

## TECHNICAL DATA SHEET

Diamondback is a two component, closed cell, spray applied, rigid polyurethane foam system. Diamondback complies with the intent of the International Code Council's residential and commercial building codes and is commonly used as a thermal insulation, air barrier, vapor retarder and water resistive barrier in above grade, below grade, interior and exterior applications.

PHYSICAL PROPERTIES			
ASTM D 1622	Core Density	2.0 lb/ft <sup>3</sup>	32.0 kg/m <sup>3</sup>
ASTM C 518	Aged Thermal Resistance (R-value @ 1 inch)	6.5 ft <sup>2</sup> h <sup>2</sup> °F/BTU	1.14 Km <sup>2</sup> /W
ASTM E 283	Air Permeance @ 1"	0.013 L/sm <sup>2</sup>	
ASTM E 96	Water Vapor Permeance @ 1"	1 perm	57.2 ng/Pa•s•m <sup>2</sup>
	Water Vapor Permeance @ 2"	0.50 perm	28.6 ng/Pa•s•m <sup>2</sup>
	Water Vapor Permeance @ 3"	0.33 perm	18.9 ng/Pa•s•m <sup>2</sup>
	Water Vapor Permeance @ 4"	0.25 perm	14.3 ng/Pa•s•m <sup>2</sup>
	Water Vapor Permeance @ 5"	0.20 perm	11.4 ng/Pa•s•m <sup>2</sup>
	Water Vapor Permeance @ 6"	0.17 perm	9.7 ng/Pa•s•m <sup>2</sup>
ASTM D 2842	Water Absorption (% by volume)	< 3%	
ASTM D 1621	Compressive Strength	> 25 psi	> 172 kPa
ASTM D 1623	Tensile Strength	57 psi	393 kPa
ASTM D 2126	Dimensional Stability (158° F (70 °C) 97% RH, 7 days, vol. %)	< 15%	
VOC Emissions	UL Environment (Greenguard Gold)	Meets Criteria	
ASTM D 6226	Closed Cell Content	> 90%	
ASTM C 1338	Fungi Resistance	Pass, with no growth	

FIRE TEST RESULTS		
ASTM E 84	Surface Burning Characteristics, 4" thick Flame Spread Index Smoke Developed	Class I < 25 < 450
AC 377 Appendix X	Attics and crawlspace application without a prescriptive ignition barrier according to ESR 3758 Section 4.4.2.	≤ 11.5"
NFPA 286	Thermal Barrier - Compliant with the 2009, 2012, 2015 & 2018 IBC and IRC, as an interior finish without a 15 minute thermal barrier when coated with TPR2 Fireshell® F10E at 17 mils wet film thickness, 11 mils dry film thickness, or DC 315 at 22 mils wet film thickness, 14 mils dry film thickness.	Pass

REACTIVITY PROFILE	
Cream Time	Tack Free Time
1 - 2 seconds	4 - 8 seconds

THERMAL RESISTANCE (R-VALUES)			
1.0"	6.5	7.5"	50
3.1"	21	8.5"	56
3.5"	23	9.5"	63
4.0"	27	10.0"	66
5.5"	37	11.25"	75
6.0"	40	11.5"	76

\*R-Values are determined in accordance with ASTM C687. Complies with ASTM C764 as Type 1 Insulation



LIQUID COMPONENT PROPERTIES*		
PROPERTY	A-PMDI ISOCYANATE	DIAMONDBACK RESIN
Color	Brown	Amber
Viscosity @ 77 °F (25 °C)	180 – 220 cps	Summer = 800 cps Winter = 500 cps
Specific Gravity @ 77 °F (25 °C)	1.24	1.14
Shelf Life of unopened drum properly stored	12 months	6 months
Storage Temperature	50 – 100 °F (10 – 38 °C)	50 – 80 °F (10 – 27 °C)
Mixing Ratio (volume)	1:1	1:1

\*See SDS for more information.

RECOMMENDED PROCESSING CONDITIONS*		
Initial Primary Heater Setpoint Temperature	110 – 135 °F	43 – 57 °C
Initial Hose Heat Setpoint Temperature	≤ 135 °F	≤ 57 °C
Initial Processing Setpoint Pressure	1100 – 1500 psi	7584 – 10342 kPa
Substrate & Ambient Temperature	Summer = > 50 °F Winter = > 25 °F	Summer = > 10 °C Winter = > -4 °C
Moisture Content of Substrate	≤ 19%	≤ 19%
Moisture Content of Concrete	Concrete must be cured, dry and free of dust and form release agents.	

\*Foam application temperatures and pressures can vary widely depending on temperature, humidity, elevation, substrate, equipment and other factors. While processing, the applicator must continuously observe the characteristics of the sprayed foam and adjust processing temperatures and pressures to maintain proper cell structure, adhesion, cohesion and general foam quality. It is the sole responsibility of the applicator to process and apply Diamondback within specification.

**General Requirements:** Equipment must be capable of delivering the proper ratio (1:1 by volume) of polymeric isocyanate (PMDI) and polyol blend at adequate temperatures and spray pressures. Substrate must be at least 5 degrees above dew point, with best processing results when ambient humidity is below 80%. Substrate must also be free of moisture (dew or frost), grease, oil, solvents and other materials that would adversely affect adhesion of the polyurethane foam. For the 2" product, applicators should limit the application of this product to no more than a thickness of 2" (50mm) per pass (after expansion) to avoid fire hazards (including spontaneous combustion) resulting from excessive heat generation. A second 2" (50mm) layer may be applied immediately after the first one has fully risen. For the 3.25" product, applicators should limit the application of this product to no more than a thickness of 3.25" (82mm) per pass (after expansion) to avoid fire hazards (including spontaneous combustion) resulting from excessive heat generation. For either product, if subsequent passes are needed, applicators should wait until the core temperature of the foam has dropped below 100 °F to allow any reaction heat to dissipate from the prior applications before attempting to reapply the product.

Diamondback must be separated from the interior of the building by an approved thermal barrier or an approved finish material equivalent to a thermal barrier in accordance with applicable codes. Diamondback must be sprayed at a minimum thickness of 1" per pass. This product must not be used when the continuous service temperature of the substrate or foam is below -60 °F (-51 °C) or above 180 °F (82 °C). Diamondback should not be used to cover flexible ductwork.

**Disclaimer:** The information herein is to assist customers in determining whether our products are suitable for their applications. We request that customers inspect and test our products before use and satisfy themselves as to contents and suitability. Nothing herein shall constitute a warranty, expressed or implied, including any warranty of merchantability or fitness, nor is protection from any law or patent inferred. All patent rights are reserved. The foam product is combustible and must be protected in accordance with applicable codes. Protect from direct flame and spark contact, around hot work for example. The exclusive remedy for all proven claims is replacement of our materials.

