Siplast
1111 Highway 67 South
Arkadelphia, AR 71923

Dynamic Wind Load Testing in
Accordance with
CSA A123.21-14
Mod-bit Vapor Barrier Self-adhered System, Partially attached (PARS)

FINAL REPORT

Exp Services Inc.
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Siplast

Dynamic Wind Load Testing in Accordance with 
CSA A123.21-14 
Mod-bit Vapor Barrier Self-adhered System, Partially attached (PARS) 

FINAL REPORT 
FINAL 

Project number: 
SIPZ-DRS-00221706-01-5100 

Prepared by: 
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Prepared by: 
[Signature] 
Nicolas Courchesne, 
Projects Manager – Roofing and Waterproofing 

Validate by: 
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Michel Desgranges, T.P. 
Roofing and Waterproofing Director, Quebec 
OTPQ n° 18788 

Date: 
December 18th 2014
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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Appendix 6: Materials receiving forms
Appendix 7: Conformity Certificate
Appendix 8: Temperatures registry
Distribution list

Report distributed to:

<table>
<thead>
<tr>
<th>Client name</th>
<th>Client Coordinates</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. Todd Corley</td>
<td><a href="mailto:tcorley@siplast.com">tcorley@siplast.com</a></td>
</tr>
<tr>
<td>Product approval</td>
<td></td>
</tr>
</tbody>
</table>
1. Introduction

According to our mandate, exp Services Inc. Have proceed, 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)
- Covetboard: Densdeck Prime, Adhered, OlyBond 500, ribbons of 305 mm (12 in) a.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 ± 15 hours.
- A temperatures registry and humidity is enclose at appendix 8.
- The systems lasted ± 6 hours 15 minutes.

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

The test as perform all five level with a rating of -4.4 kPa (-90 psf)
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 -2.86 kPa (-60 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: 2014-10-06
- 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.
- Test date: 2014-10-07.
- Tested by: Denis Isabelle.
- Curing temperature: 21.4 °C to 23.7 °C
- Testing temperature: 21.0 °C to 22.7 °C
- Elapsed time between installation and testing: ± 15 hours.

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’x2’’)
- Attached method: Mechanically attached
- Manufacturer: Siplast
3.5 Insulation Attachment Details

- Product: Screw and Plates
- Attachment: Roofing Fasteners and Base Plates
- Attached method: 16 screws and plates per panel (see appendix 1)
- Manufacturer: OMG

3.6 Coverboard

- Product: Densdeck Prime
- Dimensions: 1220 mm x 2440 mm x 12.7 mm (4' x 8' x 1/2'')
- Attached method: Adhered
- Manufacturer: Georgia Pacific

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)
- Coverboard: Densdeck Prime, 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

The test as perform all five level with a rating of -4.4 kPa (-90 psf)

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 -2.86 kPa (-60 psf).

4.3 Test Failure: No failure

4.4 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 Layout

Project: Mod-bit Vapor Barrier Self-adhered System, Partially attached (PARS)
Title: Vapor Barrier and Insulation Layout

Drawn by: ISD
Project No.: DRS-00221706-01-5100
Drawing No.: L - 1
Date: October 6, 2014
Scale: NTS
Recovery board adhesive (Olybond 500) Layout

Recovery board (DensDeck Prime) Layout
Base sheet (Paradiene 20 TG) Layout

Cap sheet (Paradiene 30 TG) Layout
Appendix 2
Gust and Load Amplitude Pressure Table
And Fastener Pullout test
Gusts and load Amplitude Pressure Table

<table>
<thead>
<tr>
<th>Number of gusts (cycles)</th>
<th>Load-amplitude pressure levels (psf)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level A</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>11 3, 113, 450, 113, 450</td>
</tr>
<tr>
<td>2</td>
<td>0, 0, 0, 0, 0</td>
</tr>
<tr>
<td>3</td>
<td>450, 113, 450, 113, 450</td>
</tr>
<tr>
<td>4</td>
<td>20, 5</td>
</tr>
<tr>
<td>5</td>
<td>0, 0, 0, 0, 0</td>
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<td>6</td>
<td>0, 0, 0, 0, 0</td>
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<tr>
<td>7</td>
<td>0, 0, 0, 0, 0</td>
</tr>
<tr>
<td>8</td>
<td>0, 0, 0, 0, 0</td>
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</tbody>
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| **Level B**              |                                    |
| 1                        | 0, 0, 0, 0, 0                      |
| 2                        | 0, 0, 0, 0, 0                      |
| 3                        | 175, 422, 563, 563, 563           |
| 4                        | 50, 281, 14, 14, 281              |
| 5                        | 0, 0, 0, 0, 0                      |
| 6                        | 0, 0, 0, 0, 0                      |
| 7                        | 0, 0, 0, 0, 0                      |
| 8                        | 0, 0, 0, 0, 0                      |

| **Level C**              |                                    |
| 1                        | 0, 0, 0, 0, 0                      |
| 2                        | 0, 0, 0, 0, 0                      |
| 3                        | 100, 50, 33, 50, 33               |
| 4                        | 0, 0, 0, 0, 0                      |
| 5                        | 0, 0, 0, 0, 0                      |
| 6                        | 0, 0, 0, 0, 0                      |
| 7                        | 0, 0, 0, 0, 0                      |
| 8                        | 0, 0, 0, 0, 0                      |

| **Level D**              |                                    |
| 1                        | 0, 0, 0, 0, 0                      |
| 2                        | 0, 0, 0, 0, 0                      |
| 3                        | 100, 50, 39, 59, 39               |
| 4                        | 0, 0, 0, 0, 0                      |
| 5                        | 0, 0, 0, 0, 0                      |
| 6                        | 0, 0, 0, 0, 0                      |
| 7                        | 0, 0, 0, 0, 0                      |
| 8                        | 0, 0, 0, 0, 0                      |

| **Level E**              |                                    |
| 1                        | 0, 0, 0, 0, 0                      |
| 2                        | 0, 0, 0, 0, 0                      |
| 3                        | 75, 225, 45, 67, 45               |
| 4                        | 50, 90, 78, 78, 78               |
| 5                        | 0, 0, 0, 0, 0                      |
| 6                        | 0, 0, 0, 0, 0                      |
| 7                        | 0, 0, 0, 0, 0                      |
| 8                        | 0, 0, 0, 0, 0                      |

<table>
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<tr>
<th>Loading sequence</th>
<th>Groupe 1</th>
<th>Groupe 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groupe 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groupe 2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 3
Photographic report
Photographic Report

Client: Siplast

Date: 06 - 10 - 2014

Project: Mod-bit Vapor Barrier Self-adhered System, Partially attached (PARS)

Project n°: SPIZ-DRS-00221706-01-5100

Photo n°: 1

Description:
Steel deck before the installation of the roof system.

Photo n°: 2

Description:
View of the Vapor Barrier before the installation of the Insulation.
**Photographic Report**

Client: Siplast

Date: 06 - 10 - 2014

Project: Mod-bit Vapor Barrier Self-adhered System, Partially attached (PARS)

Project n°: SPIZ-DRS-00221706-01-5100

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**Photo n°: 3**

Description:

Installation of the Insulation mechanically attached

---

**Photo n°: 4**

Description:

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

<table>
<thead>
<tr>
<th>Client</th>
<th>Siplast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>06 - 10 - 2014</td>
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<tr>
<td>Project</td>
<td>Mod-bit Vapor Barrier Self-adhered System, Partially attached (PARS)</td>
</tr>
<tr>
<td>Project n°</td>
<td>SPIZ-DRS-00221706-01-5100</td>
</tr>
</tbody>
</table>

### Photo n°: 5

Description:
Installation of the Coverbord adhered with OlyBond 500

### Photo n°: 6

Description:
View of the ribbons on the Insulation before the installation of the Coverbord panel
Description:
View of the Coverboard before the installation of the Base-sheet membrane

Photo n°: 7

Description:
Installation of the Base-sheet membrane on the Coverboard

Photo n°: 8
## Photographic Report

**Client:** Siplast  
**Date:** 06-10-2014  
**Project:** Mod-bit Vapor Barrier Self-adhered System, Partially attached (PARS)  
**Project n°:** SPIZ-DRS-00221706-01-5100

### Photo n°: 9

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

### Photo n°: 10

**Description:**  
Installation of the Cap-sheet membrane
Photographic Report

Client: Siplast

Project: Mod-bit Vapor Barrier Self-adhered System, Partially attached (PARS)

Project n°: SPIZ-DRS-00221706-01-5100

Date: 06-10-2014

Photo n°: 11

Description:
View of the roof system before the test

Photo n°: 12

Description:
Test progression:
Sequence: A-1-4
Gust: 30/50
### Photographic Report

**Client:** Siplast  
**Project:** Mod-bit Vapor Barrier Self-adhered System, Partially attached (PARS)  
**Date:** 06 - 10 - 2014  
**Project no.:** SPIZ-ORS-00221706-01-5100

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<th>Photo n°: 13</th>
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<tbody>
<tr>
<td><img src="image1.jpg" alt="Image 1" /></td>
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<tr>
<td><strong>Description:</strong></td>
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<tr>
<td>Test progression:</td>
</tr>
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</table>
| Sequence: B-2-6  
Gust: 25/50 |

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<th>Photo n°: 14</th>
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<tbody>
<tr>
<td><img src="image2.jpg" alt="Image 2" /></td>
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<tr>
<td><strong>Description:</strong></td>
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<tr>
<td>Test progression:</td>
</tr>
</tbody>
</table>
| Sequence: C-1-4  
Gust: 25/50 |

---

REI_2009-13-68  
7
Photographic Report

Client: Siplast

Date: 06 - 10 - 2014

Project: Mod-bit Vapor Barrier Self-adhered System, Partially attached (PARS)

Project nº: SPIZ-DRS-00221706-01-5100

Photo nº: 15

Description:

Test progression:

Sequence: D-2-7
  Gust: 5/20

Photo nº: 16

Description:

Test progression:

Sequence: E-1-7
  Gust: 11/20
  End of test
  No failure
Appendix 4
Technical Data and MSDS
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_ 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</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: 161 mils</td>
</tr>
<tr>
<td>Thickness at Selvage:</td>
<td>Avg: 122 mils</td>
</tr>
<tr>
<td>Min: 118 mils</td>
<td>(3.0 mm)</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 #85 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</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</td>
</tr>
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</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
# 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 5649 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

Section I

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>Filter</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.

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</td>
</tr>
<tr>
<td>Coverage Weight Per Square</td>
<td>Min: 76 lb</td>
</tr>
<tr>
<td>Roll Length</td>
<td>Min: 33.5 ft</td>
</tr>
<tr>
<td>Roll Width</td>
<td>Avg: 3.28 ft</td>
</tr>
<tr>
<td>Thickness</td>
<td>Avg: 114 mils</td>
</tr>
<tr>
<td>Selvedge Width</td>
<td>N/A</td>
</tr>
<tr>
<td>Selvedge 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>
</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 material is 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><em>Peak Load @ 73°F average</em></td>
<td>30 lbf/inch (5.3 kN/m)</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td><em>Peak Load @ 0°F average</em></td>
<td>75 lbf/inch (13.2 kN/m)</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td><em>Elongation @ Peak Load, 73°F average</em></td>
<td>3%</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td><em>Elongation @ Peak Load, 0°F average</em></td>
<td>3%</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td><em>Ultimate Elongation @ 73°F average</em></td>
<td>50%</td>
<td>ASTM D 5147 section 7</td>
</tr>
<tr>
<td><em>Tear Strength average</em></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.
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

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<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 Proprietary</td>
<td>N/A*</td>
<td>N/A*</td>
<td></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/MESHA 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 5/8 (92)</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*</th>
<th>LTTR**</th>
<th>Flute Span (max.)</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>
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</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></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 fiber facings.

Section IV - Fire and Explosion Data

Flammability: Yes ✗ 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 ✗
Skin Absorption
Eye Contact ✗
Inhalation ✗
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.

Rev 9/2011
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
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.

Rev 9/2011
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 1256 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 1256 Steiner Tunnel test. For additional information concerning the UL 1256 classification, consult the UL Certification Directory.

Fact Sheet - 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 Colorimeter Standard #450 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 1256 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 "P-2.

Frame Spread and Smoke Developed: When tested in accordance with ASTM E84, DensDeck Prime Roof Boards had Flame Spread 0, Smoke Developed 0.

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)</td>
<td>1/2&quot; (12.7 mm)</td>
<td>5/8&quot; (15.9 mm)</td>
</tr>
<tr>
<td>Width, standard</td>
<td>4&quot; (101.6 mm)</td>
<td>4&quot; (101.6 mm)</td>
<td>4&quot; (101.6 mm)</td>
</tr>
<tr>
<td>Length, standard</td>
<td>4&quot; (101.6 mm)</td>
<td>4&quot; (101.6 mm)</td>
<td>4&quot; (101.6 mm)</td>
</tr>
<tr>
<td>Weight, nominal, lbs/sq.ft. (Kg/m²)</td>
<td>1.7 (5.9)</td>
<td>2.0 (5.6)</td>
<td>2.5 (12.2)</td>
</tr>
<tr>
<td>Surfacing</td>
<td>Fiberglass mat with non-asbestos coating</td>
<td>Fiberglass mat with non-asbestos coating</td>
<td>Fiberglass mat with non-asbestos coating</td>
</tr>
<tr>
<td>Flexural Strength, psi/ft. (N/m)</td>
<td>&gt;40 (170)</td>
<td>&gt;60 (356)</td>
<td>&gt;100 (444)</td>
</tr>
<tr>
<td>Flexural modulus, psi/1000 psi</td>
<td>&gt;2.5 6/8 (80 7 mm)</td>
<td>&gt;2.5 6/8 (80 7 mm)</td>
<td>&gt;2.5 6/8 (80 7 mm)</td>
</tr>
<tr>
<td>Permeability, g/m²/m/s/m²</td>
<td>&gt;30 &gt;1710</td>
<td>&gt;30 &gt;1710</td>
<td>&gt;30 &gt;1710</td>
</tr>
<tr>
<td>II Value; %/hr/°F/°K/°W</td>
<td>28</td>
<td>56</td>
<td>67</td>
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<tr>
<td>Linear Variation with Change in Temp., in/°F/°F/°C/°F</td>
<td>6.5 x 10⁻⁵ (15.3 x 10⁻⁴)</td>
<td>8.5 x 10⁻⁵ (15.3 x 10⁻⁴)</td>
<td>8.5 x 10⁻⁴ (15.3 x 10⁻⁴)</td>
</tr>
<tr>
<td>Linear Variation 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</td>
<td>&lt;2</td>
<td>&lt;2</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, inches</td>
<td>4 (1.219 mm)</td>
<td>6 (1.529 mm)</td>
<td>8 (2.032 mm)</td>
</tr>
</tbody>
</table>

1. Tested in accordance with ASTM C473 method B.
2. Tastered in accordance with ASTM E651.
3. Tastered in accordance with ASTM E36 (dry cup method).
4. Tstered in accordance with ASTM C515 (heat flow meter).
5. Specified values per ASTM C1177.
6. Tastered 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.gypsysum.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.gypsysum.com.

UPDATES AND CURRENT INFORMATION: This information in this document may change without notice. Visit our website at www.gypsysum.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 provide 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.
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. The UL 790 Classification indicates that DensDeck® Prime Roof Boards have been classified by Underwriters Laboratories Inc. (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, C, or D rating.

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 standard. For additional information concerning the UL 1296 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 C177 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 “P”.

**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.

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### 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)</td>
<td>1/2&quot; (12.7 mm)</td>
<td>5/8&quot; (15.9 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>4&quot; (1219 mm)</td>
<td>4&quot; (1219 mm)</td>
<td>4&quot; (1219 mm)</td>
</tr>
<tr>
<td>Weight, nominal, lbs/ft² (Kg/m²)</td>
<td>1.2 (5.9)</td>
<td>2.6 (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 min. (N)</td>
<td>40 (178)</td>
<td>80 (356)</td>
<td>100 (444)</td>
</tr>
<tr>
<td>Flexural Spanability</td>
<td>2.5/6&quot; (67.7 mm)</td>
<td>5&quot; (127 mm)</td>
<td>8&quot; (203 mm)</td>
</tr>
<tr>
<td>Permeability, Perms (ng/Par-S-m²)</td>
<td>&gt;30 (1710)</td>
<td>&gt;23 (1300)</td>
<td>&gt;17 (790)</td>
</tr>
<tr>
<td>R Value, ft²⁻¹°F⁻¹ BTU/(in⁻²°F/K/V)</td>
<td>.28</td>
<td>.56</td>
<td>.67</td>
</tr>
<tr>
<td>Linear Variation with Change in Temp, in/f (mm/milling)</td>
<td>8.5 x 10⁻⁴ (15.3 x 10⁻⁴)</td>
<td>8.5 x 10⁻⁴ (15.3 x 10⁻⁴)</td>
<td>8.5 x 10⁻⁴ (15.3 x 10⁻⁴)</td>
</tr>
<tr>
<td>Linear Variation with Change in Moisture, % max</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>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</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>6&quot; (1229 mm)</td>
<td>8&quot; (2038 mm)</td>
</tr>
</tbody>
</table>

1. Tested in accordance with ASTM C473 method B.
2. Tested in accordance with ASTM E661.
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 C177.
6. Tested in accordance with ASTM C473.

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**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.gypsym.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.gypsym.com.

**UPDATES AND CURRENT INFORMATION**

The information in this document may change without notice. Visit our website at www.gypsym.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 provide 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

Manufacturer
Georgia-Pacific Gypsum
133 Peachtree Street
Atlanta, GA 30303

Georgia-Pacific Canada
2180 Meadowvale Boulevard, Suite 200
Mississauga, ON L5N 5S3

Technical Service Hotline: 1-800-225-6119
www.densdeck.com

Description
DensDeck® Prime Roof Board has been enhanced to provide a broader compatibility and higher performance with roofing adhesives. Face mat reinforcements allow adhesives to be applied more uniformly and consistently. In adhered, single-ply membrane testing, 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 need for 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, and systems, 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 Cede 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 contractor’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, Small Scale Tests, Membrane Deterritorialization 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)

Submittal Approvals

Job Name

Contractor

Date

continued→

Stamps / Signatures
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 800.225.6119
Chemtrec - 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>CRYSALLINE 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/AWHMIS 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>CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-80-7)</td>
<td>TWA</td>
<td>0.025 mg/m3</td>
<td>(Respirable fraction)</td>
</tr>
<tr>
<td>GYPSUM (CALCICUM 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 (CALCICUM SULFATE, DIHYDRATE) (CAS 10101-41-4)</td>
<td>TWA</td>
<td>5 mg/m3</td>
<td>(Respirable fraction)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>US OSHA Table Z-3: Calculated Time Weighted Average (TWA) (mg/m3) Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-80-7)</td>
<td>TWA</td>
<td>10 mg/m3</td>
<td>Total dust.</td>
</tr>
<tr>
<td>US OSHA Table Z-3: Calculated Time Weighted Average (TWA) (Non-standard unit) Components</td>
<td>Type</td>
<td>Value</td>
<td>Form</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>-------</td>
<td>-----------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-80-7)</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

<table>
<thead>
<tr>
<th>Species</th>
<th>LD50 Mouse: 5824 mg/kg</th>
<th>LD50 Rat: 3000 mg/kg</th>
</tr>
</thead>
</table>

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

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

IARC Monographs. Overall Evaluation of Carcinogenicity

CRISTALLINE 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.

Ecotoxicological data

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>GYPSUM (CALCIUM SULFATE, DIHYDRATE) (CAS 10101-41-4)</td>
<td>Fish</td>
<td>LC50 Fish 2980 mg/l, 96 Hours</td>
</tr>
</tbody>
</table>

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>
<th>Delayed Hazard - No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fire Hazard - No</td>
<td>Pressure Hazard - No</td>
</tr>
<tr>
<td></td>
<td>Reactivity Hazard - No</td>
<td></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® Sheathing
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® Sheathing

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>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>Blue</td>
<td></td>
</tr>
<tr>
<td>Thickness</td>
<td>1.0 mm (40 mils)</td>
<td></td>
</tr>
<tr>
<td>Application Temp</td>
<td>Minimum + 5°C</td>
<td></td>
</tr>
<tr>
<td>Service Temp</td>
<td>Minus 40°C to 70°C</td>
<td></td>
</tr>
<tr>
<td>Elongation</td>
<td>200% minimum</td>
<td></td>
</tr>
<tr>
<td>ASTM D412-modified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>3.4 MPa minimum</td>
<td></td>
</tr>
<tr>
<td>(Membrane)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASTM D412-modified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tensile Strength (Film)</td>
<td>40 MPa minimum</td>
<td></td>
</tr>
<tr>
<td>(ASTM D882)</td>
<td></td>
<td></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>
<tr>
<td>Watertightness</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>(CAN/CSGB-37.58-M86)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nail Sealability</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>(ASTM D1970)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Temperature Flexibility @ -30°C</td>
<td>Pass</td>
<td></td>
</tr>
<tr>
<td>(CGSB 37-GP-56M)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Vapour Transmission</td>
<td>49 ng/Pa.s.m²</td>
<td></td>
</tr>
<tr>
<td>(ASTM E96) water method</td>
<td>0.86 perms</td>
<td></td>
</tr>
<tr>
<td>(ASTM E96) desiccant method</td>
<td>2 ng/Pa.s.m²</td>
<td></td>
</tr>
<tr>
<td>Lap Peel Strength @ 4°C (39.2°F)</td>
<td>&gt; 4378.4 N/m</td>
<td></td>
</tr>
<tr>
<td>(ASTM D903 180° bend)</td>
<td>(25.0 lbf/in)</td>
<td></td>
</tr>
<tr>
<td>Moisture absorption</td>
<td>0.2%</td>
<td></td>
</tr>
<tr>
<td>(ASTM D570)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Leakage @ 75 Pa</td>
<td>0.003 L/s.m²</td>
<td></td>
</tr>
<tr>
<td>(ASTM E283-91)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Leakage After 3000 Pa Test</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td>(ASTM E330-90)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assembly Air Leakage @ 75 Pa</td>
<td>0.005 L/s.m²</td>
<td></td>
</tr>
<tr>
<td>(ASTM E-2357)</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>Thickness</td>
<td>1.0 mm (40 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>1219 mm (48&quot;)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>914 mm (36&quot;), 457 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(18&quot;)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>300 mm (12&quot;), 225 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(9&quot;)</td>
<td></td>
</tr>
<tr>
<td>Top Surface</td>
<td>150 mm (6&quot;), 100 mm</td>
<td></td>
</tr>
<tr>
<td>Bottom Surface</td>
<td>Blue film</td>
<td></td>
</tr>
<tr>
<td>Siliconized Release Film</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross Coverages</td>
<td>914 mm (36&quot;)</td>
<td>20.9 m² (225 ft²)</td>
</tr>
<tr>
<td></td>
<td>457 mm (18&quot;)</td>
<td>10.5 m² (112.5 ft²)</td>
</tr>
<tr>
<td>Net Coverages*</td>
<td>914 mm (36&quot;)</td>
<td>19.7 m² (212 ft²)</td>
</tr>
<tr>
<td></td>
<td>457 mm (18&quot;)</td>
<td>9.3 m² (100 ft²)</td>
</tr>
</tbody>
</table>

*Based on 50 mm (2") laps both sides and end.

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-gasketsing when penetrated and under compression with self-tapping screws
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, POLYBITUME® 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.
HENRY COMPANY

FICHE SIGNALÉTIQUE

BH200SA – BLUESKIN SA

Fabricant
HENRY COMPANY
909 N. Sepulveda Blvd., Suite 650
El Segundo, CA 90245-2724

Pour renseignements : Services techniques
Numéro de téléphone : (800) 486-1278
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

<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

AVERTISSEMENT ! Contient du bitume. Certains bitumes contiennent des composés sulfurés qui, lorsque chauffés ou brûlés, peuvent former de l'hydrogène sulfuré. Le contact direct avec la peau et les yeux peut causer des irritations.
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 cancérogènes
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 incommode 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 extinctrice.

**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. Manipulation et entreposage

**Précautions lors de la manipulation et de l’entreposage**
Les contenant 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>Réglementation</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
- Cauchochouc
- 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.

![Diagramme NFPA et SIMD](image)

### 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 particulières.

HENRY COMPANY
**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 1/4- to 1-inch bands that spread to several inches while rising 1/4- 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/ft³</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-6226</td>
<td>50% min.</td>
</tr>
<tr>
<td>R-Value</td>
<td>ASTM C-518</td>
<td>3.5 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 +)
     *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 in 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 reuse. If swallowed, give large amounts of water to dilute. If vomiting occurs, give more water. Call a physician immediately.

1.10 DISPOSAL

FMDI 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 (¼-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 ¾-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. Polysiocyanurate 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 polysiocyanurate 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 a 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 3 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 galon 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 Dispenser from PaceCart 2]</td>
<td>[Square Units]</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>1.1 to 2</td>
</tr>
<tr>
<td>Insulation to Lightweight Concrete*</td>
<td>1.1 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>1.1 to 2</td>
</tr>
<tr>
<td>Insulation to Steel</td>
<td>1.1 to 1.2</td>
</tr>
</tbody>
</table>

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

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>

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 outlined 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 8,474,659.
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 Dilsocyanate (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 hypersensitivity 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>Diphenylmethane Dilsocyanate 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.

5. 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

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

OlyBond500 SpotShot (part 1)

EXPOSURE GUIDELINES

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ppm</td>
<td>mg/m³</td>
</tr>
<tr>
<td>Polymeric Isocyanates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TWA</td>
<td>NL [1]</td>
<td>NL [1]</td>
</tr>
<tr>
<td>STEL</td>
<td>NL [1]</td>
<td>NL [1]</td>
</tr>
<tr>
<td>Methylene Bisphenyl Isocyanate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TWA</td>
<td>0.02 ppm</td>
<td>0.2 mg/m³</td>
</tr>
<tr>
<td>STEL</td>
<td>NL [1]</td>
<td>NL [1]</td>
</tr>
<tr>
<td>Diphenylmethane Dilisocyanate Mixed Isomers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TWA</td>
<td>NL [1]</td>
<td>NL [1]</td>
</tr>
<tr>
<td>STEL</td>
<td>NL [1]</td>
<td>NL [1]</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, alkalis, 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 Dilisocyanate 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

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></td>
</tr>
<tr>
<td>Diphenylmethane Disocyanate 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 Disocyanate 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

[Image of Toxic symbol]

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

[Image of NFPA diamond]

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

OlyBond500 SpotShot (part 2)

1. PRODUCT AND COMPANY IDENTIFICATION

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

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

<table>
<thead>
<tr>
<th>OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)</th>
<th>EXPOSURE LIMITS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OSHA PEL</td>
</tr>
<tr>
<td>Chemical Name</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
VISCOSITY #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 LD$_{50}$ (rat)</th>
<th>DERMAL LD$_{50}$ (rabbit)</th>
<th>INHALATION LC$_{50}$ (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>
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</tr>
<tr>
<td>Dipropylene Glycol</td>
<td>25265-71-8</td>
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</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></th>
<th>HEALTH</th>
<th>FLAMMABILITY</th>
<th>PHYSICAL HAZARD</th>
<th>PERSONAL PROTECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>B</td>
</tr>
</tbody>
</table>

NFPA CODES

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.

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.
PARAFAST PA ROOFING FASTENER

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 (16 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 facer 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.

COMMERCE PRODUCT INFORMATION

<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>
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<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": 14 in X 14 in X 10 in
- 3 3/4": 14 in X 14 in X 12 in
- 4 1/2" - 5": 14 in X 14 in X 15 in
- 6" - 8": 14 in X 14 in X 18 in

Pallet: 44 in X 44 in (112 cm X 112 cm) wooden pallet
No. Pallets/TL: 24-26

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

Use this form to calculate your correct fastener size.

The proper fastener length for this example is 3 1/4".
NON-HAZARDOUS

MATERIAL SAFETY DATA SHEET

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: OMG Roofing Fasteners
Generic Name: Screws
Chemical Name: N/A

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

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 Gytec, ASAP Fasteners, Toggle Bolts, HeadLOK, Sheet Metal Screws.

Manufacturer: OMG, Inc.
Telephone: 413-789-0252
Address: 153 Bowles Rd
 Agawam, MA 01001

Website: www.olyfast.com

Issue Date: 3/6/2002
Latest Revision: 3/3/2011
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.
NON-HAZARDOUS

MATERIAL SAFETY DATA SHEET

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>Base Plates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic Name:</td>
<td>Metal Base Plate</td>
</tr>
<tr>
<td>Chemical Name:</td>
<td>Aluminum/Zinc Alloy Coated Steel</td>
</tr>
<tr>
<td>CAS#:</td>
<td>Mixture/None Assigned</td>
</tr>
<tr>
<td>Formula:</td>
<td>Article</td>
</tr>
<tr>
<td>Hazard Label:</td>
<td>Not Required</td>
</tr>
</tbody>
</table>

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

Website: www.clyfast.com

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:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS#</th>
<th>% by Wt.</th>
<th>OSHA PEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASE METAL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron (Fe)</td>
<td>7439-89-8</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>7444-22-3</td>
<td>&lt;0.01 max</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 product’s 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>

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Appendix 5

Work Plan
### Laboratoire d'essais de toiture (17025)

**Plan de travail**

**Client:** Siplast  
**Dossier n°:** SIPZ-DRS-00221706-01-5100

**Projet:** Grande table  
**Chargé de projet:** Nicolas Courchesne

**Contact:** Todd Corley  
**Technicien désigné:** Denis Isabelle

---

**Appel reçu par:** Michel Desgranges  
**le:** 2014-07-07 à [heure]  
**À confirmer:***

**Demandé par:** Todd Corley  
**pour le:** 2014-10-06 à [heure]  
**Instructions transmises par téléphone ou courriel:***

**Montage par:** Siplast  
**Firme:**  
**Tél.:**

---

<table>
<thead>
<tr>
<th>Instruction du client</th>
<th>Montages</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ CSA A123.21</td>
<td>☐ Avec murissement / nbre ___</td>
</tr>
<tr>
<td>☐ MARS ☐ AARS ☑ PARS ☐ Nombre</td>
<td>☐ Sans murissement / nbre ___</td>
</tr>
</tbody>
</table>

**Matériels à tester:**
- Pare-vapeur : Vapor Bloc Sa  
- Isolant : Paratherm W, fixé mécaniquement  
- Panneau de support : Densdeck Prime, adhéré  
- Sous-couche : Paradiene 20 TG soudée  
- Finition : Paradiene 30 TG soudée

**Titre du projet:** Mod-bit Vapor Barrier Self-adhered 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  
- Densdeck Prime, achéré cordon de 12"  
- Sous couche soudée au panneau de support  
- Finition soudée sur sous-couche

**Test:** -45 PSF  
**Signé:** [Signature]  
**Date:** 2014-11-26

---

**Livraison de matériau prévus le:**

<table>
<thead>
<tr>
<th>Fiches techniques reçues</th>
<th>Fiches signalétiques reçues</th>
<th>Résumé des travaux</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ Oui ☐ Non</td>
<td>☐ Oui ☑ Non</td>
<td></td>
</tr>
</tbody>
</table>

**Matériaux livrés le:**
- 16-09-14 par: Bakor  
- 26-09-14 par: [Signature]  
- 06-10-14 par: [Signature]

---

**Date prévue de production:** 2014-10-07

**Préparé par:** Nicolas Courchesne  
**Approuvé par:** Michel Desgranges

---

**Signatures:**
- Nicolas Courchesne  
- Michel Desgranges

---

**REV_2016-09-17**
Appendix 6
Materials receiving forms
<table>
<thead>
<tr>
<th>Nom</th>
<th>Prénom</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>2</td>
</tr>
</tbody>
</table>

**Départ de fabrication** : 2014-09-16

**Type d'essai** : compression

**Code** : S/P2-DES-00727-06

**CSA** : A123.21

**Reception des matériaux**

**Foilure**
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Quantity</th>
<th>Committée</th>
<th>Technical</th>
<th>Comments</th>
<th>N° de couche</th>
<th>Test des produits</th>
<th>Certification &amp; N/A</th>
<th>Description ou Matériel requis</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
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<tr>
<td>NFE</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date de réception : 06/09/2014

Type d'essai : Dynamique

SIPZ-DPS-00221706

Exécuté par : CSA A123-21

C.N.: UL 770 (13)
## Straight Bill of Lading - Short Form

**Carrier:** XL TRANSPORTATION  
**Ship Date:** 9/24/2014  
**Bill of Lading Number:** 03-092314-1

**Shipped From:**

ATLAS ROOFING CORP.  
55 Akron Road  
Etobicoke, Ontario  
Canada  
MBW 1T3

**Consigned To:**

EXP  
2400 CANADIAN ST. DOOR 12  
DRUMMONDVILLE, QC  
J2C 7W3

**Special Instructions:**

Discrepancies and endorsements must be confirmed with shipper. Driver must notify shipper in presence of consignee of any shortages or overages.

**Siplast Program**

**Denis Isabelle**  
1-819-477-3775 ext. 223

**Freight Charges Are Prepaid Unless Marked Collect**

- **Check Box If Collect:**
  - [ ]

**For Freight Collect Shipments:**

If this shipment is to be delivered in the consignee, without recourse on the consumer, the consignee shall sign the following statement: The carrier may decline to make delivery of this shipment without payment of freight and all other lawful charges.

Atlas Roofing Corporation  
(Signature of Consignee)

---

**Quantity Shipped**

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 pkg POLYISO FOAM SAMPLE</td>
<td>44H&quot; X 48W&quot; X 96L&quot;</td>
</tr>
</tbody>
</table>

**Total Weight:**  
350 LBS

---

**Received By:**

[Signature]

**Date:**

[Date]

**Shipper:** Atlas Roofing Corporation  
**Carrier:**

[Signature]

**Per:** JOHN KLIN  
9/23/2014  
**Per X**  
9/23/2014
### Laboratoire des éssais de tolérance (17025)

**Récupération des matériaux**

<table>
<thead>
<tr>
<th>Échantillon</th>
<th>Technique</th>
<th>Condition</th>
<th>Quantité</th>
<th>Numéro de lot</th>
<th>Description</th>
<th>Matériau</th>
<th>Dossier</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>[17025]</td>
</tr>
</tbody>
</table>

**Dossier:** [17025]
| Subject Date | From | Attention | To | Memo
---|---|---|---|---
| 12/16/14 | | | 2100 Canadian Door, 12 | Roxul Canada Inc.
| 6:30 AM | | | 21 pcs Topcoat DBT

1. pallet

2. Pallet ID: 2015-10-68

Request Line: Beacon Boxing Supplies

Pallet Key:

Date: 12/16/14
**STRAIGHT BILL OF LADING - SHORT FORM**

**TRUCKER**

**From:** Georgia-Pacific Gypsum LLC

**at:** Newington, NH 03801

**Date:**

**LOAD EOD**

2 of 2

**SHIP TO**

EXP

2400 CANADIAN ST DOOR 12

ATTENTION DENIS ISABELLE SIPLAST PROGRAM

Drummondville, QC J2C 7W3

(819) 314-6695

**DELIVERY CARRIER**

DURO-DUROCHER INTERNATIONAL

**CONTAINERS**

**CARTS/ TRUCKS**

**TRAILERS**

**SEAL NO 1**

**SEAL NO 2**

**QUANTITY**

50 PCS

**SKU**

012527

**PRODUCT ID**

1/2X46’x4’ DensDeck Prime Roof Board

(11) Plasterboards, not ornamented, Oth Fencing

*** SHIP EXACT UNLESS BALANCE ITEM NOTED ***

**CALCULATED WEIGHT**

1,708

**SALES UNIT**

0.800 MSF

**TOTAL MSF FOR THIS ORDER**

0.880

---

**NOTICE TO CARRIER:**

- The weight indicated on this bill of lading are estimates only, and carrier makes no representation regarding same.
- The carrier is responsible for compliance with all laws regarding weight of shipments.

**CALCULATED PRODUCT WEIGHT (LBS)**

1,708

**EST DUMMAGE WEIGHT (LBS)**

27

**FREIGHT/TRANSP**

- FOR DESTINATION FREIGHT ALLOWED & PREPAID

**EST TOTAL WEIGHT (LBS)**

1,735

**ROUTE COMMERCIAL TRUCK**

**COUNTRY OF ORIGIN**

U.S.A.

**STATE OF ORIGIN**

NH

**Georgia-Pacific Gypsum LLC**

(Signature of Consignor)

**Date**

**Per**

**Agent**

**Georgia-Pacific Gypsum LLC**

Shipper

Per

214-380-8885

(Printed 10/02/14)

**Per**

**Agent**

**Georgia-Pacific Gypsum LLC**

Shipper

Per

214-380-8885

(Printed 10/02/14)

**Per**

**Agent**

**Georgia-Pacific Gypsum LLC**

Shipper

Per

214-380-8885

(Printed 10/02/14)

**Per**

**Agent**

**Georgia-Pacific Gypsum LLC**

Shipper

Per

214-380-8885

(Printed 10/02/14)
## CONNAISSEMENT / BILL OF LADING

### Expéditeur / Shipper

**Georgia Pacific**  
170 Shattuck Way  
Newington, N.H.

### Consignataire / Consignee

**Siplast Inc.**  
2400 Canadian Street  
Drummondville, Que.

### Details

<table>
<thead>
<tr>
<th>Date</th>
<th># Commande</th>
<th>Client ref. #</th>
<th># Camion / Truck</th>
<th># Remorque / Trl</th>
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</thead>
<tbody>
<tr>
<td>October 6th, 2014</td>
<td>413 315 R81</td>
<td></td>
<td>375012</td>
<td>333 000C8</td>
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### QTY & DESCRIPTION

<table>
<thead>
<tr>
<th>QTY</th>
<th>DESCRIPTION</th>
<th>POIDS / WEIGHT</th>
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<tbody>
<tr>
<td>50</td>
<td>123 456 789 123 456 789</td>
<td>1735 lbs</td>
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### Transporteur / Carrier

**X Pierre Le Breton**  
Date: October 6th, 2014

### Consignataire / Consignee

**X**  
Date:
<table>
<thead>
<tr>
<th>Description du matériau</th>
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<tbody>
<tr>
<td>Laboratory d'essais de tolérance (17025)</td>
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<table>
<thead>
<tr>
<th>Description du matériau</th>
<th>Lab de tolérance</th>
<th>N° de lot</th>
<th>Echantillon (condition)</th>
<th>N° test</th>
<th>Critères</th>
<th>Date de réception</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30/4/10-07</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</table>

<p>| Dossier : | D connexion : | Type de test : | Silicate : | SCA A1223.27 (14) | UL 790 (13) | CAN/ULC-S107 (10) | exp |</p>
<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
<th>Box</th>
<th>Package</th>
<th>Note</th>
<th>Order</th>
<th>Line</th>
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<tbody>
<tr>
<td>UPS</td>
<td></td>
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<td></td>
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<td>WEBSITE</td>
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</tr>
<tr>
<td>Shipper: 1122861200</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Customer PO: JOE SCOPETTI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Order Number: 1123760</td>
<td></td>
<td></td>
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</table>

Ship From: 1200
Ship Date: 10/6/2014
C/O: 800-633-3800
CA
DRUMMONDVILLE QUINCE 2FC 7W3

Door 12
2100 CANADIAN STREET
Exp

Packing List
<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>P.O. Number</th>
<th>P.O. Date</th>
<th>Delivery Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1001</td>
<td>Tires</td>
<td>100</td>
<td>kg</td>
<td>12345</td>
<td>01/01/2023</td>
<td>01/15/2023</td>
</tr>
<tr>
<td>1002</td>
<td>Brakes</td>
<td>50</td>
<td>kg</td>
<td>67890</td>
<td>02/01/2023</td>
<td>02/15/2023</td>
</tr>
</tbody>
</table>

**Note:**

- **Quantity:** Total 150 kg
- **Unit:** kg
- **P.O. Date:** 01/01/2023
- **Delivery Date:** 01/15/2023

**Bill of Lading Details:**

- **Carton:** 100
- **Freight:** Prepaid
- **Ship From:** 123 Main St, Toronto, ON, Canada
- **Ship To:** 456 Market St, New York, NY, USA

**Terms:** FOB Toronto, FCL

**Carriers:** XPO Logistics

**Weight:** Total weight: 150 kg

**Dimensions:** 1.2m x 1.8m x 2.1m

**Country of Origin:** USA

**Ship to:**

- **Name:** John Doe
- **Address:** 123 Main St, Toronto, ON, Canada
- **Phone:** 555-1234

**Ship From:**

- **Name:** Jane Smith
- **Address:** 456 Market St, New York, NY, USA
- **Phone:** 555-5678
# North America Free Trade Agreement

## Certificate of Origin

<table>
<thead>
<tr>
<th>Description of Goods</th>
<th>HS Tariff Classification Number</th>
<th>Preference</th>
<th>Producer</th>
<th>Net Cost</th>
<th>Country of Origin</th>
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<tbody>
<tr>
<td>Steel Roofing Fasteners</td>
<td>7318.14.10.60</td>
<td>C</td>
<td>YES</td>
<td>NO</td>
<td>USA</td>
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<tr>
<td>Steel Rgf. Fasteners (non threaded)</td>
<td>7318.29.00.00</td>
<td>C</td>
<td>NO (3)</td>
<td>NO</td>
<td>USA</td>
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<tr>
<td>Steel Roofing Plates</td>
<td>7326.90.90.99</td>
<td>C</td>
<td>YES</td>
<td>NO</td>
<td>USA</td>
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<tr>
<td>Plastic Roofing Fasteners</td>
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<tr>
<td>Screw Guns</td>
<td>8467.29.90.40</td>
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<tr>
<td>Roofing Hand Tool</td>
<td>8205.59.90.80</td>
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<td>USA</td>
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<td>Induction Roofing Tool</td>
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<td>Roofing Tool Magnets</td>
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<tr>
<td>Drill Bits (driver)</td>
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<tr>
<td>Aluminum Rgf. Drains</td>
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<td>USA</td>
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<td>Aluminum Roof Vents</td>
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<td>Copper Rgf. Drains</td>
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<td>USA</td>
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<td>U Flow Drain Seals</td>
<td>4016.93.99.90</td>
<td>C</td>
<td>NO (3)</td>
<td>NO</td>
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<td>Rubber Pipe Supports</td>
<td>4016.99.90.90</td>
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<tr>
<td>Adhesive</td>
<td>3506.91.90.90</td>
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<td>Adhesive Applicators</td>
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<td>Adhesive Mix Tips</td>
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<tr>
<td>Aluminum Termination Bar</td>
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<td>Polymer Batten Strip</td>
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<td>NO (3)</td>
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<tr>
<td>Roof Repair Tape</td>
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<td>C</td>
<td>NO (3)</td>
<td>NO</td>
<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 or in connection with this document.

I agree to maintain and present upon request, documentation necessary to support this certificate and to inform, at 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 satisfy the origin requirements specified for those goods in the North American Free Trade Agreement, and unless specifically exempted in Article 411 of Annex 401, there has been.

This certificate consists of 1 page(s), including all attachments.

**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 N°: SIPZ-DRS-00221706-01-5100


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. #OTPC 18788
Roofing and Waterproofing Director (Quebec)
Appendix B

Temperature Register
<table>
<thead>
<tr>
<th>Date</th>
<th>Heure de lecture</th>
<th>Température ambiante (°C)</th>
<th>Conformité</th>
<th>Technicien</th>
<th>Commentaires</th>
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<tbody>
<tr>
<td>2014-10-06</td>
<td>7h 30</td>
<td>21.4</td>
<td>X</td>
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<tr>
<td>2014-10-07</td>
<td>7h</td>
<td>21.0</td>
<td>X</td>
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</tbody>
</table>

Remarque:

---

Tolérance: température : 23 ± 5 °C

Adresse du laboratoire: 2400 Canadien Drummondville

Thermomètre utilisé (lecture ambiante): BIOS B11Q68

N° projet: SIPZ-DRS-00221706-01-5100

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REV_2014-09-17