection

**Engineering Controls**
Use with adequate general and local exhaust ventilation.

**Eye/Face Protection**
Safety glasses with side shields recommended.

**Skin Protection**
Use with protective gloves and apron to prevent skin contact.
8. Exposure Controls/Personal Protection - Continued

**Respiratory Protection**

None normally required. Respirator use may be required due to secondary operations such as cutting, sanding, buffing, etc. The level of respiratory protection needed should be based on the evaluation of chemical exposures by a health or safety professional.

Occupational Exposure Limits for individual ingredients (if available) are listed below.

- Asphalt fume
  - ACGIH TLV-TWA 0.5 mg/m³ (Inhalable fraction and vapor)

**Ingredient(s) - Exposure Limits**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th><strong>TWA Limit</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>asphalt, petroleum</td>
<td>OSHA PEL-TWA 5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>ACGIH TLV-TWA 0.5 mg/m³ (Benzene soluble aerosol)</td>
</tr>
<tr>
<td>mineral oil</td>
<td>OSHA (PEL-TWA): 5 mg/m³ (mineral oil mist)</td>
</tr>
<tr>
<td></td>
<td>ACGIH (PEL-TLV): 5 mg/m³ (mineral oil mist)</td>
</tr>
</tbody>
</table>

9. Physical And Chemical Properties

**Appearance**

Flexible sheet

**Chemical Type:** Mixture  
**Physical State:** Solid  
**Boiling Point:** 650-1000 °F 343-538 °C  
**Specific Gravity:** >1.0  
**Percent Volatiles:** <0.5%  
**Vapor Pressure:** not applicable  
**Vapor Density:** not available  
**pH Factor:** not available  
**Solubility:** not available  
**Evaporation Rate:** not available

10. Stability And Reactivity

**Stability:** Stable  
**Hazardous Polymerization:** Not expected to occur

**Conditions To Avoid (Stability)**

Extreme temperatures, open flames, and strong oxidants.

**Hazardous Decomposition Products**

Decomposition not expected to occur if handled and stored properly.

**Conditions To Avoid (Polymerization)**

Incomplete combustion

11. Toxicological Information

**Chronic/Carcinogenicity**

None of the ingredients present in this product, at concentrations equal to or greater than 0.1%, have been determined to be carcinogenic by IARC, NTP, OSHA, or ACGIH.

**Miscellaneous Toxicological Information**

Toxicological testing has not been conducted for this product overall. Available toxicological data for individual
11. Toxicological Information - Continued

**Miscellaneous Toxicological Information - Continued**
Ingredients are summarized below.

**Ingredient(s) - Carcinogenicity**
- High density polyethylene
  - Listed in The IARC Monographs

12. Ecological Information

None identified.

13. Disposal Considerations

Dispose in accordance with applicable federal, state and local government regulations.

14. Transport Information

Ground Not restricted
IMDG Not restricted
IATA Not restricted

15. Regulatory Information

**U.S. Regulatory Information**
Asphalt may contain detectable amounts of chemicals known to the State of California to cause cancer or reproductive harm.

**Ingredient(s) - State Regulations**
asphalt, petroleum
  - California - Proposition 65
siliconized release paper
  - New Jersey - Workplace Hazard
  - New York City - Hazardous Substance

**Canadian Regulatory Information**
This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR. WHMIS Classification: Not classified or controlled.

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<th>HMIS</th>
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16. Other Information

**Revision/Preparer Information**
This MSDS Supersedes A Previous MSDS Dated: 09/10/2008
<table>
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<td>Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purposes(s).</td>
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HENRY COMPANY
Appendix 5

Work Plan
**Laboratoire d'essais de toiture (17025)**

**Plan de travail**

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<th>Client</th>
<th>Dossier n°</th>
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<th>Projet</th>
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<td>Nicolas Courchesne</td>
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<table>
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<th>Contact</th>
<th>Technicien désigné</th>
</tr>
</thead>
<tbody>
<tr>
<td>Todd Corley</td>
<td>Denis Isabelle</td>
</tr>
</tbody>
</table>

**Appel reçu par** : Michel Desgranges  
le **2014-07-07** à ___ heure mn.  
**À confirmer**

** Demandé par** : Todd Corley  
pour le **2014-10-06** à ___ heure mn.  
**Instructions transmises par téléphone ou courriel**

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<th>Tél.</th>
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**Matériaux à tester** :
- Pare-vapeur Vapor Bloc SA
- Isolant : Paratherm W, fixé mécaniquement
- Panneau de recouvrement : Top Rock DD Plus, adhéré
- Sous-couche : Paradiene 20 TGG soudée
- Finition : Paradiene 30 TGG soudée

**Titre du projet** : Med-bit Top Rock DD Plus system, Partially attached (PARS)

**Description des produits** :
- Vapor Bloc SA membrane autocollante de Bakor
- Isolant Paratherm W de Siplast 2'' 16 Vises et plaquettes par panneau
- Top Rock DD Plus, adhéré cordon de 12''
- Sous couche soudée au panneau de recouvrement
- Finition soudée sur sous-couche

**Titre** : 75 PSF

**Livraison de matériaux prévus le** :
- Fiches techniques reçues : ☒ Oui ☐ Non
- Fiches signalétiques reçues : ☒ Oui ☐ Non

**Matériaux livrés le** :
- 06-09-14 par : bistre
- 26-09-14 par : X Troposherm Top 19 8-26
- 26-09-14 par : [signature]

**Résumé des travaux**

**Date prévue de production** : 2014-10-19

**Préparé par** : [signature]  
Nicolas Courchesne  
**Approuvé par** : [signature]  
Michel Desgranges

REV.2014-09-17
Appendix 6
Materials receiving form
Toiture
Réception des matériaux

Client: Splast

Dossier: SIPZ-DRG-0022706

Type d'essai: Dynamique

Date de réception: 2014-09-16

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Remarque: 

REV_2013-12-06
**Réception des matériaux**

**Client:** Siplast

**Dossier:** SIPZ-DRS-00221706

**Date de réception:** 26/09/2014

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**Remarque:**

REV_2013-12-06
STRAIGHT BILL OF LADING - SHORT FORM
ORIGINAL - NOT NEGOTIABLE

CARRIER
XL TRANSPORTATION

SHIP DATE
9/24/2014

CARRIER'S NUMBER
03-092314-1

BILL OF LADING NUMBER

CUSTOMER P.O. NUMBER

SHIPPED FROM:
ATLAS ROOFING CORP.
55 Akron Road
Etobicoke, Ontario Canada
M8W 1T3

CONSIGNEE TO:
EXP
2400 CANADIAN ST. DOOR 12
DRUMMONDVILLE, QC
J2C 7W3

SPECIAL INSTRUCTIONS:
DIVERSIONS AND RECONSINGMENTS MUST BE CONFIRMED WITH SHIPPER, DRIVER MUST NOTIFY SHIPPER IN PRESENCE OF CONSIGNEE, OF ANY OVERAGES OR SHORTAGES

SIPLAST PROGRAM
DENIS ISABELLE
1-819-477-3775 ext. 223

FREIGHT CHARGERS ARE PREPAID UNLESS MARKED COLLECT

CHECK BOX IF COLLECT

FOR FREIGHT COLLECT SHIPMENTS:
If the shipment is to be delivered to the consignee, without recourse on the consignor, the consignor shall sign the following statement: The carrier may decline to make delivery of this shipment without payment of freight and all other lawful charges.

Altas Roofing Corporation

1 pkg
POLYISO FOAM SAMPLE 44H" X 48W" X 96L"

350 LBS

RECEIVED BY:
JOHN KLIN
9/23/2014

SHIPPER
Altas Roofing Corporation

CARRIER

PER X
9/23/2014

9/23/2014 7:35 AM
Laboratoire d'essais de toiture (17025)
Réception des matériaux

Client: Siplast
Dossier: SJIPZ-DRS-00221706
Type d'essai: Dynamique
Date de réception: 2014-10-06

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REV_2014-09-17
ATTENTION: ROXUL CANADA INC
FROM: ED
TO: 2400 CANADIEN
DATE: 10/06/14

MESSAGE:

21 pcs TOPROCK DDT

1 pallet

REOUI

RECIPIENT:
POS RENTES INC/ Beacon Roofing Supply
Delivery

6:30 AM
10/06/14
B

DATE
## STRAIGHT BILL OF LADING - SHORT FORM

**TRUCKER**

**From:** Georgia-Pacific Gypsum LLC  
**at:** Newington, NH 03801  
**Date:**

**SHIPPED TO:**

**EXP.**  
2400 CANADIAN ST DOOR 12  
ATTENTION DENIS ISABELLE SIPLAST PROGRAM  
Drummondville, QC J2C 7W3  
(819) 314-6995

**DELIVERING CARRIER:**  
DURO-DUROCHER INTERNATIONAL

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<th>QUANTITY</th>
<th>UNITS</th>
<th>SKU</th>
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<td>PCS</td>
<td>012527</td>
<td>12X48&quot;x4&quot; DensDeck Prime Roof Board</td>
<td>1,708</td>
<td>0.800 MSF</td>
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(11) Plaster boards, not ornamented, Other facing

*** SHIP EXACT UNLESS BALANCE ITEM NOTED ***

**TOTAL MSF FOR THIS ORDER:** 0.800

---

**NOTICE TO CARRIER:** The weights indicated on this bill of lading are estimates only. The carrier is responsible for compliance with all laws regarding weight of shipments.

**CALCULATED PRODUCT WEIGHT (LBS):** 1,708

**EST. DUNNAGE WEIGHT (LBS):** 27

**FREIGHT/TRANSP.: FOBC DESTINATION FREIGHT ALLOWED & PREPAID:**

**EST. TOTAL WEIGHT (LBS):** 1,735

**ATTENTION REFER TO DELIVERY DATE AND TIME. LOAD MUST BE SECURED PROPERLY, AND ARRIVE CLEAN, DRY, AND DAMAGE-FREE. CLAIMS WILL NOT BE HONORED FOR SHORTAGE OR DAMAGED MATERIAL. UNLESS SO NOTED ABOVE AND SIGNED BY CUSTOMER AND CARRIER.**

---

**Georgia-Pacific Gypsum LLC**  
Shipment  
剂:  
Permanent post-office address of shipper: Newington  
170 Shattuck Way  
Newington, NH 03801

---

**413-058885**  
Printed 10/8/2014  
Page 1 of 1
**CONNAISSANCE / BILL OF LADING 0498**

**Expéditeur / Shipper**

Georgian Pacific 170 Shattuck Way Newington N-H

**Consignataire / Consignee**

Siplast 2400 Canadian Street Drummondville, Que

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<th>Date</th>
<th># Commande</th>
<th>Client ref. #</th>
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**Transporteur / Carrier**

X Pierre Le Bohec

**Date:** octobre 6th 2014

**Consignataire / Consignee**

X [Signature]

**Date:**
<table>
<thead>
<tr>
<th>Matériel reçu</th>
<th>Description ou N/A</th>
<th>N° de lot (si connu)</th>
<th>État des produits (condition)</th>
<th>Quantité livrée</th>
<th>Conformité selon plan de travail</th>
<th>Technicien</th>
<th>Commentaires</th>
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Date de réception : 2014-10-07

Type d'essai : Dynamique
# Packing List

**Ship To:**
EXP
2400 CANADIAN STREET
DOOR 12

DRUMMONDVILLE, Quebec J2C 7W3
CA
800-633-3800

**Order Number:** 1112760

**Customer PO:** JOE SCOPELITE

**Ship Date:** 10/6/2014

**Order Date:** 10/6/2014

**Ship From:** 1200

**Ship Via:** WEXPSVR

**Carrier:** UPS

<table>
<thead>
<tr>
<th>Line</th>
<th>Quantity Ordered</th>
<th>UM</th>
<th>Qty Shipped Cumulative</th>
<th>UM</th>
<th>Package UM</th>
<th>Item Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>1.00</td>
<td>EA</td>
<td>1.00</td>
<td>EA</td>
<td>BOX</td>
<td>OBS60SS-R</td>
<td>OLYBOND 500 SPOTSHOT</td>
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**NOTE:** Receiver MUST count all boxes.

**NOTIFICATION OF DISCREPANCIES MUST BE MADE WITHIN 24 HOURS OF RECEIPT FOR CREDIT.**
**OMG, INC**  
153 BOOLEE ROAD  
AGAWAM, MA 01001  
UNITED STATES OF AMERICA

**COMMERCIAL INVOICE**

**BILL TO:**  
SIPLAST, INC.  
201 BEMICKE AVE. STE 210  
NORTH VANCOUVER, BC V7M 3M7  
UNITED STATES OF AMERICA

**SHIP TO:**  
EXP  
2400 CANADIAN STREET  
DOOR 12  
DRUMMONDVILLE, QC J2C 7W3  
CANADA

<table>
<thead>
<tr>
<th>Order</th>
<th>Date</th>
<th>Ship From</th>
<th>Ship Date</th>
<th>Shipper ID</th>
<th>Carrier</th>
<th>Freight Terms</th>
<th>PRO Number</th>
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<tr>
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<td>10/06/14</td>
<td>1200</td>
<td>10/06/14</td>
<td>00669321</td>
<td>ups-mn</td>
<td>PPD-ADD</td>
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<table>
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<tr>
<th>Item Number</th>
<th>Line</th>
<th>Qty</th>
<th>Ship</th>
<th>UM</th>
<th>H.S. Class Code</th>
<th>Country of Origin</th>
<th>Description</th>
<th>Order</th>
<th>Customer</th>
<th>Number</th>
<th>PO</th>
<th>Price</th>
<th>Ext Price</th>
<th>Net Weight</th>
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<tr>
<td></td>
<td>001</td>
<td>1.0</td>
<td>EA</td>
<td>08500SS-R</td>
<td>USA</td>
<td>OLYBOND 500 SPOTSHOT</td>
<td>3506.99.00.00</td>
<td>1112760</td>
<td>JOE SCOPELITE</td>
<td></td>
<td></td>
<td>151.89</td>
<td>151.89</td>
<td>18.12</td>
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Piece Qty: 1.0

---

**Total:** USD 151.89  
**Total Weight:** 18.12
## NORTH AMERICA FREE TRADE AGREEMENT

### CERTIFICATE OF ORIGIN

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<tr>
<th>Description of Goods</th>
<th>H.S. Tariff Classification Number</th>
<th>Preference Criterion</th>
<th>Producer</th>
<th>Net Cost</th>
<th>Country of Origin</th>
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<td>C</td>
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<tr>
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<td>ALUMINUM TERMINATION BAR</td>
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<td>C</td>
<td>NO (3)</td>
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<td>USA</td>
</tr>
</tbody>
</table>

I certify that:

The information on this document is true and accurate and I assume the responsibility for proving such representation. I understand that I am liable for any false statements or material omissions made on or in connection with this document.

I agree to maintain and present upon request documentation necessary to support this certificate and to inform, in writing, all persons to whom the certificate was given of any changes that would affect the accuracy or validity of this certificate.

The goods originated in the territory of one or more of the parties, and comply with the origin requirements specified for those goods in the North American Free Trade Agreement, and unless specifically exempted in Article 11 or Annex 403, there has been

This certificate consists of 1 page(s) including all attachments

Authorized Signature: [Signature]

Company: OMG, Inc.

Title: Shipping Coordinator

Date: 10/6/2014

Telephone: (413) 789-0252

Fax: (413) 786-0952
Appendix 7
Conformity Certificate
CONFORMITY CERTIFICATE

Certificate No: SIPZ-DRS-00221706-03-5100


Exp Services Inc., have recognized the conformity of:

All tested products in accordance with the work order of the above file number (certificate)

Delivered to:

Siplast.
1111 Highway 67 South, Arkadelphia, AR 71923

Denis Isabelle, principal technician
Roofing and Waterproofing

Michel Desgranges, T.P. #OTPQ 18788
Roofing and Waterproofing Director (Quebec)
Appendix 8
Temperatures registry
<table>
<thead>
<tr>
<th>Date (AAAA-MM-JJ)</th>
<th>Heure de lecture</th>
<th>Température ambiante (°C)</th>
<th>Conformité</th>
<th>Technicien</th>
<th>Commentaires</th>
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Remarque :