SIPZ-DRS-00221706-02-5100

Submitted on: January 9th, 2015

Siplast

1111 Highway 67 South
Arkadelphia, AR 71923

Dynamic Wind Load Testing in Accordance with CSA A123.21-14

Mod-bit Vapor Barrier welded System, Partially attached (PARS)

FINAL REPORT

Exp Services Inc.
2400 Canadien Street
Drummondville (Quebec) J2C 7W3
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Siplast

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Mod-bit Vapor Barrier welded System, Partially attached (PARS)

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Projetc number:
SIPZ-DRS-00221706-02-5100

Prepared by:

Exp Services Inc.
2400 Canadien Street
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Phone: 819-850-6247
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Prepared by:

Nicolas Courchesne,
Projects Manager – Roofing and Waterproofing

Validate by:

Michel Desgranges, T.P.
Roofing and Waterproofing Director, Quebec
OTPQ n^{o} 18788

Date:
January 9th, 2015

Legal Notification

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

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

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Distribution list

Report distributed to:

Client name	Client Coordinates
M. Todd Corley Product approval	tcorley@siplast.com

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).
- Thermal Barrier, Densdeck Prime Mechanically attached (8 screws and plates by panel)
- Vapor barrier, Paradiene 20 TG, Heat welded
- Insultion: Paratherm W Adhered, OlyBond 500, ribbons of 305 mm (12 in) o.c.
- 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
- Test date : October 15th 2014

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

Note:

- The roofing system as undergo a ripening time of ± 7 days.
- A temperatures registry and humidity is enclose at appendix 8.
- The systems lasted ± 4.5 hours.

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

As required by the CSA A123.21 standard, the published dynamic uplift resistance (DUR) must be reduced by a safety factor of 1.5. Therefore, the rating of the tested assembly is -1.8 kPa (-37 psf).

2. Testing Apparatus and Test Method

2.1 Test Method

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

2.2 Test Apparatus

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

(a) Inside the chamber, to provide reference pressure;

(b) On top of the membrane, to measure simulated pressure

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

3. Test specimen details

3.1 Installation and test

- Materials receiving : (see date, description, condition and identification on appendix 6)
- Installation date : 2014-10-07 & 2014-10--08
- 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: 2014-10-15.
- Tested by: Denis Isabelle.
- Curing temperature : 21 °C to 21.4 °C
- Testing temperature : 21.4 °C to 23.1 °C
- Elapsed time between installation and testing: ± 7 days.

3.2 Decking

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

3.3 Thermal Barrier

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

3.4 Thermal Barrier Attachment Details

- Product : Screw and Plates
- Attachment: Roofing Fastners and Base Plates
- Attached method : 8 screws and plates by panel (*see appendix 1*)
- Manufacturer: OMG

3.5 Vapor barrier

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

3.6 Thermal Insulation

- Product: Paratherm W
- Dimensions : 1220 mm x 1440 mm x 50.8 mm (4'x 8'x2'')
- Attached method : Adhered
- Manufacturer : Siplast

3.7 Insulation Attachment Details

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

3.8 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

3.9 Coverboard Attachment Details

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

3.10 Base sheet membrane:

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

3.11 Cap sheet membrane:

- Product: Membrane Paradiene 30 TG
- Dimenssions: 1 m x 10.21 m (3.2' x 33.5')
- Attached method: Heat welded
- Manufacturer: Siplast

4. Test Results

Testing and results are in accordance with CSA A123.21-10. Standard test method for dynamic wind uplift resistance of membrane-roofing systems, Method 2.

System's Description

- Steel deck (gage 22).
- Thermal Barrier, Densdeck Prime Mechanically attached (8 screws and plates by panel)
- Vapor barrier, Paradiene 20 TG, Heat welded
- Insultion: Paratherm W Adhered, OlyBond 500, ribbons of 305 mm (12 in) o.c.
- 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

4.1 Test pressure

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

As required by the CSA A123.21 standard, the published dynamic uplift resistance (DUR) must be reduced by a safety factor of 1.5. Therefore, the rating of the tested assembly is -1.8kPa (-37 psf).

4.2 Test failure:

- -2.7 kPa (-56 psf)
- Level: C
- Sequence: 7

4.3 Failure mode

- Rupture is cohesive; The Vapor Barrier was unweld on the Thermal Barrier and did not hold on to the maximum pressure.

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.

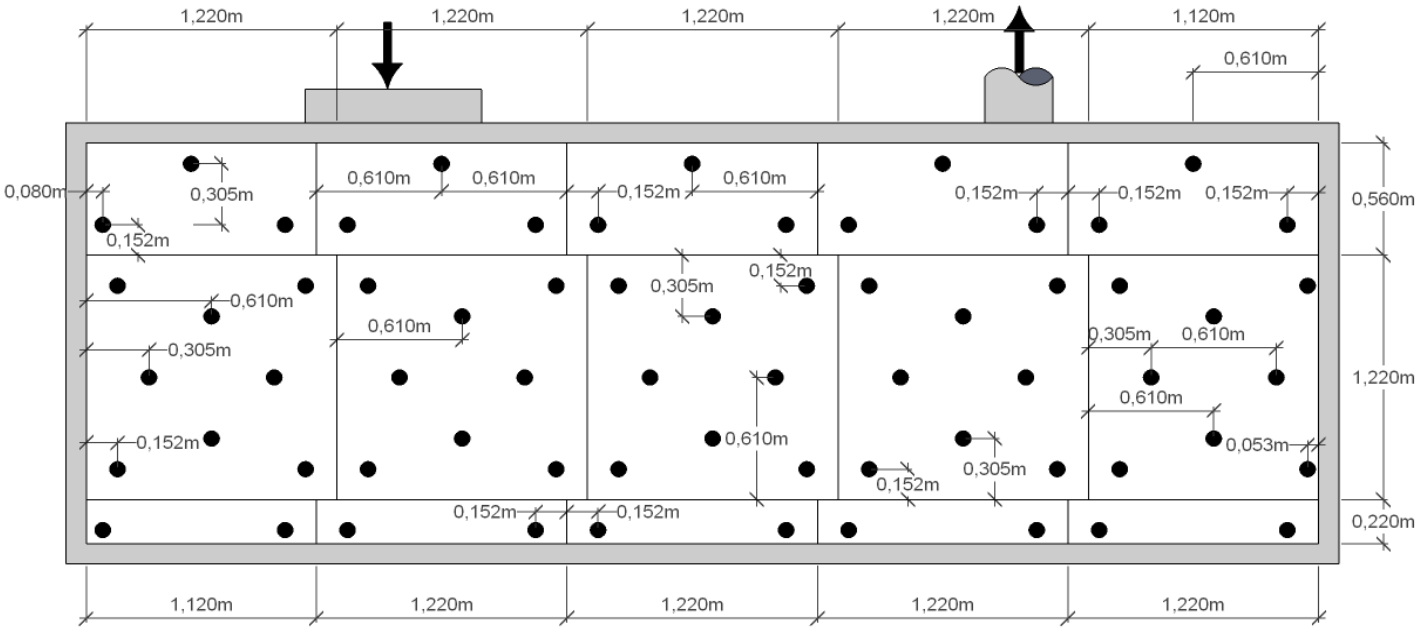
5.2 Description

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.

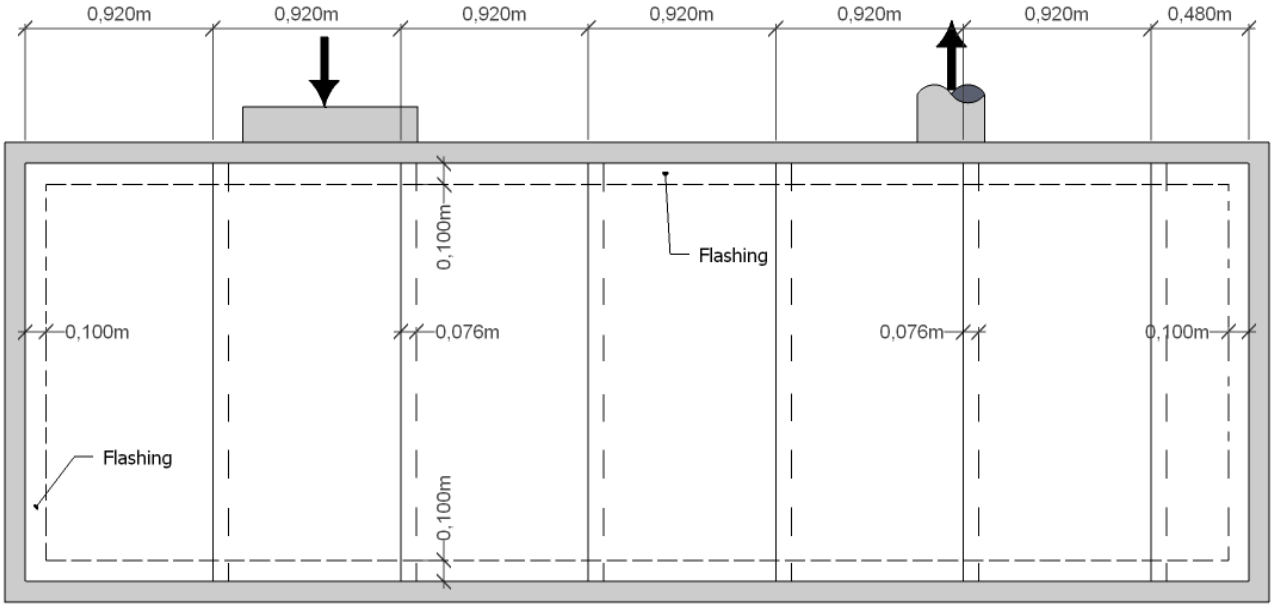
Optional components: Products which can be inserted in the assembly without adversely affecting wind uplift performance.

End of Report

Appendix 1
Drawings



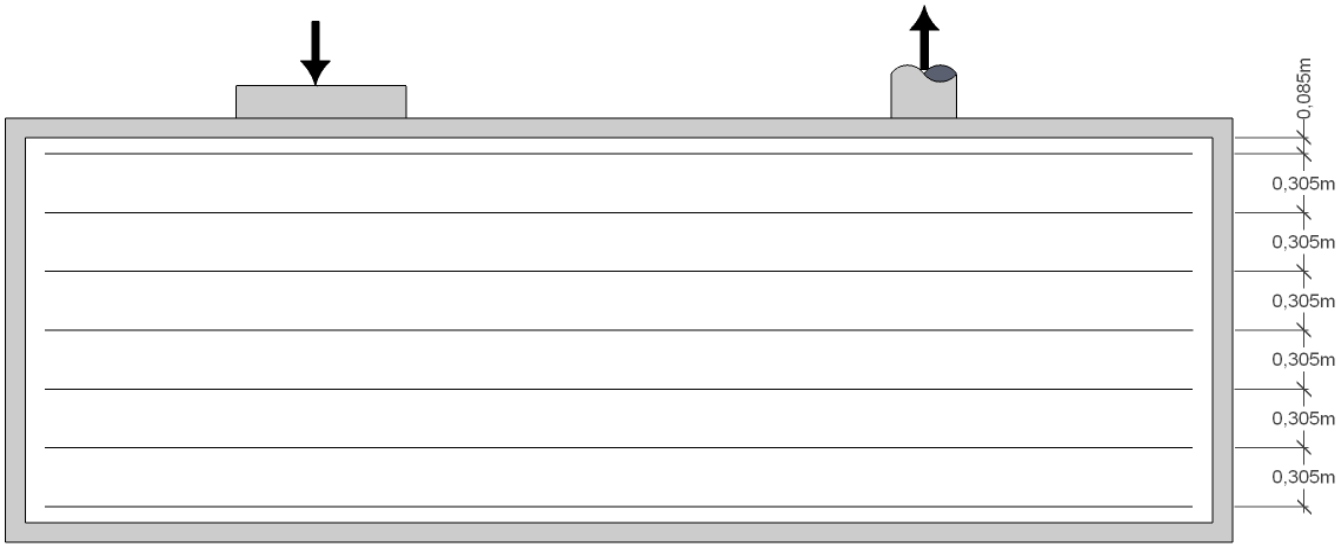
Thermal Barrier (DensDeck Prime) Layout



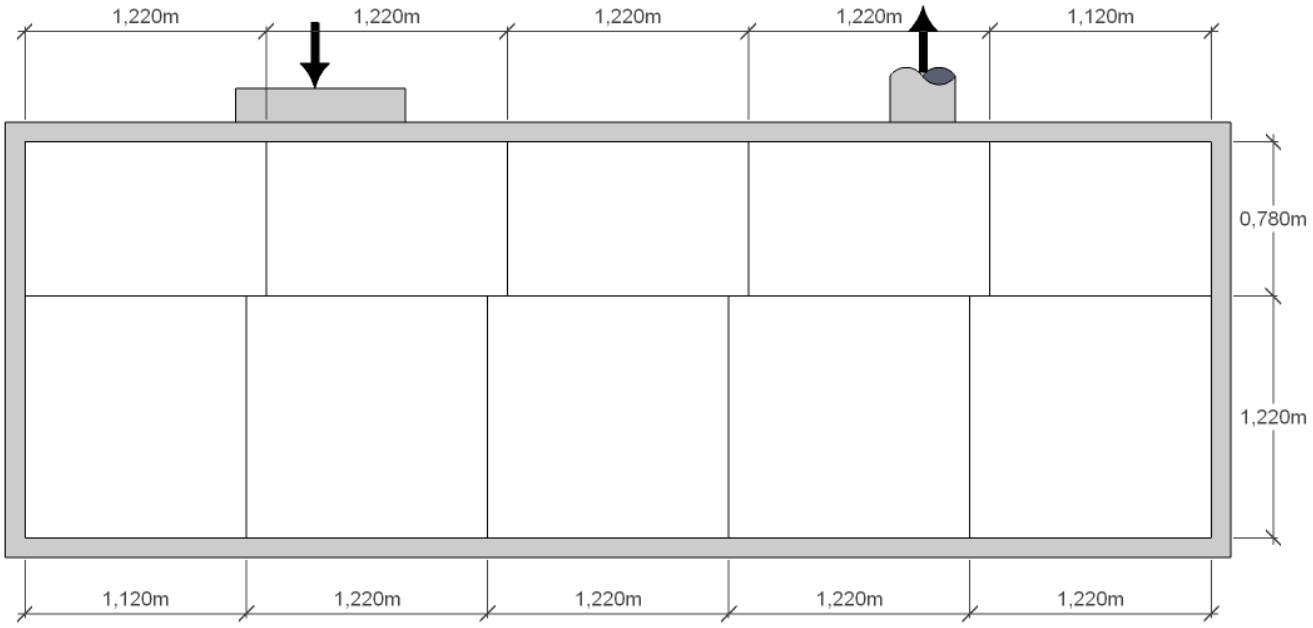
Vapor barrier (Paradiene 20 TG) Layout

2400, Canadien Street
Drummondville (Québec)
J2C 7W3
Phone: 819-850-6247
Fax: 819-478-8436

Project: Mod-bit Vapor Barrier welded System, Partially attached (PARS)		
Title: Thermal Barrier and Insulation Layout		
Drawn by: ISD	**Project No.:** DRS-00221706-02-5100	**Drawing No.:** L - 1
Date: October 8, 2014	**Scale:** NTS	



Insulation adhesive (Olybond 500) Layout



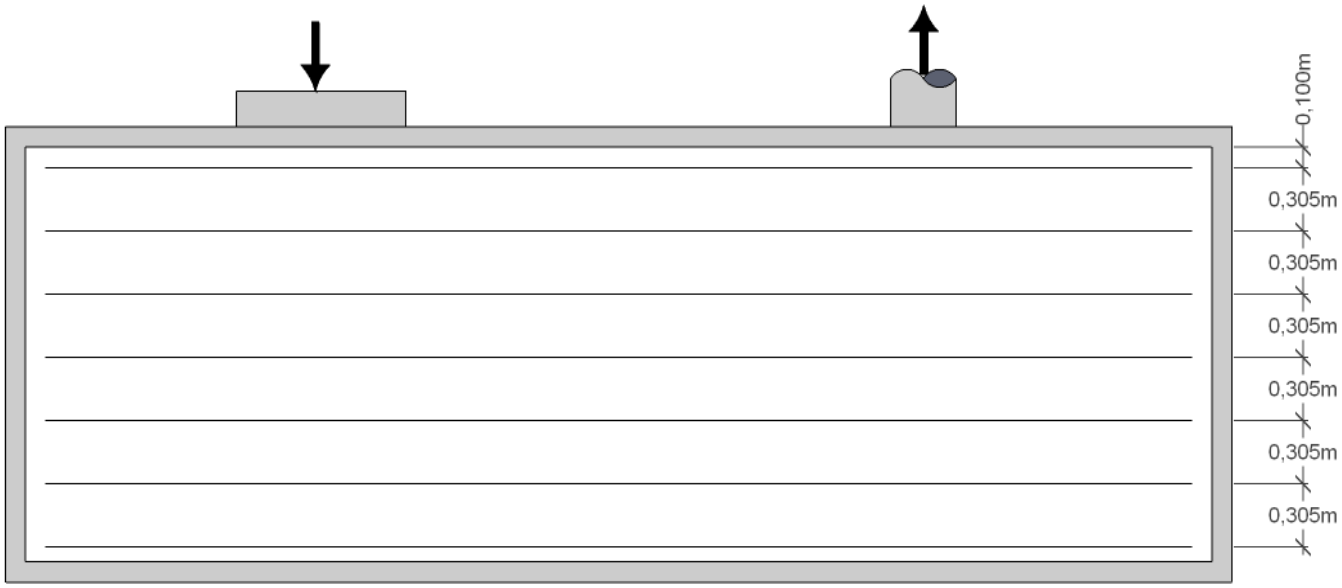
Insulation (Paratherm W) Layout

2400, Canadien Street
Drummondville (Québec)
J2C 7W3
Phone: 819-850-6247
Fax: 819-478-8436

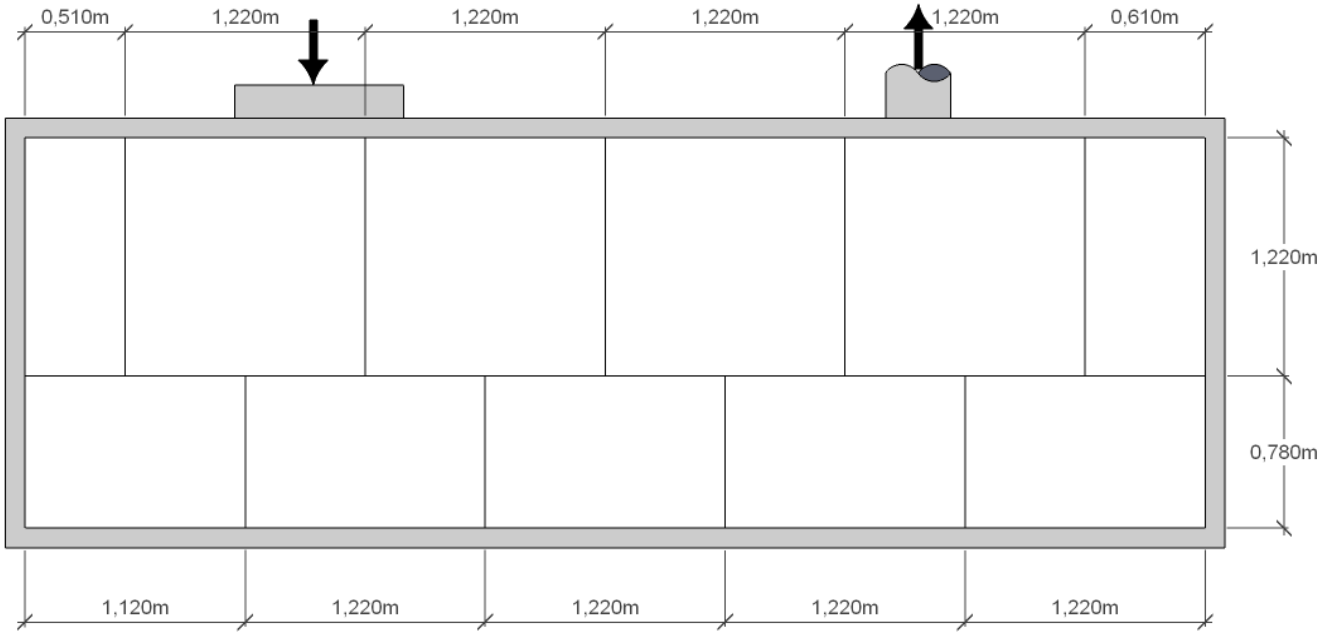
Project: Mod-bit Vapor Barrier welded System, Partially attached (PARS)

Title: Insulation adhesive and Insulation Layout

Drawn by:	Project No.:	Drawing No.:
ISD	DRS-00221706-02-5100	L - 2
Date: October 8, 2014	**Scale:** NTS	



Recovery board adhesive (Olybond 500) Layout



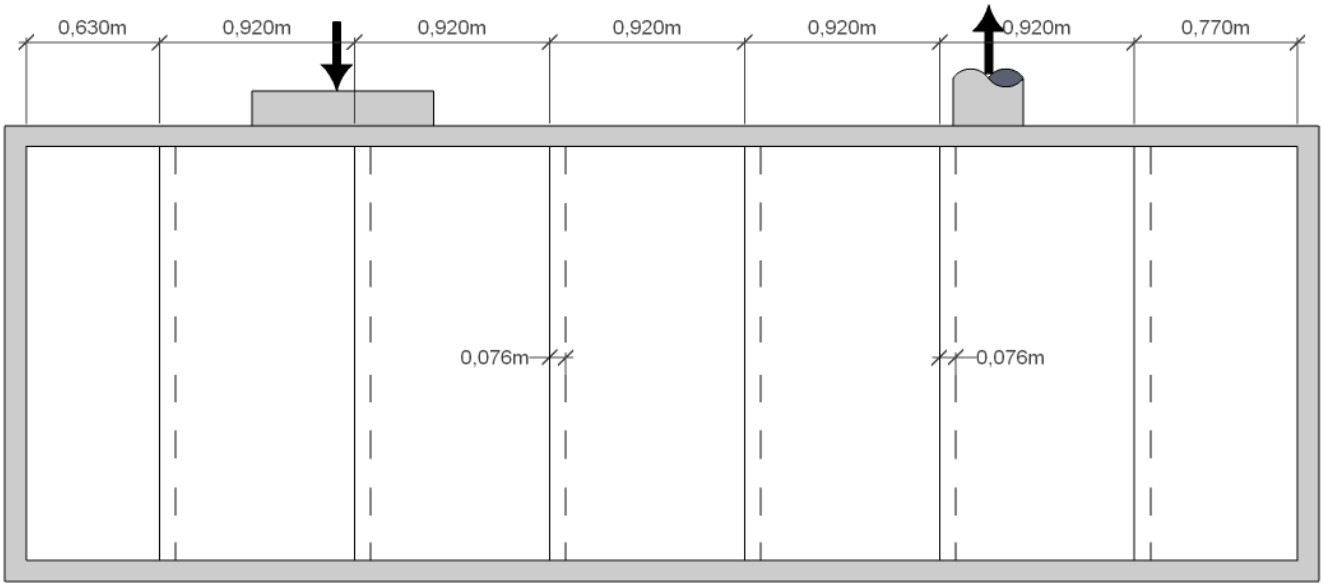
Recovery board (DensDeck Prime) Layout

2400, Canadien Street
Drummondville (Québec)
J2C 7W3
Phone: 819-850-6247
Fax: 819-478-8436

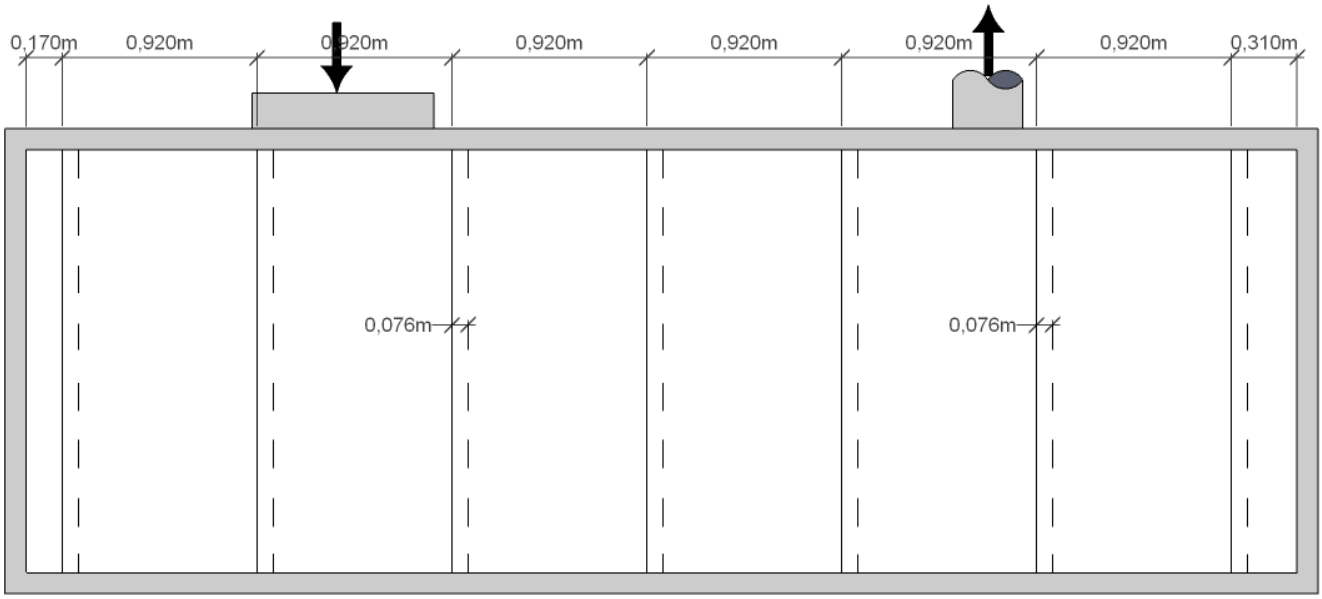
Project:
Mod-bit Vapor Barrier welded System, Partially attached (PARS)

Title:
Recovery board adhesive and Recovery board Layout

Drawn by:	Project No.:	Drawing No.:
ISD	DRS-00221706-02-5100	L - 3
Date: October 8, 2014	**Scale:** NTS	



Base sheet (Paradiene 20 TG) Layout



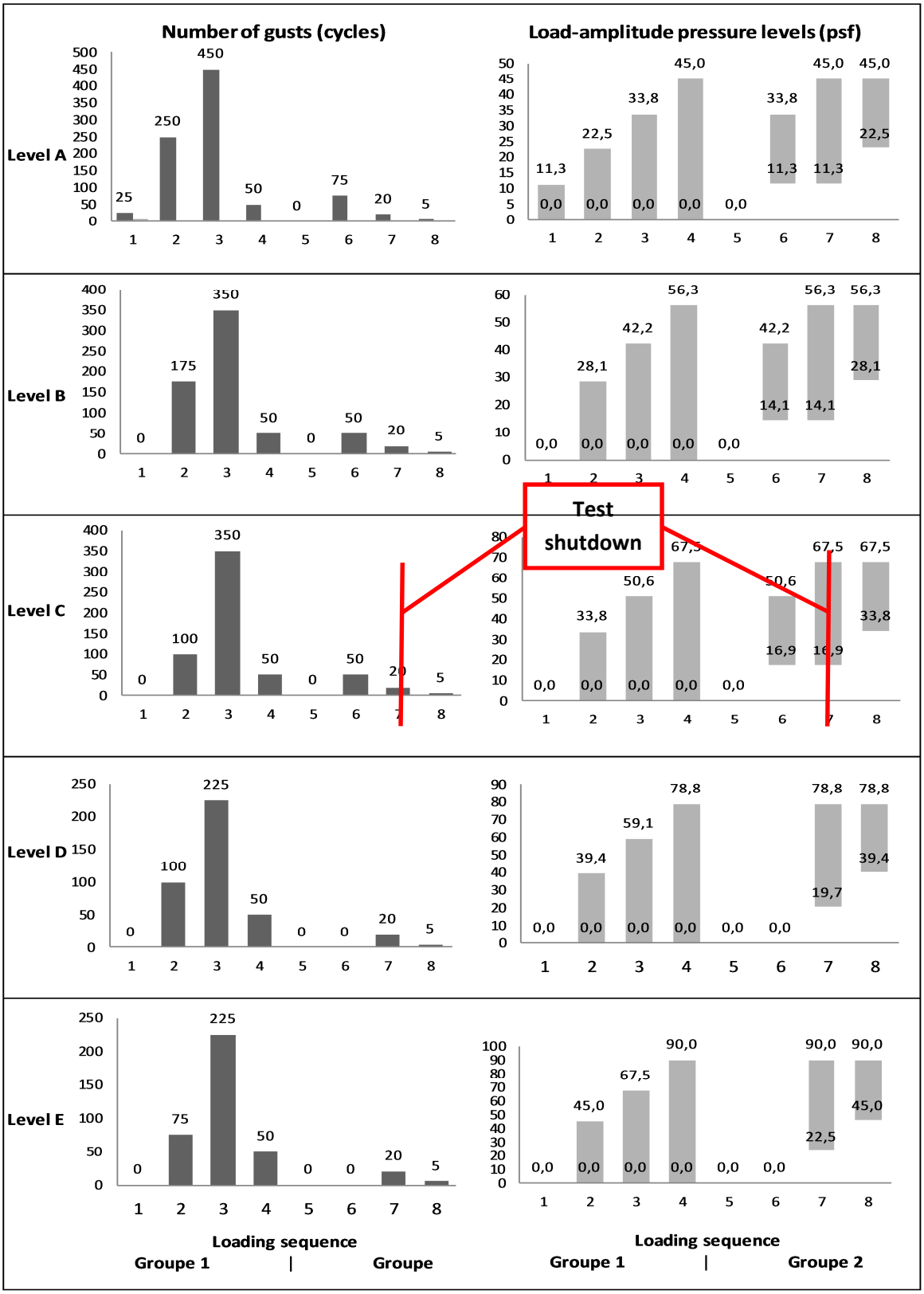
Cap sheet (Paradiene 30 TG) Layout

2400, Canadien Street
Drummondville (Québec)
J2C 7W3
Phone: 819-850-6247
Fax: 819-478-8436

Project: Mod-bit Vapor Barrier welded System, Partially attached (PARS)		
Title: Base sheet and Cap sheet Layout		
Drawn by: ISD	**Project No.:** DRS-00221706-02-5100	**Drawing No.:** L - 4
Date: October 8, 2014	**Scale:** NTS	

Appendix 2
Gust and Load Amplitude Pressure Table And Fastener Pullout test

Gusts and load Amplitude Pressure Table



Appendix 3
Photographic report

Photographic Report

Client : Siplast	**Date** : 08 (DD) - 10 (MM) - 2014 (YYYY)
Project : Mod-bit Vapor Barrier welded System, Partially attached (PARS)	**Project nº** : SPIZ-DRS-00221706-02-5100

Photo n° : 1

Description :

Steel deck before the installation of the roof system

Photo n° : 2

Description :

Installation of the Thermal Barrier

Photographic Report

Client : Siplast	**Date** : 08 (DD) - 10 (MM) - 2014 (YYYY)
Project : Mod-bit Vapor Barrier welded System, Partially attached (PARS)	**Project nº** : SPIZ-DRS-00221706-02-5100

Photo n° : 3

Description :

View of the fastners paturn

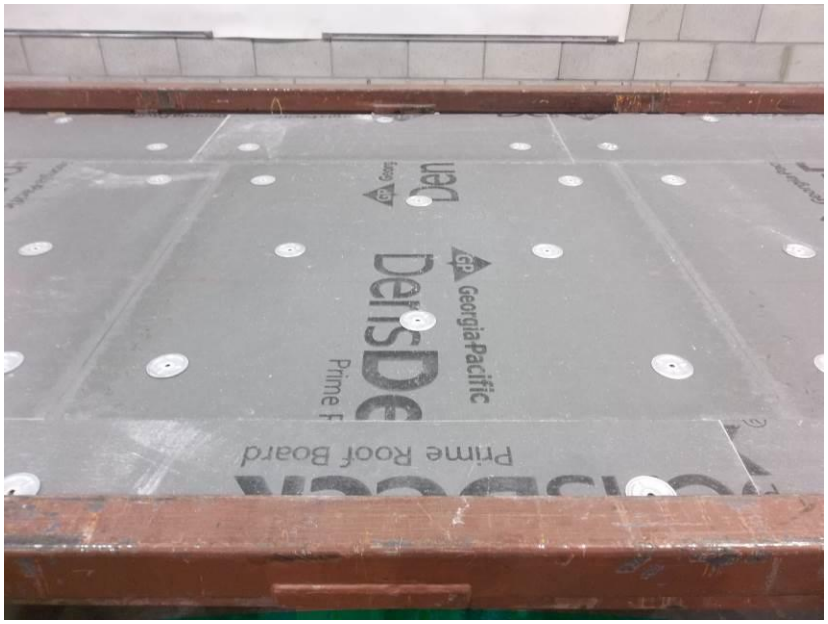


Photo n° : 4

Description :

View of the Thermal Barrier before the installation of the Vapor Barrier

Photographic Report

Client : Siplast	**Date** : 08 (DD) - 10 (MM) - 2014 (YYYY)
Project : Mod-bit Vapor Barrier welded System, Partially attached (PARS)	**Project nº** : SPIZ-DRS-00221706-02-5100

Photo n° : 5

Description :

Installation of the Vapor Barrier, the membrane is welded on the Thermal Barrier

Photo n° : 6

Description :

View of the Vapor Barrier before the installation of the Insulation

Photographic Report

Client : Siplast	**Date** : 08 (DD) - 10 (MM) - 2014 (YYYY)
Project : Mod-bit Vapor Barrier welded System, Partially attached (PARS)	**Project nº** : SPIZ-DRS-00221706-02-5100

Photo n° : 7

Description :

Installation of the Insulation with the adhesif pattern

Photo n° : 8

Description :

View of the Insulation before the installation of the Coverboard

Photographic Report

Client : Siplast	**Date** : 08 (DD) - 10 (MM) - 2014 (YYYY)
Project : Mod-bit Vapor Barrier welded System, Partially attached (PARS)	**Project nº** : SPIZ-DRS-00221706-02-5100

Photo n° : 9

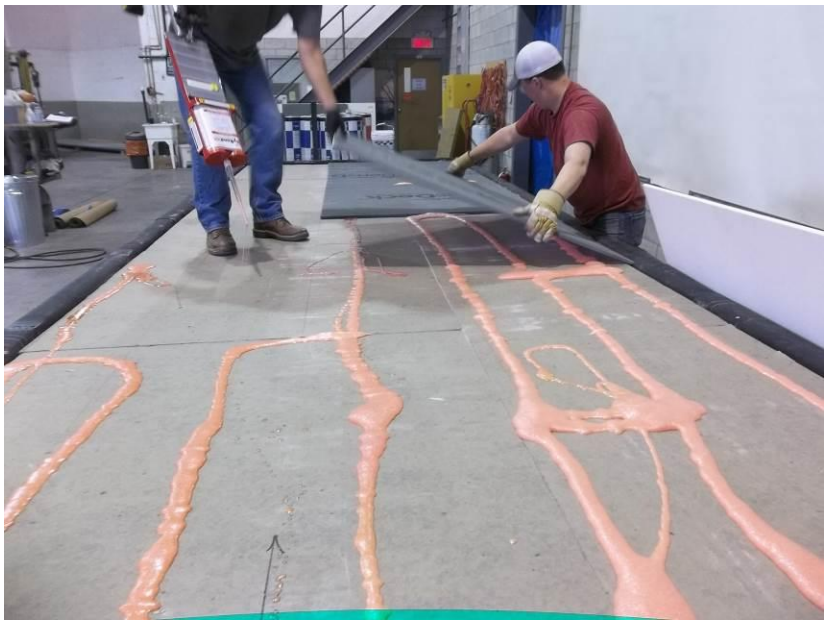
Description :

View of the adhesive pattern for the Coverboard

Photo n° : 10

Description :

Installation of the Coverboard



Photographic Report

Client : Siplast	**Date** : 08 (DD) - 10 (MM) - 2014 (YYYY)
Project : Mod-bit Vapor Barrier welded System, Partially attached (PARS)	**Project nº** : SPIZ-DRS-00221706-02-5100

Photo n° : 11

Description :

View of the installation of the Coverboard

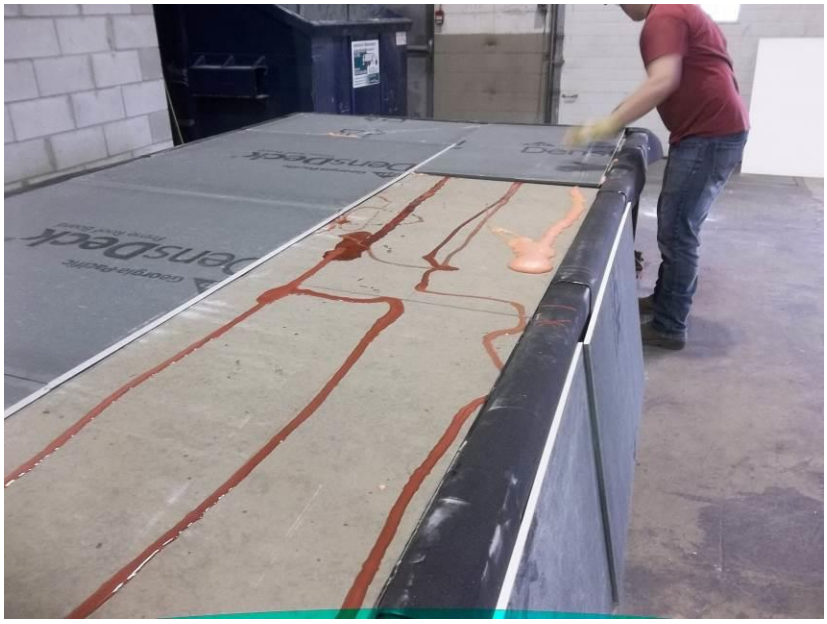


Photo n° : 12

Description :

View of the Coverboard before the installation of the Base sheet membrane

Photographic Report

Client : Siplast	**Date** : 08 (DD) - 10 (MM) - 2014 (YYYY)
Project : Mod-bit Vapor Barrier welded System, Partially attached (PARS)	**Project nº** : SPIZ-DRS-00221706-02-5100

Photo n° : 13

Description :

View of the installation of the Bas sheet membrane, welded on the Coverboard

Photo n° : 14

Description :

View of the Base sheet membrane before the installation of the Cap sheet membrane

Photographic Report

Client : Siplast	**Date** : 08 (DD) - 10 (MM) - 2014 (YYYY)
Project : Mod-bit Vapor Barrier welded System, Partially attached (PARS)	**Project nº** : SPIZ-DRS-00221706-02-5100

Photo n° : 15

Description :

Installation of the Cap sheet membrane welded on the Base sheet membrane

Photo n° : 16

Description :

View of the roof system to be tested

Photographic Report

Client : Siplast	**Date** : 08 (DD) - 10 (MM) - 2014 (YYYY)
Project : Mod-bit Vapor Barrier welded System, Partially attached (PARS)	**Project nº** : SPIZ-DRS-00221706-02-5100

Photo n° : 17

Description :

View of the roof system before the test

Photo n° : 18

Description :

Test progression

Sequence : A-2-8
Gust : 1/5

Photographic Report

Client : Siplast	**Date** : 08 (DD) - 10 (MM) - 2014 (YYYY)
Project : Mod-bit Vapor Barrier welded System, Partially attached (PARS)	**Project nº** : SPIZ-DRS-00221706-02-5100

Photo n° : 19

Description :

Test progression

Sequence : B-1-2
Gust : 45/175

Photo n° : 20

Description :

Test progression

Sequence : C-1-3
Gust : 100/350

Photographic Report

Client : Siplast	**Date** : 08 (DD) - 10 (MM) - 2014 (YYYY)
Project : Mod-bit Vapor Barrier welded System, Partially attached (PARS)	**Project nº** : SPIZ-DRS-00221706-02-5100

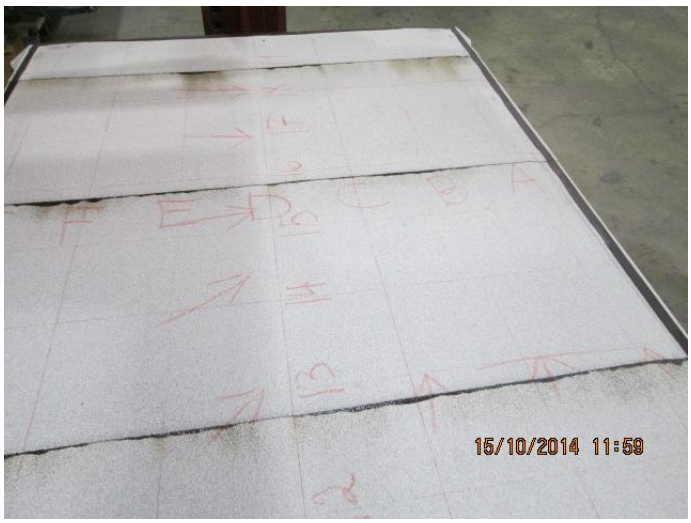
Photo n° : 21

Description :

Test progression

Sequence : C-1-4
Gust : 20/50

Photo n° : 22



Description :

Rupture area

Photographic Report

Client : Siplast	**Date** : 08 (DD) - 10 (MM) - 2014 (YYYY)
Project : Mod-bit Vapor Barrier welded System, Partially attached (PARS)	**Project nº** : SPIZ-DRS-00221706-02-5100

Photo n° : 23

Description :

View of the rupture

Photo n° : 24

Description :

View of the membrane unwelded

Appendix 4
Technical Data and MSDS

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: Base Plates
Generic Name: Metal Base Plate
Chemical Name: Aluminum/Zinc Alloy Coated Steel
CAS#: Mixture/None Assigned
Formula: Article
Hazard Label: Not Required

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

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

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

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

HOT-DIPPED METALLIC COATING			
Zinc (Zn)	7440-66-6	8.0 max	Zn Oxide Dust - 15 mg/M3
Aluminum (Al)	7429-50-2	0.1 max	Al Dust – 15mg/M3
Silicon (Si)	7440-21-3	0.4 max	Si Dust – 15mg/M3
Chromium compounds (Cr)		<0.01 max	Cr(III) - 1.0 mg/M3 Cr(VI) < 0.1 mg/M3

SECTION 3: HAZARD IDENTIFICATION

Potential Health Effects

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

The metal plates may have sharp edges.

SECTION 4: FIRST AID MEASURES

Seek medical attention immediately if necessary.

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

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

SECTION 5: FIRE AND EXPLOSION DATA

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

SECTION 6: SPILL/RELEASE MEASURES

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

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

SECTION 7: HANDLING AND STORAGE

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

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

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

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

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

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

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Melting Point: 1370 -1482 ℃
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):

HMIS RATING	
Health	1
Flammability	0
Reactivity	0
Personal Protective Equipment	B

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.

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Georgia-Pacific

DensDeck®

Prime Roof Board

Technical Service Hotline 1.800.225.6119 or

www.densdeck.com

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

Description

DensDeck® Prime Roof Board has been enhanced to provide a broader compatibility and higher performance with roofing adhesives. Face mat enhancements allow adhesives to be applied more uniformly and consistently. In adhered, single ply membrane 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 field primer. Consult with membrane manufacturer for actual priming requirements.

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

Primary Uses

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

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

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

Standards and Code Approvals

DensDeck Prime Roof Boards are manufactured to meet ASTM C1177 and have the following approvals:

- Florida Product Approved
- Miami-Dade County Product Control Approved

Recommendations and Limitations

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

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

* Testing was done in accordance with FM approvals 4470, Appendix C: Small Scale Tests, Membrane Delamination 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.)

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

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

When using DensDeck Prime Roof Boards for hot-mopped applications, Georgia-Pacific recommends maximum asphalt application temperatures for Type III asphalt of 425°F (218°C) to 450°F (232°C). Application temperatures above these recommended temperatures may adversely affect roof system performance. For application temperatures in excess of 450°F (232°C) and for mopping of type IV asphalt, ribbon or spot mopping or the installation of a perforated base sheet are recommended methods of bonding asphalt in lieu of full mopping. Consult and follow the roofing system manufacturer's specifications for full mopping applications and temperature requirements.

When using DensDeck Prime Roof Board as a substrate for torch applications, ensure that the product is dry and that the proper torching technique is used. Limit the heat to the DensDeck Prime Roof Board. Maintain a majority of the torch flame directly on the roll.

Conditions beyond the control of Georgia-Pacific, such as weather conditions, dew, leaks, application temperatures and techniques may cause adverse effects with roofing systems.

Handling and Use–CAUTION

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

Moisture Management

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

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

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

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

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

continued

Submittal Approvals

Job Name _____

Contractor _____

Date _____

Stamps / Signatures

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

Fire Resistance Classifications

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

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

UL 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.

FM Class 1 Approvals. DensDeck Prime Roof Boards are included in numerous roofing assemblies with a Factory Mutual (FM) Class 1 fire rating. 1/4″ (6.4 mm) DensDeck Prime Roof Boards have passed testing under the FM Calorimeter Standard 4450 and have been approved by FM as such for insulated steel deck roofs when installed according to the conditions identified by FM. For more information concerning FM Approvals and FM Class 1 assemblies with DensDeck Prime Roof Boards, consult FM or RoofNav®.

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

UL Fire Resistance Ratings. 5/8″ (15.9 mm) DensDeck Prime Fireguard Roof Boards are designated as **Type DD** by UL and included in assembly designs investigated by UL for hourly fire resistance ratings. 5/8″ (15.9 mm) DensDeck Prime Fireguard Roof Boards may also replace any unclassified 5/8″ (15.9 mm) gypsum board in an assembly in the UL Fire Resistance Directory under the prefix "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.

Physical Properties

Properties	1/4″ (6.4 mm)	1/2″ (12.7mm)	5/8″ (15.9 mm)
Thickness, nominal	1/4″ (6.4 mm) ± 1/16″ (1.6 mm)	1/2″ (12.7 mm) ± 1/32″ (.8 mm)	5/8″ (15.9 mm) ± 1/32″ (.8 mm)
Width, standard	4′ (1219 mm) ± 1/8″ (3 mm)	4′ (1219 mm) ± 1/8″ (3 mm)	4′ (1219 mm) ± 1/8″ (3 mm)
Length, standard	4′ (1219 mm) and 8′ (2438 mm) ± 1/4″ (6.4 mm)	4′ (1219 mm) and 8′ (2438 mm) ± 1/4″ (6.4 mm)	4′ (1219 mm) and 8′ (2438 mm) ± 1/4″ (6.4 mm)
Weight, nominal, lbs./sq. ft. (Kg/m^2)	1.2 (5.9)	2.0 (9.8)	2.5 (12.2)
Surfacing	Fiberglass mat with non-asphaltic coating	Fiberglass mat with non-asphaltic coating	Fiberglass mat with non-asphaltic coating
Flexural Strength[1], parallel, lbf. min. (N)	≥40 (178)	≥80 (356)	≥100 (444)
Flute Spanability[2]	2-5/8″ (66.7 mm)	5″ (127 mm)	8″ (203 mm)
Permeance[3], Perms (ng/Pa•S•m^2)	>30 (>1710)	>23 (>1300)	>17 (>970)
R Value[4], ft^2•°F•hr/BTU (m^2•K/W)	.28	.56	.67
Linear Variation with Change in Temp., in/in °F (mm/mm/C°)	8.5 x 10^{-6} (15.3 x 10^{-6})	8.5 x 10^{-6} (15.3 x 10^{-6})	8.5 x 10^{-6} (15.3 x 10^{-6})
Linear Variation with Change in Moisture	6.25 x 10^{-6}	6.25 x 10^{-6}	6.25 x 10^{-6}
Water Absorption[5], % max	<10	<10	<10
Compressive Strength[6], psi nominal	900	900	900
Surface Water Absorption, grams, nominal	<2.0	<2.0	<2.0
Flame Spread, Smoke Developed (ASTM E84)	0/0	0/0	0/0
Bending Radius	4′ (1219 mm)	6′ (1829 mm)	8′ (2438 mm)

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 C1177.
6. Tested in accordance with ASTM C473.

Georgia-Pacific Gypsum

U.S.A. Georgia-Pacific Gypsum LLC
Georgia-Pacific Gypsum II LLC
Canada Georgia-Pacific Canada LP

SALES INFORMATION AND ORDER PLACEMENT

U.S.A. West: **1-800-824-7503**
Midwest: **1-800-876-4746**
South Central: **1-800-231-6060**
Southeast: **1-800-327-2344**
Northeast: **1-800-947-4497**

CANADA Canada Toll Free: **1-800-387-6823**
Quebec Toll Free: **1-800-361-0486**

TECHNICAL INFORMATION

U.S.A. and Canada: **1-800-225-6119,** www.gpgypsum.com

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

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

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

FIRE SAFETY CAUTION Passing a fire test in a controlled laboratory setting and/or certifying or labeling a product as having a one-hour, two-hour, or any other fire resistance or protection rating and, therefore, as acceptable for use in certain fire rated assemblies/systems, does not mean that either a particular assembly/system incorporating the product, or any given piece of the product itself, will necessarily 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.

PRODUCT DATA SPECIFICATIONS

JUNE 2013

OMG 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 ¾- to 1-inch bands that spread to several inches while rising ¾- to 1-inch above the substrate. Place the board stock into the adhesive and walk into place. A chemical cure takes place securing the board in approximately 4 to 8 minutes after application, depending on temperature and weather conditions.

1.02 TYPICAL PHYSICAL PROPERTIES

PHYSICAL PROPERTY	TEST METHOD	TYPICAL VALUES
Density	ASTM D-1622	3.2 lb./cf
Compressive Strength	ASTM D-1621	38 psi @ 6% deflection
Tensile Strength	ASTM D-1623	35 psi
Water Absorption	ASTM D-2842	5.1%
Closed Cell Content	ASTM D-6226	90% min.
R-Value	ASTM C-518	3.8/inch (new)
VOC Content	ASTM D-2369	5 g/L
Weight/Gallon	Part 1 Component Part 2 Component	10.32 lbs. 8.54 lbs.

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 on the OlyBond500 Request for Warranty form and approved in writing by an authorized representative of OMG, Inc.

1.05 SUBMITTALS

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

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

1.06 JOB CONDITIONS

1. Insure that you have the correct OlyBond500 formulation for the surface and ambient temperature.
   - Bag-in-Box: Regular (40°F +)
   - SpotShot: Regular (40°F +) or Winter (0°F–65°F)
2. On retrofit-recover projects, the existing roofing material must be investigated to insure adequate attachment of existing system. All wet material must be identified and removed prior to the application of the OlyBond500 adhesive.

3. Existing Phenolic Insulation must be removed.
4. Coordination between trades is essential to avoid unnecessary rooftop traffic.

1.07 STORAGE AND HANDLING

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

1.08 APPROVALS

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

1.09 FIRST AID

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

1.10 DISPOSAL

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

1.11 WARRANTY

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

Part 2 Product

2.01 COMPOSITION AND MATERIALS

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

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

2.02 COMPATIBILITY

1. **Roof Decks and Substrates:**
   - Structural concrete
   - Gypsum
   - Cementitious wood fiber plank
   - Lightweight insulating concrete
   - Steel (22 gauge or thicker with approved cross section)
   - Plywood (⅝-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 ⅝-inch plywood.

3.02 SURFACE PREPARATION

1. **General.** All surfaces must be dry and free of any debris, dirt, oil or grease before applying OlyBond500.
2. **Specific Conditions**

   a. Steel. The bonding surface of steel decks must be dry and free of debris, dirt, grease and oil. On new steel, the shop coating/mill oil must be removed. The bonding surface must be free of any cleaner before applying OlyBond500.

   b. Existing Smooth Asphaltic Surfaces. The surface must be dry and free of debris, dirt, grease and oil.

   c. Existing Polyurethane Foam. The surface of the polyurethane roof, including the coating, should be removed with a scarifier (minimum ½ inch). The bonding surface should be blown clean before applying OlyBond500.

   d. Metal. OlyBond500 has excellent adhesion to clean metal. It is recommended that all non-ferrous metals (aluminum, copper, stainless, etc.) be primed to further increase adhesion. Accepted primers include epoxy, chlorinated rubber, and wash primer.

   e. Concrete. All concrete surfaces must be fully cured prior to applying OlyBond500.

   f. Other. For other substrates not listed, contact OMG at 800·633·3800.

3.03 INSULATION

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

3.04 PRODUCT INSTALLATION

1. **Using PaceCart 2**

   a. Install Part 1 and Part 2 components following instruction on Bag-in-Box package.

   b. Open flow valves on the dispenser completely and turn machine on. This allows adhesive to be pumped at a 1:1 ratio through the disposable mix tip and onto the substrate in a semi-liquid state.

   c. Apply fluid mixture in ¾ to 1 inch wide wet beads spaced maximum of 12 inches on center that spreads in excess of 2 inches wide while rising ¾ to 1 inch.

   d. Lay insulation board into place and walk-in to assure complete adhesion. Curing typically occurs in 4 to 8 minutes depending on temperature and weather conditions.

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

2. **Using SpotShot Applicator**

   a. Attach the disposable mix tip to the top of the SpotShot tube. Insert the tube into SpotShot dispensing tool and dispense onto the substrate. Apply fluid mixture in rows spaced maximum of 12 inches on center that spread to several inches wide while rising ¾ to 1 inch.

b. Lay insulation board into place and walk-in to assure complete adhesion. Curing typically occurs in 4 to 8 minutes depending on temperature and weather conditions.

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

3.05 TYPICAL APPLICATION RATES

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

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

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

3.06 REACTION TIME

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

TYPICAL REACTION TIME CHARACTERISTICS

A. 5 Gallon Bag-in-Box Packaging

TEMPERATURE	PART 2 FORMULA	TACK FREE TIME (minutes)	SET UP TIME (minutes)
40°F +	R	3–5	10–12

B. 1500 ml SpotShot Cartridges

TEMPERATURE	PART 2 FORMULA	TACK FREE TIME (minutes)	SET UP TIME (minutes)
0°F–65°F	W	3–4	10–12
40°F +	R	3–5	10–12

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

3.07 AVAILABILITY AND COST

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

3.08 PRECAUTIONS

1. **IN CASE OF FIRE:** Use water spray, foam or CO_2. Firefighters should be equipped with self-contained breathing apparatus and turnout gear for protection against PMDI vapors and toxic decomposition products. Avoid water contamination in closed container or confined areas.
2. **DO NOT LEAVE ADHESIVE EXPOSED OR UNPROTECTED.** Polyurethane foam or isocyanurate foam products may present a serious fire hazard if exposed or unprotected. Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any of these materials should carefully determine whether there is a potential fire hazard associated with such product in a specific usage and utilize all appropriate precautionary and safety measures as outline in local, state and federal regulations. When not in use keep stored containers closed.

FM APPROVED · MIAMI-DADE COUNTY APPROVED · Florida Building Code · CLASSIFIED UL US

PATENT NOTICE

The OMG PaceCart® dispensing cart and the Bag-in-Box OlyBond500® Part 1/Part 2 adhesive system, including the adhesive dispensing method, are covered by one or more of U.S. Patent Nos. 6,220,526; 8,113,385; 8,132,693; 8,167,170 and 8,474,658.

PARADIENE 20 TG

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 $_{c}UL_{us}$ 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

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

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

Siplast 1000 E. Rochelle Blvd. • Irving, Texas 75062-3940 • 469-995-2200 • www.siplast.com
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Customer Service in North America: Toll Free 1-800-922-8800

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PARADIENE 20 TG

Physical and Mechanical Properties

Property (as Manufactured)	Values/Units	Test Method
Thickness (minimum)	110 mils (2.8 mm)	ASTM D 5147 section 6
Thickness (average)	114 mils (2.9 mm)	ASTM D 5147 section 6
[1]Peak Load @ 73°F (average)	30 lbf/inch (5.3 kN/m)	ASTM D 5147 section 7
[1]Peak Load @ 0°F (average)	75 lbf/inch (13.2 kN/m)	ASTM D 5147 section 7
[1]Elongation @ Peak Load, 73°F (average)	3%	ASTM D 5147 section 7
[1]Elongation @ Peak Load, 0°F (average)	3%	ASTM D 5147 section 7
[1]Ultimate Elongation @ 73°F (average)	50%	ASTM D 5147 section 7
[1]Tear Strength (average)	40 lbf (0.18 kN)	ASTM D 5147 section 8
Water Absorption (maximum)	1%	ASTM D 5147 section 10
Dimensional Stability (maximum)	0.1%	ASTM D 5147 section 11
Low Temperature Flexibility (maximum)	-15°F (-26°C)	ASTM D 5147 section 12
Compound Stability (minimum)	250°F (121°C)	ASTM D 5147 section 16
Coating Thickness - Back Surface	≥ 40 mils (1 mm)	ASTM D 5147 section 17
Cyclic Fatigue	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.	

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

PARADIENE 30 TG

Commercial Product Data Sheet

Product Description

Paradiene 30 TG is a high performance, torch grade modified bitumen finish ply designed for use in homogeneous multi-layer modified bitumen roof membrane systems. Paradiene 30 TG consists of a lightweight random fibrous glass mat impregnated and coated with high quality styrene-butadiene-styrene (SBS) modified bitumen, and surfaced with ceramic granules. The back surface is coated with a high performance modified asphalt adhesive layer specifically formulated for torch applications. The adhesive layer is manufactured using a special process that embosses the surface with a grooved pattern to provide optimum burnoff of the plastic film and maximize application rates.

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

Product Uses

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

Product Approvals

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

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

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

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

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

COMMERCIAL PRODUCT INFORMATION

Unit:	Roll		
Coverage:	0.75 Square		(7.0 m²)
Coverage Weight Per Square:	Min:	112 lb	(5.4 kg/m²)
Roll Length:	Min:	25.25 ft	(7.70 m)
Roll Width:	Avg:	3.28 ft	(1.00 m)
Thickness:	Avg:	138 mils	(3.5 mm)
Thickness at Selvage:	Avg:	118 mils	(3.0 mm)
	Min:	114 mils	(2.9 mm)
Selvage Width:	Avg:	2.75 in	(70 mm)

Selvage Surfacing: Burn-off Polyolefin Film

Top Surfacing: No. 11 ceramic granules, standard color finishes are #93 Bone White and #65 Cinnamon Brown. Contact Siplast for other available colors.

Back Surfacing: Polyolefin Film

Lines: A laying line is placed 3 in (7.6 cm) from selvage edge of the material. The line color for this material is blue.

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

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: 84 lb (38.1 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.

Rev 7/2014

PARADIENE 30 TG

Physical and Mechanical Properties

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

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

MATERIAL SAFETY DATA SHEET

HMIS
H = 1
F = 1
R = 0
PPE = See Section 8

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**
Trade Name: **Paradiene, Paradiene F, Paradiene FR, Paradiene FR TG, Paradiene CR FR, Paradiene CR FR TG, Paradiene HT, Paradiene HT TG, Paradiene HT TG F, Paradiene EG, Paradiene EG SA, Paradiene EG TG, Paradiene TG, Paradiene TG F, Paradiene HT FR, Paradiene HT FR TG, Paradiene TS, Paradiene TS F, Paradiene HV, Paradiene HV TG, Paradiene PR, Paradiene PR TG, Paradiene TS SA F, Paradiene HT SA, Paradiene SA, Paradiene SA F, Paradiene TS SA, Paradiene P, Paradiene TG P, Paradiene SA P, Paradiene TS P, Paradiene TS SA P, Paradiene MW FR, Paradiene MW CR FR, Paradiene MW CR FR TG, Paradiene HT CR FR, Paradiene HT CR FR TG, Paradiene FR BW, Paradiene FR TG BW, Parafor, Parafor LT, Parafor TG, Veral, Parabase Plus, Parabase Plus P, Paratread, Teranap 1M, and Teranap GS**

Section II - Ingredients

Ingredient	IRAC	Percent	ACGIH TLV (mg/m^3)	OSHA PEL (mg/m^3)
Asphalt	NO	13.6-48.3	0.5	5
Filler	NO	16-29.7	15	10
SBS Polymer	NO	Proprietary	N/A*	N/A*
Reinforcement	NO	1.6-6.0	N/A*	N/A*
Surfacing	NO	0-30	10	3.3
Parting Agent	NO	5-42.5	0.1	10

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 CO_2
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: H_2S released when heated. CO may be formed with incomplete combustion. Amount of H_2S released is negligible.
Hazardous Polymerization:
May occur ____ Will not occur __X__

Section VII - Spill or Leak Procedures

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

Section VIII - Special Protection Information

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

Section IX - Special Precautions

Handling and Storage: None
Other: None

* Not available

PARATHERM & PARATHERM CG POLYISOCYANURATE INSULATION

siplast®

Commercial Product Data Sheet

Todd Cole 10/7/14

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.

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

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.

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In Canada: 201 Bewicke Ave., Suite 210 • North Vancouver, BC V7M 3M7 • Toll Free 1-877-233-2338
Customer Service in North America: Toll Free 1-800-922-8800

An Icopal Group Company

PARATHERM POLYISOCYANURATE INSULATION

Physical and Mechanical Properties

TYPICAL PROPERTIES AND CHARACTERISTICS

Nominal Thickness inch (mm)	LTTR* ASTM C 1289-11 (CAN/ULC-S770 -09)	LTTR** (CAN/ULC-S770 -03)	Flute Span (max.) inch (mm)
1.0 (25)	5.6	6.0	2 5/8 (67)
1.2 (30)	6.7	7.2	2 5/8 (67)
1.5 (38)	8.5	9.0	3 3/8 (86)
1.8 (46)	10.2	10.9	3 3/8 (86)
2.0 (51)	11.4	12.1	3 3/8 (86)
2.2 (56)	12.6	13.4	3 3/8 (86)
2.3 (58)	13.2	14.0	3 5/8 (92)
2.5 (64)	14.4	15.3	3 5/8 (92)
2.6 (66)	15.0	15.9	3 5/8 (92)
2.7 (69)	15.6	16.6	3 5/8 (92)
The following are not recommended for use in a single layer application.			
2.8 (71)	16.2	17.2	3 5/8 (92)
3.0 (76)	17.4	18.5	3 5/8 (92)
3.1 (78)	18.0	19.1	3 5/8 (92)
3.2 (81)	18.6	19.8	3 5/8 (92)
3.5 (89)	20.5	21.7	3 5/8 (92)
3.8 (97)	22.3	23.7	3 5/8 (92)
4.0 (102)	23.6	25.0	3 5/8 (92)

Information on other thicknesses available upon request.

* Long-term Thermal Resistance (LTTR) Value determined in conformance with ASTM C 1289-11 effective Jan. 1, 2014 (CAN/ULC-S770 -09).

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

HIGH THERMAL VALUE CONFIGURATIONS

LTTR	ASTM C 1289-11 (CAN/ULC-S770 -09)
20 (20.4)	2 layers of 1.8" Paratherm or Paratherm CG
25 (25.2)	2 layers of 2.2" Paratherm or Paratherm CG
30	2 layers of 2.6" Paratherm or Paratherm CG
35 (36)	2 layers of 3.1" Paratherm or Paratherm CG
40 (41)	2 layers of 3.5" Paratherm or Paratherm CG

siplast®

MATERIAL SAFETY DATA SHEET

HMIS
H = 1
F = 1
R = 0
PPE = See Section 8

Section I

Sold Only 10/7/14

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

Ingredient	NTP/IRAC OSHA CARC.	Percent	ACGIH TLV ppm	ACGIH TLV mg/m^3	OSHA PEL
Polyisocyanurate Foam	No	10-90	N/A	N/A	N/A

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 H_2O: Not soluble
Vapor Pressure: N/A
Physical State: Solid
Odor and Appearance: Light tan foam plastic - no odor with cellulose/glass filler facings.

Section IV - Fire and Explosion Data

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

Hazardous Combustion Products: Carbon monoxide, carbon dioxide.

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

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

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

Section V - Health Hazard Data

Route of Entry: Skin Contact _X_
Skin Absorption ___
Eye Contact _X_
Inhalation _X_
Ingestion ___
Effects of acute exposure to product: Mechanical irritant to skin, eyes, and upper respiratory system (especially when material is fabricated).
Effects of chronic exposure: Possible allergic reactions to respiratory system and skin with repeated exposure to this product.

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

Teratogenicity: No evidence
Reproductive Toxicity: No evidence
Mutagencity: 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/m^3.
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

PARAFAST PA ROOFING FASTENER

siplast®

Commercial Product Data Sheet

Todd Gilley 10/7/14

Product Description and Product Uses

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

Product Application

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

Note: Care must be taken to not overdrive the fastener and fracture the surface skin or 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.

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

COMMERCIAL PRODUCT INFORMATION

Product No.	Length	Thread Length	Units/Box	Box Weight
P214	2 1/4"	Full	250	15 lb
P278	2 7/8"	2 5/8"	250	16 lb
P314	3 1/4"	3"	250	17 lb
P334	3 3/4"	3"	250	18 lb
P412	4 1/2"	3"	250	19 lb
P500	5"	3"	250	20 lb
P600	6"	4"	250	21 lb
P700	7"	4"	250	23 lb
P800	8"	4"	250	24 lb

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 19 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

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.

Example

Existing Roofing	1 3/4"
New Insulation	1/2"
Min. Embedment	3/4"
Total Fastening Range	3"

Existing Roofing	
New Insulation	
Min. Embedment	3/4"
Total Fastening Range	

Use this form to calculate your correct fastener size.

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

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

Fire Resistance Classifications

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

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

UL 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.

FM Class 1 Approvals. DensDeck Prime Roof Boards are included in numerous roofing assemblies with a Factory Mutual (FM) Class 1 fire rating. 1/4" (6.4 mm) DensDeck Prime Roof Boards have passed testing under the FM Calorimeter Standard 4450 and have been approved by FM as such for insulated steel deck roofs when installed according to the conditions identified by FM. For more information concerning FM Approvals and FM Class 1 assemblies with DensDeck Prime Roof Boards, consult FM or RoofNav®.

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

UL Fire Resistance Ratings. 5/8" (15.9 mm) DensDeck Prime Fireguard Roof Boards are designated as **Type DD** by UL and included in assembly designs investigated by UL for hourly fire resistance ratings. 5/8" (15.9 mm) DensDeck Prime Fireguard Roof Boards may also replace any unclassified 5/8" (15.9 mm) gypsum board in an assembly in the UL Fire Resistance Directory under the prefix "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.

Physical Properties

Properties	1/4" (6.4 mm)	1/2" (12.7mm)	5/8" (15.9 mm)
Thickness, nominal	1/4" (6.4 mm) ± 1/16" (1.6 mm)	1/2" (12.7 mm) ± 1/32" (.8 mm)	5/8" (15.9 mm) ± 1/32" (.8 mm)
Width, standard	4' (1219 mm) ± 1/8" (3 mm)	4' (1219 mm) ± 1/8" (3 mm)	4' (1219 mm) ± 1/8" (3 mm)
Length, standard	4' (1219 mm) and 8' (2438 mm) ± 1/4" (6.4 mm)	4' (1219 mm) and 8' (2438 mm) ± 1/4" (6.4 mm)	4' (1219 mm) and 8' (2438 mm) ± 1/4" (6.4 mm)
Weight, nominal, lbs./sq. ft. (Kg/m²)	1.2 (5.9)	2.0 (9.8)	2.5 (12.2)
Surfacing	Fiberglass mat with non-asphaltic coating	Fiberglass mat with non-asphaltic coating	Fiberglass mat with non-asphaltic coating
Flexural Strength[1], parallel, lbf. min. (N)	≥40 (178)	≥80 (356)	≥100 (444)
Flute Spanability[2]	2-5/8" (66.7 mm)	5" (127 mm)	8" (203 mm)
Permeance[3], Perms (ng/Pa•S•m²)	>30 (>1710)	>23 (>1300)	>17 (>970)
R Value[4], ft²•°F•hr/BTU (m²•K/W)	.28	.56	.67
Linear Variation with Change in Temp., in/in °F (mm/mm/C°)	8.5 x 10^{-6} (15.3 x 10^{-6})	8.5 x 10^{-6} (15.3 x 10^{-6})	8.5 x 10^{-6} (15.3 x 10^{-6})
Linear Variation with Change in Moisture	6.25 x 10^{-6}	6.25 x 10^{-6}	6.25 x 10^{-6}
Water Absorption[5], % max	<10	<10	<10
Compressive Strength[6], psi nominal	900	900	900
Surface Water Absorption, grams, nominal	<2.0	<2.0	<2.0
Flame Spread, Smoke Developed (ASTM E84)	0/0	0/0	0/0
Bending Radius	4' (1219 mm)	6' (1829 mm)	8' (2438 mm)

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 C1177.
6. Tested in accordance with ASTM C473.

Georgia-Pacific Gypsum

U.S.A. Georgia-Pacific Gypsum LLC
Georgia-Pacific Gypsum II LLC
Canada Georgia-Pacific Canada LP

SALES INFORMATION AND ORDER PLACEMENT

U.S.A. West: **1-800-824-7503**
Midwest: **1-800-876-4746**
South Central: **1-800-231-6060**
Southeast: **1-800-327-2344**
Northeast: **1-800-947-4497**

CANADA Canada Toll Free: **1-800-387-6823**
Quebec Toll Free: **1-800-361-0486**

TECHNICAL INFORMATION

U.S.A. and Canada: **1-800-225-6119,** www.gpgypsum.com

Georgia-Pacific

DensDeck®
Prime Roof Board

Technical Service Hotline 1.800.225.6119 or
www.densdeck.com

Scold Corp 10/7/14

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

Description

DensDeck® Prime Roof Board has been enhanced to provide a broader compatibility and higher performance with roofing adhesives. Face mat enhancements allow adhesives to be applied more uniformly and consistently. In adhered, single ply membrane 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 field primer. Consult with membrane manufacturer for actual priming requirements.

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

Primary Uses

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

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

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

Standards and Code Approvals

DensDeck Prime Roof Boards are manufactured to meet ASTM C1177 and have the following approvals:

- Florida Product Approved
- Miami-Dade County Product Control Approved

Recommendations and Limitations

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

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

* Testing was done in accordance with FM approvals 4470, Appendix C: Small Scale Tests, Membrane Delamination 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.)

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

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

When using DensDeck Prime Roof Boards for hot-mopped applications, Georgia-Pacific recommends maximum asphalt application temperatures for Type III asphalt of 425°F (218°C) to 450°F (232°C). Application temperatures above these recommended temperatures may adversely affect roof system performance. For application temperatures in excess of 450°F (232°C) and for mopping of type IV asphalt, ribbon or spot mopping or the installation of a perforated base sheet are recommended methods of bonding asphalt in lieu of full mopping. Consult and follow the roofing system manufacturer's specifications for full mopping applications and temperature requirements.

When using DensDeck Prime Roof Board as a substrate for torch applications, ensure that the product is dry and that the proper torching technique is used. Limit the heat to the DensDeck Prime Roof Board. Maintain a majority of the torch flame directly on the roll.

Conditions beyond the control of Georgia-Pacific, such as weather conditions, dew, leaks, application temperatures and techniques may cause adverse effects with roofing systems.

Handling and Use—CAUTION

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

Moisture Management

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

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

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

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

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

continued→

Submittal Approvals

Job Name ____________________

Contractor ____________________

Date ____________________

Stamps / Signatures

MATERIAL SAFETY DATA SHEET Label Review 10/7/14

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

Components	CAS #	Percent/Wt
GYPSUM (CALCIUM SULFATE, DIHYDRATE)	10101-41-4	60 - 100
VERMICULITE (NON-ASBESTOS CONTAINING)**	1318-00-9	3 - 7
CRYSTALLINE SILICA (QUARTZ)*	14808-60-7	1 - 5
CONTINUOUS FILAMENT GLASS FIBER	65997-17-3	1 - 5

Composition comments

** Found in products in List B, Section 16 of this MSDS.

Gypsum (calcium sulfate, dihydrate) and vermiculite contain naturally occurring crystalline silica (quartz) which is listed as a lung carcinogen. See Section 8 for exposure information.

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

4. First Aid Measures

First aid procedures

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

Skin contact For skin contact, wash immediately with soap and water. Get medical attention if irritation develops or persists.

Inhalation Remove to fresh air. If symptoms persist, obtain medical attention.

Ingestion May result in obstruction and irritation if ingested. Get medical attention.

5. Fire Fighting Measures

Flammable properties Not flammable by OSHA/WHMIS criteria.

Extinguishing media

Suitable extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Fire fighting equipment/instructions	Firefighters should wear full protective clothing including self contained breathing apparatus.

Explosion data

Sensitivity to static discharge	Not applicable.
Sensitivity to mechanical impact	Not applicable.
Hazardous combustion products	May include, and are not limited to: calcium oxide and sulfur dioxide.

6. Accidental Release Measures

Personal precautions	Use personal protection recommended in Section 8. Keep unnecessary personnel away from the release.
Environmental precautions	Keep out of drains, sewers, ditches, and waterways.
Methods for containment	Pick up large pieces, then place in a suitable container. Minimize dust generation.
Methods for cleaning up	Sweep up or gather material and place in an appropriate container for disposal. Utilize wet methods, if appropriate, to minimize dust.

7. Handling and Storage

Handling	Avoid contact with skin and eyes. Do not breathe dust. Use only in well-ventilated areas. Handle and open container with care. Wear appropriate NIOSH approved dust mask or filtering facepiece if dust is generated. Do not eat or drink while using the product. Wash hands before eating, drinking, or smoking.
Storage	Store level and keep dry. Dewpoint or other conditions causing the presence of moisture can damage the product during storage.

8. Exposure Controls / Personal Protection

Occupational exposure limits

ACGIH

Components	Type	Value	Form
CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7)	TWA	0.025 mg/m3	(Respirable fraction)
GYPSUM (CALCIUM SULFATE, DIHYDRATE) (CAS 10101-41-4)	TWA	10 mg/m3	(Inhalable fraction)

U.S. - OSHA

Components	Type	Value	Form
GYPSUM (CALCIUM SULFATE, DIHYDRATE) (CAS 10101-41-4)	TWA	5 mg/m3	(Respirable fraction)
		15 mg/m3	(Total dust)

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

Components	Type	Value	Form
CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7)	TWA	10 mg/m3	Total dust.

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

Components	Type	Value	Form
CRYSTALLINE SILICA (QUARTZ)* (CAS 14808-60-7)	TWA	3.3 mg/m3	(Respirable fraction)

Exposure guidelines	*Exposure limits for CRYSTALLINE SILICA - The US OSHA exposure limits 8 hour TWA for CRYSTALLINE SILICA (QUARTZ) are calculated from the following equations: 30/(%SiO2+2) mg/m3 for total dust; and 10/(%SiO2+2) mg/m3 for the respirable fraction. *The weight percent for crystalline silica represents total crystalline silica and not the respirable fraction. Testing conducted by Georgia-Pacific did not detect respirable crystalline silica during activities associated with the normal use of this product; however, jobsite air monitoring should be conducted to determine actual exposure when permissible exposure limits may be exceeded.
Engineering controls	Score and snap method recommended. When using product, provide local and general exhaust ventilation to keep airborne dust concentrations below exposure limits. Use wet methods, if appropriate, to reduce the generation of dust.
Personal protective equipment	
Eye / face protection	Safety glasses or goggles are recommended when using this product. Ensure compliance with OSHA's PPE standard (29 CFR 1910.132 and .133) for eye and face protection. Safety shower/eye wash fountain is recommended in the workplace area (29 CFR 1910.151(c)).
Skin protection	Impervious protective clothing and gloves recommended to prevent drying or irritation of skin. Ensure compliance with OSHA's PPE standards (29 CFR 1910.132 (general) and 138 (hand protection)). Safety shower/eye wash fountain is recommended in the workplace area (29 CFR 1910.151 (c)).
Respiratory protection	A NIOSH approved dust mask or filtering facepiece is recommended in poorly ventilated areas or when permissible exposure limits may be exceeded. Respirators should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134) and ANSI's standard for respiratory protection (Z88.2).

9. Physical & Chemical Properties

Appearance	Gypsum boards
Color	Facing color varies
Form	Solid
Odor	Low odor
Odor threshold	Not available.
pH	6 - 8
Melting point	Not available.
Boiling point	Not applicable
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability	Not flammable
Flammability limits in air, upper, % by volume	Not applicable
Flammability limits in air, lower, % by volume	Not applicable
Vapor pressure	Not applicable
Vapor density	Not applicable
Specific gravity	2.2 - 2.4
Partition coefficient (n-octanol/water)	Not available.
Solubility (water)	0.2 % @ 22°C
Auto-ignition temperature	Not applicable

10. Chemical Stability & Reactivity Information

Chemical stability	Stable at normal conditions.
Conditions of reactivity	Contact with strong acids produces carbon dioxide.
Incompatible materials	Acids.
Hazardous decomposition products	May include and are not limited to: calcium oxide and sulfur dioxide.

11. Toxicological Information

Routes of exposure Skin contact. Eye contact. Inhalation.

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

Toxicological information (Ingredients)

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

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

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

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

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

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

ACGIH Carcinogens

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

IARC Monographs. Overall Evaluation of Carcinogenicity

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

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

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

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

Synergistic materials Not available.

12. Ecological Information

Ecotoxicity Not considered to be harmful to aquatic life.

Ecotoxicological data

Components		Species	Test Results
GYPSUM (CALCIUM SULFATE, DIHYDRATE) (CAS 10101-41-4)			
Fish	LC50	Fish	2980 mg/l, 96 Hours

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)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

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

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

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

16. Other Information

Product list

Product List A

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

Product List B

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

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

NFPA ratings
Health: 1
Flammability: 0
Instability: 0

Disclaimer	The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. Buyer assumes all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations. Georgia-Pacific and its subsidiaries make no warranty of any kind, expressed or implied, concerning the accuracy or completeness of the information and data herein. The implied warranties of merchantability and fitness for a particular purpose are specifically excluded. Georgia-Pacific and its subsidiaries will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and data are inaccurate, incomplete or otherwise misleading.
Prepared by	Georgia-Pacific LLC 404.652.5119

Added Copy 10/7/14

TECHNICAL DATA SHEET

Blueskin® SA

Self-Adhesive Air/Vapour Barrier Membrane

Physical Properties

-Colour	Blue	-Low Temperature Flexibility @ -30°C (CGSB 37-GP-56M)	Pass
-Thickness	1.0 mm (40 mils)		
-Application Temp	Minimum + 5°C	-Water Vapour Transmission (ASTM E96) water method	49 ng/Pa.s.m²
-Service Temp	Minus 40°C to 70°C		0.86 perms
-Elongation (ASTM D412-modified)	200% minimum	(ASTM E96) desiccant method	2 ng/Pa.s.m² 0.03 perms
-Tensile Strength (Membrane) (ASTM D412- modified)	3.4 MPa minimum	-Lap Peel Strength @ 4°C (39.2°F) (ASTM D903 180° bend)	> 4378.4 N/m (25.0 lbf/in)
-Tensile Strength (Film) (ASTM D882)	40 MPa minimum	-Moisture absorption (ASTM D570)	0.2%
-Minimum Puncture Resistance – Membrane (ASTM E154)	178 N	-Air Leakage @ 75 Pa (ASTM E283-91)	0.003 L/s.m²
-Watertightness (CAN/CGSB-37.58-M86)	Pass	-Air Leakage After 3000 Pa Test (ASTM E330-90)	No change
-Nail Sealability (ASTM D1970)	Pass	-Assembly Air Leakage @ 75 Pa (ASTM E-2357)	0.005 L/s.m²

Packaging

-Thickness	1.0 mm (40 mils)	-Gross Coverages	
-Roll length	22.86 m (75 ft.)	914 mm (36")	20.9 m² (225 ft²)
-Roll width	1219 mm (48")	457 mm (18")	10.5 m² (112.5 ft²)
	914 mm (36"), 457 mm (18")	-Net Coverages*	
	300 mm (12"), 225 mm (9")	914 mm (36")	19.7 m² (212 ft²)
	150 mm (6"), 100 mm (4")	457 mm (18")	9.3 m² (100 ft²)
-Top Surface	Blue film		
-Bottom Surface	Siliconized Release Film	*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-gasketing when penetrated and under compression with self-tapping screws

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

www.bakor.com

REV: 03/20/13

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 m^2 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.

Job Copy 10/7/14

FICHE TECHNIQUE

Blueskin® SA

Membrane pare-air/vapeur autoadhésive

Propriétés physiques

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

Emballage

- Épaisseur	1,0 mm (40 mils)	- Pouvoir couvrant brut	
- Longueur (rouleau)	22,86 m (75 pi)	914 mm (36 po)	20,9 m² (225 pi²)
- Largeur (rouleau)	1219 mm (48 po)	457 mm (18 po)	10,5 m² (112,5 pi²)
	914 mm (36 po)	- Pouvoir couvrant net*	
	457 mm (18 po)	914 mm (36 po)	19,7 m² (212 pi²)
	300 mm (12 po)	457 mm (18 po)	9,3 m² (100 pi²)
	225 mm (9 po)		
	150 mm (6 po)	* Calculé avec des chevauchements d'extrémité et latéraux de 50 mm (2 po)	
	100 mm (4 po)		
- Surface supérieure	Pellicule bleue		
- Surface inférieure	Pellicule de protection siliconée		

Description

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

Caractéristiques

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

Entreposage

Entreposer les rouleaux debout, sur les palettes originales ou sur des plates-formes surélevées. Protéger des intempéries ou entreposer à l'intérieur à une température supérieure à 40° C ou inférieure à -10°C. Il n'est pas recommandé d'empiler les palettes mais s'il faut le faire, utiliser un panneau de contreplaqué pour bien distribuer la charge.

Compagnie Henry Canada, Inc., 10, avenue St-Pierre, Lachine QC H8R 1N7
Tél.: (514) 364-5224 ou 800-361-4599 **Téléc.:** (514) 364-7270 **courriel :** techservices@henry.com
www.bakor.com
Révision : 20 mars 2013

Restrictions

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

Utilisations

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

Préparation de la surface

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

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

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

Application

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

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

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

Pose d'isolant sur la membrane

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

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

Adhésif pour isolant : appliquer l'**Adhésif pour isolant rigide Bakor 230-21** aux panneaux d'isolant en serpentins continus de façon à limiter le mouvement de l'air derrière l'isolant. En alternative, étendre une couche continue d'**Adhésif pour isolant rigide Bakor 230-21** sur l'arrière des panneaux avec une truelle crantée. Presser fermement en place. Les adhésifs **Air-Bloc 21** ou **Air-Bloc 21 FR** peuvent aussi être utilisés.

<>

Label Copy 10/7/14

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

2. Composition/Information sur les ingrédients

Ingrédient	Numéro CAS		Pourcentage du poids total
bitume de pétrole	8052-42-4		30 - 50
armature	S/O – mélange		10 - 30
caoutchouc	S/O – mélange		1 - 5
SILICE, QUARTZ			30 - 50

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 cancérogènes du NTP (National Toxicology Program), du CIRC (Centre international de recherche sur le cancer) ou de l'OSHA (Occupational Safety and Health Administration). Consulter la section 11 (Information toxicologique) pour plus de détails.

4. Premiers soins

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

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

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

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

5. Mesures de lutte contre l'incendie

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

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

Agents extincteurs
Dioxyde de carbone, eau ou poudre 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. Manutention et entreposage

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

8. Mesures de protection personnelle contre l'exposition

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

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

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

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

Les limites d'exposition en milieu de travail pour les ingrédients individuels sont énumérées ci-après.
fumée de bitume
ACGIH TLV-TWA 0,5 mg/m3 (fraction et vapeur inhalables)

8. Mesures de protection personnelle contre l'exposition (suite)

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

9. Propriétés physiques et chimiques

Apparence
Matériau en rouleau (sable sur les deux faces)

Odeur
Légère odeur de pétrole

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

10. Stabilité et réactivité

Stabilité : stable
Polymérisation dangereuse : on ne s'attend pas à ce qu'elle se produise.

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

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

Conditions à éviter (polymérisation)
Combustion incomplète

11. Information toxicologique

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

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

12. Information écologique

Aucune information n'a été identifiée.

13. Considérations relatives à la mise au rebut

Mettre au rebut conformément aux lois gouvernementales municipales, provinciales et fédérales applicables.

14. Information concernant le transport

Voie terrestre	Non réglementé
IMDG	Non réglementé
IATA	Non réglementé

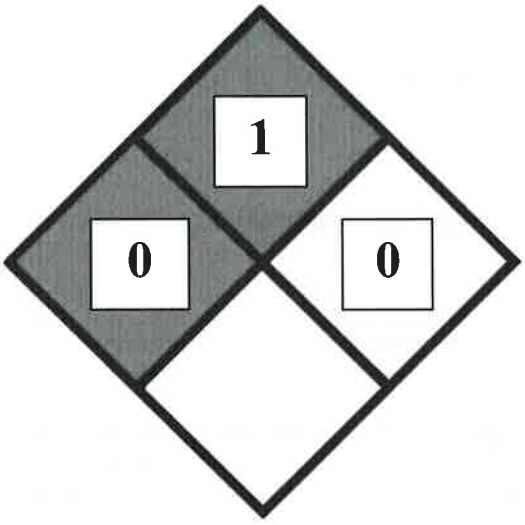
15. Information sur la réglementation

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

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

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

NFPA



SIMD

SANTÉ	0
INFLAMMABILITÉ	1
RÉACTIVITÉ	0
PROTECTION INDIVIDUELLE	

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

PARAFOR 30 TG

siplast®

Commercial Product Data Sheet

Added Cely 10/7/14

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 $_{c}UL_{us}$ 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.

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

COMMERCIAL PRODUCT INFORMATION

Unit	Roll		
Coverage:	1.0 Square		(9.3 m²)
Coverage Weight Per Square:	Min:	114 lb	(5.5 kg/m²)
Roll Length:	Min:	32.8 ft	(10.0 m)
Roll Width:	Avg:	3.28 ft	(1.00 m)
Thickness:	Avg:	161 mils	(4.1 mm)
Thickness at Selvage:	Avg:	122 mils	(3.1 mm)
	Min:	118 mils	(3.0 mm)
Selvage Width:	Avg:	2.75 in	(70 mm)

Selvage Surfacing: Burn-off Polyolefin Film

Top Surfacing: No. 11 ceramic granules, standard color finishes are #93 Bone White and #65 Cinnamon Brown. Contact Siplast for other available colors.

Back Surfacing: Polyolefin burnoff film

Lines: 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.

Packaging: 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 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: 20
Number Pallets Per Truckload: 18
Minimum Roll Weight: 114 lb (51.7 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.

Rev 7/2014

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

An Icopal Group Company

PARAFOR 30 TG

Physical and Mechanical Properties

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

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

F = 1
R = 0
PPE = See Section 8

Section I

Todd Eddy 10/7/14

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
Trade Name: Paradiene, Paradiene F, Paradiene FR, Paradiene FR TG, Paradiene CR FR, Paradiene CR FR TG, Paradiene HT, Paradiene HT TG, Paradiene HT TG F, Paradiene EG, Paradiene EG SA, Paradiene EG TG, Paradiene TG, Paradiene TG F, Paradiene HT FR, Paradiene HT FR TG, Paradiene TS, Paradiene TS F, Paradiene HV, Paradiene HV TG, Paradiene PR, Paradiene PR TG, Paradiene TS SA F, Paradiene HT SA, Paradiene SA, Paradiene SA F, Paradiene TS SA, Paradiene P, Paradiene TG P, Paradiene SA P, Paradiene TS P, Paradiene TS SA P, Paradiene MW FR, Paradiene MW CR FR, Paradiene MW CR FR TG, Paradiene HT CR FR, Paradiene HT CR FR TG, Paradiene FR BW, Paradiene FR TG BW, Parafor, Parafor LT, Parafor TG, Veral, Parabase Plus, Parabase Plus P, Paratread, Teranap 1M, and Teranap GS

Section II - Ingredients

Ingredient	IRAC	Percent	ACGIH TLV (mg/m^3)	OSHA PEL (mg/m^3)
Asphalt	NO	13.6-48.3	0.5	5
Filler	NO	16-29.7	15	10
SBS Polymer	NO	Proprietary	N/A*	N/A*
Reinforcement	NO	1.6-6.0	N/A*	N/A*
Surfacing	NO	0-30	10	3.3
Parting Agent	NO	5-42.5	0.1	10

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 CO_2
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: H_2S released when heated. CO may be formed with incomplete combustion. Amount of H_2S released is negligible.
Hazardous Polymerization:
May occur ____ Will not occur __X__

Section VII - Spill or Leak Procedures

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

Section VIII - Special Protection Information

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

Section IX - Special Precautions

Handling and Storage: None
Other: None

* Not available

PARADIENE 20 TG

Commercial Product Data Sheet

Jodd Daly 10/7/14

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 $_{c}UL_{us}$ 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

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

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

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

An Icopal Group Company

PARADIENE 20 TG

Physical and Mechanical Properties

Property (as Manufactured)	Values/Units	Test Method
Thickness (minimum)	110 mils (2.8 mm)	ASTM D 5147 section 6
Thickness (average)	114 mils (2.9 mm)	ASTM D 5147 section 6
[1]Peak Load @ 73°F (average)	30 lbf/inch (5.3 kN/m)	ASTM D 5147 section 7
[1]Peak Load @ 0°F (average)	75 lbf/inch (13.2 kN/m)	ASTM D 5147 section 7
[1]Elongation @ Peak Load, 73°F (average)	3%	ASTM D 5147 section 7
[1]Elongation @ Peak Load, 0°F (average)	3%	ASTM D 5147 section 7
[1]Ultimate Elongation @ 73°F (average)	50%	ASTM D 5147 section 7
[1]Tear Strength (average)	40 lbf (0.18 kN)	ASTM D 5147 section 8
Water Absorption (maximum)	1%	ASTM D 5147 section 10
Dimensional Stability (maximum)	0.1%	ASTM D 5147 section 11
Low Temperature Flexibility (maximum)	-15°F (-26°C)	ASTM D 5147 section 12
Compound Stability (minimum)	250°F (121°C)	ASTM D 5147 section 16
Coating Thickness - Back Surface	≥ 40 mils (1 mm)	ASTM D 5147 section 17
Cyclic Fatigue	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.	

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

siplast®

MATERIAL SAFETY DATA SHEET

HMIS
H = 1
F = 1
R = 0
PPE = See Section 8

Section I

Todd Coley 10/7/14

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
Trade Name: Paradiene, Paradiene F, Paradiene FR, Paradiene FR TG, Paradiene CR FR, Paradiene CR FR TG, Paradiene HT, Paradiene HT TG, Paradiene HT TG F, Paradiene EG, Paradiene EG SA, Paradiene EG TG, Paradiene TG, Paradiene TG F, Paradiene HT FR, Paradiene HT FR TG, Paradiene TS, Paradiene TS F, Paradiene HV, Paradiene HV TG, Paradiene PR, Paradiene PR TG, Paradiene TS SA F, Paradiene HT SA, Paradiene SA, Paradiene SA F, Paradiene TS SA, Paradiene P, Paradiene TG P, Paradiene SA P, Paradiene TS P, Paradiene TS SA P, Paradiene MW FR, Paradiene MW CR FR, Paradiene MW CR FR TG, Paradiene HT CR FR, Paradiene HT CR FR TG, Paradiene FR BW, Paradiene FR TG BW, Parafor, Parafor LT, Parafor TG, Veral, Parabase Plus, Parabase Plus P, Paratread, Teranap 1M, and Teranap GS

Section II - Ingredients

Ingredient	IRAC	Percent	ACGIH TLV (mg/m^3)	OSHA PEL (mg/m^3)
Asphalt	NO	13.6-48.3	0.5	5
Filler	NO	16-29.7	15	10
SBS Polymer	NO	Proprietary	N/A*	N/A*
Reinforcement	NO	1.6-6.0	N/A*	N/A*
Surfacing	NO	0-30	10	3.3
Parting Agent	NO	5-42.5	0.1	10

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 CO_2
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: H_2S released when heated. CO may be formed with incomplete combustion. Amount of H_2S released is negligible.
Hazardous Polymerization:
May occur ____ Will not occur X

Section VII - Spill or Leak Procedures

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

Section VIII - Special Protection Information

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

Section IX - Special Precautions

Handling and Storage: None
Other: None

* Not available

Todd Cole 10/7/14

PRODUCT DATA SPECIFICATIONS

JUNE 2013

OMG

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 ¾- to 1-inch bands that spread to several inches while rising ¾- to 1-inch above the substrate. Place the board stock into the adhesive and walk into place. A chemical cure takes place securing the board in approximately 4 to 8 minutes after application, depending on temperature and weather conditions.

1.02 TYPICAL PHYSICAL PROPERTIES

PHYSICAL PROPERTY	TEST METHOD	TYPICAL VALUES
Density	ASTM D-1622	3.2 lb./cf
Compressive Strength	ASTM D-1621	38 psi @ 6% deflection
Tensile Strength	ASTM D-1623	35 psi
Water Absorption	ASTM D-2842	5.1%
Closed Cell Content	ASTM D-6226	90% min.
R-Value	ASTM C-518	3.8/inch (new)
VOC Content	ASTM D-2369	5 g/L
Weight/Gallon	Part 1 Component Part 2 Component	10.32 lbs. 8.54 lbs.

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 on the OlyBond500 Request for Warranty form and approved in writing by an authorized representative of OMG, Inc.

1.05 SUBMITTALS

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

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

1.06 JOB CONDITIONS

1. Insure that you have the correct OlyBond500 formulation for the surface and ambient temperature.
   - Bag-in-Box: Regular (40°F +)
   - SpotShot: Regular (40°F +) or Winter (0°F–65°F)
2. On retrofit-recover projects, the existing roofing material must be investigated to insure adequate attachment of existing system. All wet material must be identified and removed prior to the application of the OlyBond500 adhesive.

3. Existing Phenolic Insulation must be removed.
4. Coordination between trades is essential to avoid unnecessary rooftop traffic.

1.07 STORAGE AND HANDLING

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

1.08 APPROVALS

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

1.09 FIRST AID

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

1.10 DISPOSAL

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

1.11 WARRANTY

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

Part 2 Product

2.01 COMPOSITION AND MATERIALS

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

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

2.02 COMPATIBILITY

1. **Roof Decks and Substrates:**
   - Structural concrete
   - Gypsum
   - Cementitious wood fiber plank
   - Lightweight insulating concrete
   - Steel (22 gauge or thicker with approved cross section)
   - Plywood (⅝-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 ⅝-inch plywood.

3.02 SURFACE PREPARATION

1. **General.** All surfaces must be dry and free of any debris, dirt, oil or grease before applying OlyBond500.
2. **Specific Conditions**

   a. Steel. The bonding surface of steel decks must be dry and free of debris, dirt, grease and oil. On new steel, the shop coating/mill oil must be removed. The bonding surface must be free of any cleaner before applying OlyBond500.

   b. Existing Smooth Asphaltic Surfaces. The surface must be dry and free of debris, dirt, grease and oil.

   c. Existing Polyurethane Foam. The surface of the polyurethane roof, including the coating, should be removed with a scarifier (minimum ½ inch). The bonding surface should be blown clean before applying OlyBond500.

   d. Metal. OlyBond500 has excellent adhesion to clean metal. It is recommended that all non-ferrous metals (aluminum, copper, stainless, etc.) be primed to further increase adhesion. Accepted primers include epoxy, chlorinated rubber, and wash primer.

   e. Concrete. All concrete surfaces must be fully cured prior to applying OlyBond500.

   f. Other. For other substrates not listed, contact OMG at 800·633·3800.

3.03 INSULATION

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

3.04 PRODUCT INSTALLATION

1. **Using PaceCart 2**

   a. Install Part 1 and Part 2 components following instruction on Bag-in-Box package.

   b. Open flow valves on the dispenser completely and turn machine on. This allows adhesive to be pumped at a 1:1 ratio through the disposable mix tip and onto the substrate in a semi-liquid state.

   c. Apply fluid mixture in ¾ to 1 inch wide wet beads spaced maximum of 12 inches on center that spreads in excess of 2 inches wide while rising ¾ to 1 inch.

   d. Lay insulation board into place and walk-in to assure complete adhesion. Curing typically occurs in 4 to 8 minutes depending on temperature and weather conditions.

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

2. **Using SpotShot Applicator**

   a. Attach the disposable mix tip to the top of the SpotShot tube. Insert the tube into SpotShot dispensing tool and dispense onto the substrate. Apply fluid mixture in rows spaced maximum of 12 inches on center that spread to several inches wide while rising ¾ to 1 inch.

b. Lay insulation board into place and walk-in to assure complete adhesion. Curing typically occurs in 4 to 8 minutes depending on temperature and weather conditions.

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

3.05 TYPICAL APPLICATION RATES

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

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

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

3.06 REACTION TIME

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

TYPICAL REACTION TIME CHARACTERISTICS

A. 5 Gallon Bag-in-Box Packaging

TEMPERATURE	PART 2 FORMULA	TACK FREE TIME (minutes)	SET UP TIME (minutes)
40°F +	R	3–5	10–12

B. 1500 ml SpotShot Cartridges

TEMPERATURE	PART 2 FORMULA	TACK FREE TIME (minutes)	SET UP TIME (minutes)
0°F–65°F	W	3–4	10–12
40°F +	R	3–5	10–12

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

3.07 AVAILABILITY AND COST

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

3.08 PRECAUTIONS

1. **IN CASE OF FIRE:** Use water spray, foam or CO_2. Firefighters should be equipped with self-contained breathing apparatus and turnout gear for protection against PMDI vapors and toxic decomposition products. Avoid water contamination in closed container or confined areas.
2. **DO NOT LEAVE ADHESIVE EXPOSED OR UNPROTECTED.** Polyurethane foam or isocyanurate foam products may present a serious fire hazard if exposed or unprotected. Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any of these materials should carefully determine whether there is a potential fire hazard associated with such product in a specific usage and utilize all appropriate precautionary and safety measures as outline in local, state and federal regulations. When not in use keep stored containers closed.

FM APPROVED · MIAMI-DADE COUNTY APPROVED · Florida Building Code · CLASSIFIED UL US

PATENT NOTICE

The OMG PaceCart® dispensing cart and the Bag-in-Box OlyBond500® Part 1/Part 2 adhesive system, including the adhesive dispensing method, are covered by one or more of U.S. Patent Nos. 6,220,526; 8,113,385; 8,132,693; 8,167,170 and 8,474,658.

Jodel Cole 10/7/14

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)

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

POTENTIAL HEALTH EFFECTS

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

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

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

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

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

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

IRRITANCY: Eye and skin irritation.

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

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OlyBond500 SpotShot (part 1)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt.%	CAS
Polymeric Isocyanates	< 55	9016-87-9
Methylene Bisphenyl Isocyanate	38	101-68-8
Diphenylmethane Diisocyanate Mixed Isomers	< 10	26447-40-5

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,

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

SENSITIVE TO STATIC DISCHARGE: Not Applicable

SENSITIVITY TO IMPACT: None known.

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

6. ACCIDENTAL RELEASE MEASURES

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

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

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

7. HANDLING AND STORAGE

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

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

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

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

SHELF LIFE: 18 months from manufacture date @ 29.4 C

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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EXPOSURE GUIDELINES

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)					
		EXPOSURE LIMITS			
		OSHA PEL		ACGIH TLV	
Chemical Name		**ppm**	**mg/m³**	**ppm**	**mg/m³**
Polymeric Isocyanates	**TWA**	NL [1]	NL [1]	NL [1]	NL [1]
	STEL	NL [1]	NL [1]	NL [1]	NL [1]
Methylene Bisphenyl Isocyanate	**TWA**	0.02 ppm	0.2 mg/m3	0.005 ppm	NL
	STEL	NL [1]	NL [1]	NL [1]	NL [1]
Diphenylmethane Diisocyanate Mixed Isomers	**TWA**	NL [1]	NL [1]	NL [1]	NL [1]
	STEL	NL [1]	NL [1]	NL [1]	NL [1]
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

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FLASHPOINT AND METHOD: 220°C (428°F) to 220°C (428°F) COC (Cleveland Open Cup)
FLAMMABLE LIMITS: Not Determined
AUTOIGNITION TEMPERATURE: Not Applicable
VAPOR PRESSURE: Not Determined
VAPOR DENSITY: Not Determined
BOILING POINT: >= (200°F)
FREEZING POINT: Not Determined
MELTING POINT: Not Determined
POUR POINT: Not Determined
SOLUBILITY IN WATER: Reacts with water
EVAPORATION RATE: Not Determined
DENSITY: 10.16 lbs/gal-Part 1
PARTICLE SIZE: Not Determined
SPECIFIC GRAVITY: 1.22
VISCOSITY #1: 150 to 350 cps
MOLECULAR WEIGHT: Not Determined
(VOC): 11.000 gr/L EPA Method 24 VOC
COEFF. OIL/WATER: Not Determined
OXIDIZING PROPERTIES: Not Determined

10. STABILITY AND REACTIVITY

STABLE: Yes
HAZARDOUS POLYMERIZATION: No
STABILITY: Stable.
POLYMERIZATION: Product will not undergo polymerization.
POSSIBILITY OF HAZARDOUS REACTIONS: None Expected.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, nitrogen oxide, isocyanate vapors and mist, traces of HCN.
INCOMPATIBLE MATERIALS: Reacts with water, with the formation of carbon dioxide. Risk of bursting. Reacts with alcohols, acids, alkalies, and amines. Rick 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

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OlyBond500 SpotShot (part 1)

Chemical Name	ORAL LD_{50} (rat)	DERMAL LD_{50} (rabbit)	INHALATION LC_{50} (rat)
Polymeric Isocyanates	No data	g/kg (rabbits)	No data
Methylene Bisphenyl Isocyanate	> 5000 mg/kg (rats)	No data	> 2240 mg/cub m (1-hr dose - rat)
Diphenylmethane Diisocyanate Mixed Isomers	> 10000 mg/kg (rats)	g/kg (rabbits)	> 2240 mg/cub m (1-hr dose - rat)

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

Chemical Name	Wt.%	CAS
Polymeric Isocyanates	< 55	9016-87-9
Methylene Bisphenyl Isocyanate	38	101-68-8

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

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Chemical Name	Wt.%	CERCLA RQ
Methylene Bisphenyl Isocyanate	38	5000 lbs.
Diphenylmethane Diisocyanate Mixed Isomers	< 10	5000 lbs.

TSCA (TOXIC SUBSTANCE CONTROL ACT)

Chemical Name	CAS
Polymeric Isocyanates	9016-87-9
Methylene Bisphenyl Isocyanate	101-68-8
Diphenylmethane Diisocyanate Mixed Isomers	26447-40-5

CLEAN AIR ACT

Chemical Name	Wt.%	CAS
Methylene Bisphenyl Isocyanate	38	101-68-8

CANADA

WHMIS HAZARD SYMBOL AND CLASSIFICATION

Toxic

16. OTHER INFORMATION

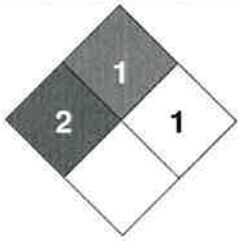
INFORMATION CONTACT: (800) 403-7747

REVISION SUMMARY: This MSDS replaces the 4/29/2014 MSDS. Revised: **Section 1:** Date Issued.

HMIS RATING

HEALTH	*	2
FLAMMABILITY		1
PHYSICAL HAZARD		1
PERSONAL PROTECTION		B

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

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OlyBond500 SpotShot (part 1)

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.

SAFETY DATA SHEET

Date Issued : 4/4/2014
MSDS No : OlyBond 500-2
Date Revised : 6/11/2014
Revision No : 1

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

Chemical Name	Wt.%	CAS
Polyether Polyol	< 70	9082-00-2
Polypropylene Glycol	< 20	25322-69-4
Diethylene Glycol	< 10	111-46-6
Dipropylene Glycol	< 10	25265-71-8

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

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Date Issued : 4/4/2014
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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

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EXPOSURE GUIDELINES

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)					
		EXPOSURE LIMITS			
		OSHA PEL		ACGIH TLV	
Chemical Name		**ppm**	**mg/m³**	**ppm**	**mg/m³**
Polypropylene Glycol	**TWA**	NL [1]	NL [1]	NL [1]	NL [1]
	STEL	NL [1]	NL [1]	NL [1]	NL [1]
Diethylene Glycol	**TWA**	NL [1]	NL [1]	NL [1]	NL [1]
	STEL	NL [1]	NL [1]	NL [1]	NL [1]
Dipropylene Glycol	**TWA**	NL [1]	NL [1]	NL [1]	NL [1]
	STEL	NL [1]	NL [1]	NL [1]	NL [1]
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

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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

Chemical Name	ORAL LD_{50} (rat)	DERMAL LD_{50} (rabbit)	INHALATION LC_{50} (rat)
Polypropylene Glycol	No data	No data	No data
Diethylene Glycol	12565 mg/kg	11890 mg/kg	No data
Dipropylene Glycol	14800 mg/kg (rats)	> 20000 mg/kg (rabbits)	> 20 ml/kg (rabbit)

IRRITATION: Mild to moderate eyes and skin irritation.

12. ECOLOGICAL INFORMATION

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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)

Chemical Name	CAS
Polyether Polyol	9082-00-2
Polypropylene Glycol	25322-69-4
Diethylene Glycol	111-46-6
Dipropylene Glycol	25265-71-8

CLEAN AIR ACT

Chemical Name	Wt.%	CAS
Diethylene Glycol	< 10	111-46-6

CANADA

WHMIS HAZARD SYMBOL AND CLASSIFICATION

Toxic

16. OTHER INFORMATION

INFORMATION CONTACT: (781) 878-7015

SAFETY DATA SHEET

Date Issued : 4/4/2014
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Date Revised : 6/11/2014
Revision No : 1

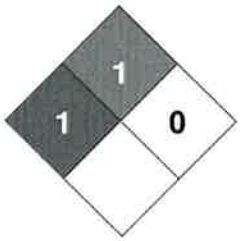
OlyBond500 SpotShot (part 2)

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

HMIS RATING

HEALTH	*	1
FLAMMABILITY		1
PHYSICAL HAZARD		0
PERSONAL PROTECTION		B

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.

Jodel Corley 10/7/14

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identification

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

Company Identification

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

SPECIAL NOTES:

Part A of two part polyurethane system. Polymethylene polyphenylisocyanate.

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT LISTING:

Chemical Name	Amount	CAS Number
4,4'-DIPHENYLMETHANE DIISOCYANATE	38.0 %	101-68-8
POLYMERIC MDI	< 55.0 %	9016-87-9
MDI MIXED ISOMERS	< 10.0 %	26447-40-5

(See Section 8 for exposure guidelines)

(See Section 15 for regulatory information)

HAZARDS DISCLOSURE

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

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

3. HAZARDS IDENTIFICATION

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

CAUTION

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

****

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

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

POTENTIAL HEALTH EFFECTS

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

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

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

(section 3 continued)

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

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

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

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

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

4. FIRST AID MEASURES

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

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

(section 4 continued)

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

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

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

5. FIRE FIGHTING MEASURES

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

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

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

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

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

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

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

(section 5 continued)

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

6. ACCIDENTAL RELEASE MEASURES

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

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

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

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

7. HANDLING AND STORAGE

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

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

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

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

(section 7 continued)

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

SPECIAL SENSITIVITY:
All handling equipment should be electrically grounded.

MISCELLANEOUS:
Protect from moisture.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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

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

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

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

EXPOSURE GUIDELINES:
No Information Available.

MISCELLANEOUS:
Components with workplace control parameters:

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

9. PHYSICAL AND CHEMICAL PROPERTIES

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

10. STABILITY AND REACTIVITY

STABILITY:
Stable.

POLYMERIZATION:
May occur.

INCOMPATIBILITY WITH OTHER MATERIALS:
Reacts with water, with formation of carbon dioxide. Risk of bursting. Reacts with alcohols, acids, alkalies, 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.

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

CONDITIONS TO AVOID:
Avoid moisture.

11. TOXICOLOGICAL INFORMATION

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

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

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

12. ECOLOGICAL INFORMATION

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

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

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

13. DISPOSAL CONSIDERATIONS

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

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

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

14. TRANSPORTATION INFORMATION

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

15. REGULATORY INFORMATION

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

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

CERCLA Hazardous Substances
4,4'-DIPHENYLMETHANE DIISOCYANATE (101-68-8) -- RQ 5000 lbs.

(section 15 continued)

Title V

4,4'-DIPHENYLMETHANE DIISOCYANATE (101-68-8)

SC Toxic Air Pollutants List

4,4'-DIPHENYLMETHANE DIISOCYANATE (101-68-8)

MISCELLANEOUS INFORMATION:

OSHA Hazard Communication Standard: This product ia a 'Hazardous Chemical' as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

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

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

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

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

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

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

16. OTHER INFORMATION

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

ADDITIONAL INFORMATION:

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

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

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END OF MSDS

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MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identification

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

Company Identification

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

SPECIAL NOTES:

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

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT LISTING:

Chemical Name	Amount	CAS Number
DIETHYLENE GLYCOL	< 10.0 %	111-46-6
DIPROPYLENE GLYCOL	< 15.0 %	25265-71-8
2,2,4-TRIMETHYL-1,3-PENTANEDIOL DIISOBUT	< 10.0 %	6846-50-0
POLYETHER POLYOL	< 70.0 %	9082-00-2
PROPRIETARY BLEND OF MATERILAS	< 3.0 %	

(See Section 8 for exposure guidelines)

(See Section 15 for regulatory information)

HAZARDS DISCLOSURE

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

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

3. HAZARDS IDENTIFICATION

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

CAUTION

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

HMIS Rating -

Health:	**1**
Flammability:	**1**
Reactivity:	**0**
Personal Protection Index:	**s**

POTENTIAL HEALTH EFFECTS

EYE:
Contact may cause eye irritation and injury.

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

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

INGESTION:
Harmful if swallowed.

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

CARCINOGENICITY INFORMATION:
No known cancer hazards.

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

(section 3 continued)

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

4. FIRST AID MEASURES

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

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

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

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

5. FIRE FIGHTING MEASURES

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

FLAMMABLE LIMITS IN AIR
LEL: %
UEL: %

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

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

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

(section 5 continued)

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

6. ACCIDENTAL RELEASE MEASURES

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

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

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

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

7. HANDLING AND STORAGE

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

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

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

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

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

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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

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

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

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

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

EXPOSURE GUIDELINES:

DIETHYLENE GLYCOL

OSHA TWA: 10 mg/m^3

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

9. PHYSICAL AND CHEMICAL PROPERTIES

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

10. STABILITY AND REACTIVITY

STABILITY:
Stable under normal conditions of use. Do not heat.

(section 10 continued)

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

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

CONDITIONS TO AVOID:
High temperatures.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS:
Irritating to eyes.

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

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

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

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

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

GENETIC TOXICITY:
No evidence.

12. ECOLOGICAL INFORMATION

(section 12 continued)

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

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORTATION INFORMATION

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

15. REGULATORY INFORMATION

REGULATORY DISCLOSURES:
OSHA Hazard Communication Standard This product is a 'Hazardous Chemical' as defined by OSHA 29 CFR 1910.1200. SARA Hazardous Categories Section 311/312 (EPCRA): Diethylene Glycol: Acute (immediate) health hazard. Chronic (delayed) health hazard.

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

Supplemental State Compliance Information: Massachusetts CAS# 34590-94-8 .008-.04% by weight Dipropylene glycol monomethyl ether.

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

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

(section 15 continued)

Other state regulations may apply. Check individual state requirements.

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

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

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

16. OTHER INFORMATION

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

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

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

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END OF MSDS

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siplast®

MATERIAL SAFETY DATA SHEET

HMIS
H = 1
F = 1
R = 0
PPE = See Section 8

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

Ingredient	NTP/IRAC OSHA CARC.	Percent	ACGIH TLV ppm	ACGIH TLV mg/m^3	OSHA PEL
Polyisocyanurate Foam	No	10-90	N/A	N/A	N/A

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 H_2O: Not soluble
Vapor Pressure: N/A
Physical State: Solid
Odor and Appearance: Light tan foam plastic - no odor with cellulose/glass filler facings.

Section IV - Fire and Explosion Data

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

Hazardous Combustion Products: Carbon monoxide, carbon dioxide.

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

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

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

Section V - Health Hazard Data

Route of Entry: Skin Contact _X_
Skin Absorption ___
Eye Contact _X_
Inhalation _X_
Ingestion ___
Effects of acute exposure to product: Mechanical irritant to skin, eyes, and upper respiratory system (especially when material is fabricated).
Effects of chronic exposure: Possible allergic reactions to respiratory system and skin with repeated exposure to this product.

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

Teratogenicity: No evidence
Reproductive Toxicity: No evidence
Mutagencity: 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/m^3.
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

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 Gyptec, 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):

HMIS RATING	
Health	1
Flammability	0
Reactivity	0
Personal Protective Equipment	A

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.

TECHNICAL DATA SHEET

Vapor-Bloc® SA

Self-Adhesive Vapour Barrier Membrane

Physical Properties

-Colour	Blue	-Low Temperature Flexibility @ -30°C CGSB 37-GP-56M)	Pass
-Thickness	0.8 mm (30 mils)		
-Application Temperature	Minimum -12°C		
-Service Temperature	Minus 40°C to 70°C	-Water Vapour Transmission ASTM E96	2.8 ng/Pa.m².s
-Elongation (ASTM D412 - modified)	180% Minimum	-Lap Peel Strength @ 4°C ASTM D903 180° bend	1750 N/m width
-Tensile Strength (Membrane) ASTM D412 - modified	3.4 MPa minimum	-Moisture Absorption ASTM D570-81	0.1%
-Tensile Strength (Film) ASTM D882	40 MPa minimum		
-Minimum Puncture Resistance (Membrane) ASTM E154	178 N		

Packaging

-Thickness	0.8 mm (30 mils)	-Top Surface	Blue Cross-Laminated Polyethylene
-Roll Length	22.86 m (75 ft.)		
-Roll Width	1210 mm (48")	-Bottom Surface	Siliconized Release Film

Description

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

Features

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

Uses

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

Storage

Store rolls on end, in original packaging. Protect from weather or store in an enclosed area not subject to heat over 49°C.

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

www.bakor.com

REV: 01/16/14

Preparation

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

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

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

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

Application

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

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

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

Limitations

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

Vapor-Bloc® SA should not be used in direct contact with flexible PVC/vinyl membranes. **Vapor-Bloc® SA** is designed only for exposure of up to six weeks. **Vapor-Bloc® SA** is not suited for permanent exposure to ultra-violet light and should be covered as soon as practical after application. Some sealants may discolor if in contact with the asphalt compound or may soften the asphalt compound. Contact sealant manufacturer for more information.

Statement of Responsibility

MATERIAL SAFETY DATA SHEET

BK7000 - BAKOR VAPOR BLOC SA

1. Product And Company Identification

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

Company Contact: Technical Services
Telephone Number: (800) 486-1278
Web Site: www.henry.com www.bakor.com

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

Company Contact: Technical Services
Telephone Number: (800) 486-1278
Web Site: www.henry.com www.bakor.com

Supplier Emergency Contacts & Phone Number
CHEMTREC: (800) 424-9300
CHEMTREC: (703) 527-3887
CANUTEC: (613) 996-6666

Manufacturer Emergency Contacts & Phone Number
CHEMTREC: (800) 424-9300
CHEMTREC: (703) 527-3887
CANUTEC: (613) 996-6666

Issue Date: 09/10/2011

Product Name: BK7000 - BAKOR VAPOR BLOC SA
Product Code: BK7000

Product/Material Uses
Roofing Membrane

2. Composition/Information On Ingredients

Ingredient Name	CAS Number		Percent Of Total Weight
asphalt, petroleum	8052-42-4		50 - 70
mineral oil	64742-52-5		5 - 15
siliconized release paper	Not Establis		5 - 10
high density polyethylene	9002-88-4		5 - 10
rubber compounds	NA - Mixture		5 - 15

EMERGENCY OVERVIEW

CAUTION! This product contains asphalt. Some asphalt contains sulfur compounds which may form hydrogen sulfide when heated or burned. Prolonged direct skin and eye contact may cause irritation.
Appearance/Odor: Rolled material.

3. Hazards Identification

Primary Routes(s) Of Entry
Inhalation - possible if product becomes airborne, but considered unlikely.

Eye Hazards
Particles may cause eye irritation.

Skin Hazards
May cause skin irritation and contact dermatitis upon prolonged contact.

Ingestion Hazards
Not a probable route of exposure.

Henry COMPANY

BK7000 - BAKOR VAPOR BLOC SA

3. Hazards Identification - Continued

Inhalation Hazards
Not a probable route of exposure under normal conditions of use.

Chronic/Carcinogenicity Effects
None of the ingredients of this product comprising over 0.1% are classified as carcinogenic according to OSHA, National Toxicology Program (NTP), International Agency for Research on Cancer (IARC) or the American Conference of Governmental Industrial Hygienists (ACGIH).

4. First Aid Measures

Eye
In case of contact, hold eyelids apart and immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately if irritation develops and persists.

Skin
Remove contaminated clothing and shoes. Wash affected areas with soap and water.

Ingestion
Get medical attention immediately. DO NOT INDUCE VOMITING. Never give anything by mouth to an unconscious victim.

Inhalation
Inhalation not likely due to nature of material. If particles generated from grining or sanding are inhaled, remove the person from the contaminated area to fresh air.

5. Fire Fighting Measures

Flammability Class: Non Flammable

Fire And Explosion Hazards
During a fire carbon monoxide, carbon dioxide, oxides of nitrogen and sulfur, hydrogen sulfide, and irritating and/or toxic gases may be generated.

Extinguishing Media
Carbon dioxide, water, or dry chemical.

Fire Fighting Instructions
Firefighters should wear self-contained breathing apparatus and full protective gear.

6. Accidental Release Measures

Collect and dispose in accordance with applicable regulations. Avoid release to waterways and sewers.

7. Handling And Storage

Handling And Storage Precautions
Keep containers tightly closed. Store in a cool, dry, well-ventilated area. Protect from heat sparks, or flame. Use only with adequate ventilation.

8. Exposure Controls/Personal Protection

Engineering Controls
Use with adequate general and local exhaust ventilation.

Eye/Face Protection
Safety glasses with side shields recommended.

Skin Protection
Use with protective gloves and apron to prevent skin contact.

Henry COMPANY

BK7000 - BAKOR VAPOR BLOC SA

8. Exposure Controls/Personal Protection - Continued

Respiratory Protection
None normally required. Respirator use may be required due to secondary operations such as cutting, sanding, buffing, etc. The level of respiratory protection needed should be based on the evaluation of chemical exposures by a health or safety professional.

Occupational Exposure Limits for individual ingredients (if available) are listed below.

Asphalt fume
ACGIH TLV-TWA 0.5 mg/m3 (Inhalable fraction and vapor)

Ingredient(s) - Exposure Limits
asphalt, petroleum
OSHA PEL-TWA 5mg/m3
ACGIH TLV-TWA 0.5mg/m3 (Benzene soluble aerosol)
mineral oil
OSHA (PEL-TWA): 5 mg/m3 (mineral oil mist)
ACGIH (PEL-TLV): 5 mg/m3 (mineral oil mist)

9. Physical And Chemical Properties

Appearance
Flexible sheet

Chemical Type: Mixture
Physical State: Solid
Boiling Point: 650-1000 °F 343-538 °C
Specific Gravity: >1.0
Percent Volatiles: <0.5%
Vapor Pressure: not applicable
Vapor Density: not available
pH Factor: not available
Solubility: not available
Evaporation Rate: not available

10. Stability And Reactivity

Stability: Stable
Hazardous Polymerization: Not expected to occur

Conditions To Avoid (Stability)
Extreme temperatures, open flames, and strong oxidants.

Hazardous Decomposition Products
Decomposition not expected to occur if handled and stored properly.

Conditions To Avoid (Polymerization)
Incomplete combustion

11. Toxicological Information

Chronic/Carcinogenicity
None of the ingredients present in this product, at concentrations equal to or greater than 0.1%, have been determined to be carcinogenic by IARC, NTP, OSHA, or ACGIH.

Miscellaneous Toxicological Information
Toxicological testing has not been conducted for this product overall. Available toxicological data for individual

Henry COMPANY

BK7000 - BAKOR VAPOR BLOC SA

11. Toxicological Information - Continued

Miscellaneous Toxicological Information - Continued
ingredients are summarized below.

Ingredient(s) - Carcinogenicity
high density polyethylene
Listed In The IARC Monographs

12. Ecological Information

None identified.

13. Disposal Considerations

Dispose in accordance with applicable federal, state and local government regulations.

14. Transport Information

Ground Not restricted

IMDG Not restricted

IATA Not restricted

15. Regulatory Information

U.S. Regulatory Information
Asphalt may contain detectable amounts of chemicals known to the State of California to cause cancer or reproductive harm.

Ingredient(s) - State Regulations
asphalt, petroleum
California - Proposition 65
siliconized release paper
New Jersey - Workplace Hazard
New York City - Hazardous Substance

Canadian Regulatory Information
This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR. WHMIS Classification: Not classified or controlled.

NFPA

HMIS

HEALTH	0
FLAMMABILITY	1
REACTIVITY	0
PERSONAL PROTECTION	

16. Other Information

Revision/Preparer Information
This MSDS Supersedes A Previous MSDS Dated: 09/10/2008

BK7000 - BAKOR VAPOR BLOC SA

Disclaimer
Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitablility of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purposes(s).
HENRY COMPANY

Appendix 5
Work Plan

exp.

Laboratoire d'essais de toiture (17025)
Plan de travail

Client : Siplast	Dossier nº : SIPZ-DRS-00221706-02-5100
Projet : Grande table	Chargé de projet : Nicolas Courchesne
Contact : Todd Corley	Technicien désigné : Denis Isabelle

Appel reçu par : Michel Desgranges le 2014-07-07 (aaaa-mm-jj) à ____ (heure min.) ☐ À confirmer

Demandé par : Todd Corley pour le 2014-10-06 (aaaa-mm-jj) à ____ (heure min.) ☒ Instructions transmises par téléphone ou courriel

Montage par : Siplast Firme : ____ Tél. : ____

☐ **Instruction du client**	**Montages**
☒ CSA A123.21 ☐ Autres : ____	☐ Avec murissement / nbre ____ ☐ Sans murissement / nbre ____
☐ MARS ☐ AARS ☒ PARS ☐ Nombre ____	

Matériaux à tester :

-Panneau de support : Densdeck Prime fixé mécaniquement
-Pare-vapeur : Paradiene 20 TG soudée
-Isolant : Paratherm W, adhéré
- Panneau de recouvrement: Densdeck Prime, adhéré
- Sous-couche : Paradiene 20 TG soudée
-Finition : Paradiene 30 TG soudée

Titre du projet : Mod- bit Vapor Barrier welded system, Partially attached (PARS)

Description des produits :

- Densdeck Prime, 8 Vises et plaquettes par panneau
- Paradiene 20 TG soudée sur panneau de support
- Isolant Paratherm W de Siplast 2 " adhéré cordon de 12"
- Densdeck Prime, adhéré cordon de 12"
- Sous couche soudée au panneau de recouvrement
- Finition soudée sur sous-couche

TEST : -45 PSF [initials] 2014-11-26

Livraison de matériaux prévus le : ____

Fiches techniques reçues : ☒ Oui ☐ Non

Fiches signalétiques reçues : ☒ Oui ☐ Non

Matériaux livrés le : 16-09-14 par : BAKOR
26-09-14 par : XL Transportation
06-10-14 par : DURO DURACHER

[initials] 2014-11-26

Résumé des travaux

Date prévue de production : 2014-10-15

Préparé par : Nicolas Courchesne [signature]

Approuvé par : Michel Desgranges [signature]

REV_2014-09-17

Appendix 6
Materials receiving form

Toiture
Réception des matériaux

☒ CSA A123.21 ☐ CAN/ULC-S107 (10) ☐ UL 790 (13)

Client : SiPlast	Type d'essai : Dynamique
Dossier : SIPZ-DRS-00221706	Date de réception : 2014-09-16 ISD

Matériel reçu	Description ou N/A	N° de coulée	État des produits	Quantité livrée	Quantité commandée	Conformité selon fiche technique	Technicien	Commentaires
Barrière thermique								
Pare-vapeur	Vapor-Bloc SA	—	Bon	2 Rouleaux			ISD	Henry Baker company
Isolation								
Panneau support								
Membrane mono-couche								
Membrane sous-couche								
Membrane finition								
Ancrage								
Plaquette								
Adhésif 1								
Adhésif 2								
Apprêt								
Spécimen								
Outillage								
Autre :								
Autre :								
Autre :								

Remarque :

Toiture
Réception des matériaux

☑ CSA A123.21 ☐ CAN/ULC-S107 (10) ☐ UL 790 (13)

Client :	Siplast	Type d'essai :	Dynamique
Dossier :	SIPZ-DRS-00221706	Date de réception :	26/09/2014

Matériel reçu	Description ou N/A	N° de coulée	État des produits	Quantité livrée	Quantité commandée	Conformité selon fiche technique	Technicien	Commentaires
Barrière thermique								
Pare-vapeur								
Isolation	Polyiso Paratherm "W"		bon	20x4'x8'			NPC	
Panneau support								
Membrane mono-couche	Paradiene 20TG		bon	25 Rouleaux			NPC	
Membrane sous-couche	Paradiene 30TG White 93		bon	25 Rouleaux			NPC	
Membrane finition								
Ancrage								
Plaquette								
Adhésif 1								
Adhésif 2								
Apprêt								
Spécimen								
Outillage								
Autre :								
Autre :								
Autre :								

Remarque : _____

STRAIGHT BILL OF LADING - SHORT FORM
ORIGINAL - NOT NEGOTIABLE

CARRIER	SHIP DATE	CARRIER'S NUMBER	BILL OF LADING NUMBER
XL TRANSPORTATION	9/24/2014		03-092314-1
			CUSTOMER P.O. NUMBER

SHIPPED FROM:	CONSIGNED TO:
ATLAS ROOFING CORP. 55 Akron Road Etobicoke, Ontario Canada M8W 1T3	EXP 2400 CANADIAN ST. DOOR 12 DRUMMONDVILLE, QC J2C 7W3

SPECIAL INSTRUCTIONS:

DIVERSIONS AND RECONSIGNMENTS MUST BE CONFIRMED WITH SHIPPER. DRIVER MUST NOTIFY SHIPPER, IN PRESENCE OF CONSIGNEE, OF ANY OVERAGES OR SHORTAGES

SIPLAST PROGRAM

DENIS ISABELLE

1-819-477-3775 ext. 223

FREIGHT CHARGERS ARE PREPAID UNLESS MARKED COLLECT

CHECK BOX IF COLLECT ☐

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

Atlas Roofing Corporation
(Signature of Consignor)

RECEIVED, subject to individually determined rates or contracts that have been agreed upon in writing between the carrier and shipper, if applicable, otherwise to the rates, classifications and rules that have been established by the carrier and are available to the shipper, on request, the property described below, in apparent good order, except as noted (contents and conditions of contents of packages unknown) marked, consigned, and destined as shown, which said carrier agrees to carry to destination, if on its route, or otherwise to deliver to another carrier on the route to destination. It is mutually agreed as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Straight Bill of Lading set forth (1) in the Uniform Freight Classification in effect on the date hereof, if this is a rail shipment, or (2) in the National Motor Freight Classification 100-X and successive issues if this is a motor carrier shipment. The shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, including those on the back thereof, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

QUANTITY SHIPPED	PRODUCT CODE	DESCRIPTION
1 pkg		POLYISO FOAM SAMPLE 44H" X 48W" X 96L"

293482

	TOTAL WEIGHT: 350 LBS
RECEIVED BY:	Date:

SHIPPER Atlas Roofing Corporation	CARRIER:	
PER JOHN KLIN 9/23/2014	PER X	9/23/2014

9/23/2014 7:35 AM

Laboratoire d'essais de toiture (17025)
Réception des matériaux

☒ CSA A123.21 (14) ☐ CAN/ULC-S107 (10) ☐ UL 790 (13)

Client : Siplast	Type d'essai : Dynamique
Dossier : SIPZ-DRS-00221706	Date de réception : 2014-10-06

Matériel reçu	Description ou N/A	N° de lot (si connu)	État des produits (condition)	Quantité livrée	Conformité selon plan de travail	Technicien	Commentaires
Barrière thermique							
Pare-vapeur							
Isolation	Roxul TopRock DD Plus		Bon	21 mx		RSD	4'x4'x 2"
Panneau support	DensDeck Prime		Bon	50 mx		ISD	4'x4'x 1/2"
Membrane monocouche							
Membrane sous-couche							
Membrane finition							
Ancrage							
Plaquette							
Adhésif 1							
Adhésif 2							
Apprêt							
Spécimen							
Outillage							
Autre :							
Autre :							
Autre :							

Remarque : _____

RETURN TO / RETOURNEZ A

3

ATTENTION ROXUL CANADA INC

DEPARTMENT - DÉPARTEMENT

FROM - DE EXP

2400 CANADIEN door 12

DATE 10/6/14

SUBJECT - OBJET

MESSAGE

21 pcs topRock DDT

1 pallet

REÇU 2014-10-06

6:30 AM

10/6/14

* Positentes INC / Beacon Roofing Supply Delivery

USE LOWER PORTION FOR REPLY - PARTIE DU BAS POUR RÉPONDRE

REPLY FROM - RÉPONSE DE

DATE

Blueline A 20B Inter-Office Memo - Memo inter-bureau

STRAIGHT BILL OF LADING - SHORT FORM *TRUCKER*

ORIGINAL - NOT NEGOTIABLE	CUSTOMER P.O. (1/2)#	REQ DEL DATE	SHIP DATE	MASTER ORDER #	BOL No
NOEEI § 30.36	725-010-9451-7018	10/7/14	10/6/14	413315083	413315081

RECEIVED, subject to the classifications and lawfully filed tariffs in effect on the date of the issue of this Bill of Lading.

From: **Georgia-Pacific Gypsum LLC** at **Newington, NH 03801** Date:

LOAD SEQ# 2 of 2

The property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Uniform Freight Classification in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff if this is a motor carrier shipment. Shipper hereby certifies that he is familiar with all terms and conditions of the said bill of lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

SHIP TO #:

EXP
2400 CANADIAN ST DOOR 12
ATTENTION DENIS ISABELLE SIPLAST PROGRAM
Drummondville, QC J2C 7W3
(819) 314-6995

CUSTOMER #: 31940

Arrival Time _____
Unload Start _____
Unload Finish _____
Drivers Int _____ Date _____
Drivers Int _____ Date _____

DELIVERING CARRIER	CONTAINER#	CAR/TRUCK#	TRAILER#	SEAL NO. 1	SEAL NO. 2
DURO-DUROCHER INTERNATIONAL					

QUANTITY	UNITS	SKU	PRODUCT ID	DESCRIPTION	CALCULATED WEIGHT	SALES UNIT
50	PCS		012527	1/2X48"x4' DensDeck Prime Roof Board	1,708	0.800 MSF
				(11) Plaster boards,not ornamented;Oth facing		
				*** SHIP EXACT UNLESS BALANCE ITEM NOTED ***		
				TOTAL MSF FOR THIS ORDER		0.800

REQU 2014-10-06 ISD

These commodities, technology or software were exported from the United States in accordance with the Export Administration Regulations. Diversion to U.S. Law is prohibited.

NOTICE TO CARRIER: The weights indicated on this bill of lading are estimates only, and shipper 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. DUNNAGE WEIGHT (LBS) 27

EST. TOTAL WEIGHT (LBS) 1,735

FREIGHT/TRANSP
FOB DESTINATION FREIGHT ALLOWED & PREPAID

ATTENTION! REFER TO DELIVERY DATE AND TIME. LOAD MUST BE SECURED PROPERLY AND ARRIVE CLEAN, DRY AND DAMAGE-FREE. CLAIMS WILL NOT BE HONORED FOR SHORTAGE OR DAMAGED MATERIAL UNLESS SO NOTED ABOVE AND SIGNED BY CUSTOMER AND CARRIER.

If charges are to be prepaid, indicate 'PREPAID'
TO BE PREPAID

Subject to Section 7 of Conditions of applicable bill of lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

Georgia-Pacific Gypsum LLC
(Signature of Consigner)

Date

Per

ROUTE
COMMERCIAL TRUCK

COUNTRY OF ORIGIN: U.S.A.
STATE OF ORIGIN: NH

Georgia-Pacific Gypsum LLC Shipper

Per Agent

Received By (Customer Signature)

Permanent post-office address of shipper: Newington
170 Shattuck Way
Newington, NH 03801

(This bill of lading is to be signed by the shipper and agent of the carrier issuing same).

413-058885

Printed 10/6/2014

Durocher International

Division de Transport TFI 19
1214 Route 255
St-Félix de Kingsey, QC Canada
J0B 2T0
NIR # R-577852-8

Tel. : (819) 848-2042
Sans frais: (800) 267-2042
Fax: (819) 848-2587

CONNAISSEMENT / BILL OF LADING 0498

Expéditeur / Shipper

Georgia Pacific
170 Shattuck way
Newington N-H

Consignataire / Consignee

Siplast inc
2400 canadian street door 12
Drummondville, que

Date	# Commande	Client ref. #	# Camion / Truck	# Remorque / Trl
october 6th 2014	413 315 081		375012	333 0008

QTY	DESCRIPTION	POIDS / WEIGHT
50	pcen Dens Deck Prime	1735 lbs
	Roof Board	

REÇU 2014-10-06 153

Transporteur / Carrier	Consignataire / Consignee
X [signature]	X [signature]
Date: october 6th 2014	Date:

Laboratoire d'essais de toiture (17025)
Réception des matériaux

☒ CSA A123.21 (14) ☐ CAN/ULC-S107 (10) ☐ UL 790 (13)

Client : Siplast	Type d'essai : Dynamique
Dossier : SIPZ-DRS-00221706	Date de réception : 2014-10-07

Matériel reçu	Description ou N/A	N° de lot (si connu)	État des produits (condition)	Quantité livrée	Conformité selon plan de travail	Technicien	Commentaires
Barrière thermique							
Pare-vapeur							
Isolation							
Panneau support							
Membrane monocouche							
Membrane sous-couche							
Membrane finition							
Ancrage							
Plaquette							
Adhésif 1	OlyBond 500		Bon	1 Bte			
Adhésif 2							
Apprêt							
Spécimen							
Outillage							
Autre :							
Autre :							
Autre :							

Remarque : _____

Packing List

Ship To: EXP
2400 CANADIAN STREET
DOOR 12

DRUMMONDVILLE,Quebec J2C 7W3
CA
800-633-3800

Order Date: 10/6/2014
Ship Date: 10/6/2014
Ship From: 1200

Order Number: 1112760
Customer PO: JOE SCOPELITE

Shipper ID: 11127601200
Ship Via: WEXPSVR
Carrier: UPS

Line	Quantity Ordered	UM	Qty Shipped Cumulative	UM	Package UM	Item Number	Description
1	1.00	EA	1.00	EA	BOX	OB500SS-R	OLYBOND 500 SPOTSHOT

REÇU
2014-10-07

NOTE: Receiver MUST count all boxes.

NOTIFICATION OF DISCREPANCIES MUST BE MADE WITHIN 24 HOURS OF RECEIPT FOR CREDIT.

OMG, INC
153 BOWLES ROAD
AGAWAM, MA 01001
UNITED STATES OF AMERICA

COMMERCIAL INVOICE

BILL TO:
SIPLAST, INC. - CANADA
201 BEWICKE AVE. STE 210
NORTH VANCOUVER, BC V7M 3M7
UNITED STATES OF AMERICA

SHIP TO:
EXP
2400 CANADIAN STREET
DOOR 12
DRUMMONDVILLE, QC J2C 7W3
CANADA

Order Date	Ship From	Ship Date	Shipper ID	Carrier	Freight Terms	PRO Number
10/06/14	1200	10/06/14	00669321	ups-mn	PPD-ADD	1z271e200402609262

Line	Qty Ship	UM	Item Number H.S. Class Code	Country of Origin	Description	Order Number	Customer PO	Price	Ext Price	Net Weight
001	1.0	EA	OB500SS-R 3506.99.00.00	USA	OLYBOND 500 SPOTSHOT	1112760	JOE SCOPELITE	151.89	151.89	18.12
Piece Qty:	1.0						Total:	USD 151.89	Total Weight:	18.12

RECU
2014-10-07
ISD

NORTH AMERICA FREE TRADE AGREEMENT

CERTIFICATE OF ORIGIN

1. Exporter Name and Address		2. Blanket Period:
OMG, Inc. 153 Bowles Road Agawam, MA 01001 Tax Identification Number: 04-3228936		From: 1-Jan-14 To: 31-Dec-14
3. Producer Name and Address		4. Importer Name and Address
OMG, Inc. 153 Bowles Road Agawam, MA 01001 Tax Identification Number: 04-3228936		Siplast 2400 Canadian St Door 12 Drummondville, QC Canada J2C 7W3 Tax Identification Number:

Description of Good(s):	H.S. Tariff Classification Number	Preference Criterion	Producer	Net Cost	Country of Origin
STEEL ROOFING FASTENERS	7318.14.10.60	C	YES	NO	USA
STEEL RFG. FASTENERS (non threaded)	7318.29.00.00	C	NO (3)	NO	USA
STEEL ROOFING PLATES	7326.90.90.99	C	YES	NO	USA
PLASTIC ROOFING FASTENERS	3925.90.00.90	C	NO (3)	NO	USA
PLASTIC ROOFING PLATES	3925.90.00.90	C	NO (3)	NO	USA
SCREW GUNS	8467.29.90.40	C	NO (3)	NO	USA
ROOFING HAND TOOL	8205.59.90.80	C	NO (3)	NO	USA
INDUCTION ROOFING TOOL	8467.29.90.90	C	NO (3)	NO	USA
ROOFING TOOL MAGNETS	8505.11.00.00	C	NO (3)	NO	USA
DRILL BITS (masonry boring)	8207.50.00.10	C	NO (3)	NO	USA
DRILL BITS (metal boring)	8207.50.00.20	C	NO (3)	NO	USA
DRILL BITS (driver)	8207.90.90.90	C	NO (3)	NO	USA
ALUMINUM RFG. DRAINS	7610.90.00.10	C	YES	NO	USA
ALUMINUM ROOF VENTS	7610.90.00.10	C	NO (3)	NO	USA
COPPER RFG. DRAINS	7419.99.90.10	C	YES	NO	USA
U FLOW DRAIN SEALS	4016.93.99.90	C	NO (3)	NO	USA
RUBBER PIPE SUPPORTS	4016.99.90.90	C	NO (3)	NO	USA
ADHESIVE	3506.91.90.90	C	NO (3)	NO	USA
ADHESIVE APPLICATORS	8424.20.9090	C	NO (3)	NO	USA
ADHESIVE MIX TIPS	3926.90.99.90	C	NO (3)	NO	USA
ALUMINUM TERMINATION BAR	7616.99.90.90	C	NO (3)	N0	USA
POLYMER BATTEN STRIP	3907.60.00.00	C	NO (3)	NO	USA
ROOF REPAIR TAPE	3919.90.99.90	C	NO (3)	NO	USA

I certify that:

The information on this document is true and accurate and I assume the responsibility for proving such representations. I understand that I am liable for any false statements or material omissions made on or in connection with this document.

I agree to maintain and present upon request, documentation necessary to support this certificate and to inform, in writing, all persons to whom the certificate was given of any changes that would affect the accuracy or validity of this certificate.

The goods originated in the territory of one or more of the parties, and comply with the origin requirements specified for those goods in the North American Free Trade Agreement, and unless specifically exempted in Article 411 or Annex 401, there has been

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

Authorized Signature:		Company:
C. Kennedy		OMG, Inc
Name: (print or type)		Title:
Cathy Kennedy		Shipping Coordinator
Date:	Telephone:	Fax:
10/6/2014	(413) 789-0252	(413) 786-0952

Appendix 7
Conformity Certificate

Exp Services Inc.
2400 Canadien Street, Drummondville,
Quebec, J2C 7W3

CONFORMITY CERTIFICATE

Certificate N°: **SIPZ-DRS-00221706-02-5100**

Applicable standard: Standard test method for the dynamic wind uplift resistance of roofing-membrane systems (CSA A123.21-14).

Exp Services Inc., have recognized the conformity of:

All tested products in accordance with the work order of the above file number (certificate)

Delivered to:

Siplast.
1111 Highway 67 South, Arkadelphia, AR 71923

Denis Isabelle, principal technician
Roofing and Waterproofing

Michel Desgranges, T.P. #OTPQ 18788
Roofing and Waterproofing Director (Quebec)

Appendix 8
Temperatures registry

Laboratoire d'essais de toiture (17025)
Registre de température de cure des matériaux
Essai d'arrachement au vent
CSA A123.21 (14)

Adresse du laboratoire : 2400 Canadien Drummondville	**Tolérance :** température : 23 ± 5 °C
Thermomètre utilisé (lecture ambiante) : BIOS B11Q68	**N° projet :** SIPZ-DRS-00221706-02-5100

Date (AAAA-MM-JJ)	Heure de lecture	Température ambiante (°C)	Conformité		Technicien	Commentaires
			C	NC		
2014-10-07	7h30	21.0	X			
2014-10-08	7h10	21.4	X			
2014-10-09	8h30	21.1	X			
2014-10-10	8h45	21.6	X			
2014-10-14	8h45	21.6	X			
2014-10-15	7h	21.4	X			
			X			

Remarque : _____