

## TECHNICAL DATA SHEET

Barnseal® HD is a two component, closed cell, spray applied, rigid polyurethane foam system. The resin contains polyols made from renewable soy oils, recycled plastic, and the newest generation of blowing agent with zero ozone depleting potential. Barnseal HD is specially designed to insulate barns, stables and agricultural buildings.

PHYSICAL PROPERTIES			
ASTM D 1622	Density	6.0 lb/ft <sup>3</sup>	96.0 kg/m <sup>3</sup>
ASTM C 518	Initial Thermal Resistance (R-value @ 1 inch)	5.7 - 5.9 ft <sup>2</sup> h°F/BTU	1.00 - 1.04 Km <sup>2</sup> /W
ASTM E 283	Air Permeance @ 75 Pa @ 1"	< 0.02 L/sm <sup>2</sup>	
ASTM E 96	Water Vapor Permeance @ 1"	< 1 perm	< 57.2 ng/Pa•s•m <sup>2</sup>
ASTM D 1621	Compressive Strength	120 - 130 psi	827 - 896 kPa
ASTM D 2842	Water Absorption (qualifies as moisture barrier and drain plane)	< 2%	
ASTM D 2856	Closed Cell Content	> 90%	

LIQUID COMPONENT PROPERTIES*		
PROPERTY	A-PMDI ISOCYANATE	BARNSEAL HD RESIN
Color	Brown	Black
Viscosity	180 - 220 cps @ 77°F (25°C)	750 - 900 cps @ 68°F (20°C) 450 - 550 cps @ 77°F (25°C)
Specific Gravity	1.24	1.13 - 1.17 @ 68°F (20°C)
Shelf Life of unopened drum properly stored	12 months	6 months
Storage Temperature	50 - 100°F (10 - 38°C)	50 - 85°F (10 - 29°C)
Mixing Ratio (volume)	1:1	1:1

\*See SDS for more information.

REACTIVITY PROFILE				
	Cream Time	Gel Time	Tack Free Time	End of Rise
Hand Mix*	8 - 10 seconds	12 - 14 seconds	14 - 16 seconds	N/A
Machine Mix**	0 - 1 seconds	4 - 5 seconds	5 - 6 seconds	6 - 7 seconds

\*Hand mixed using a 2" mixer @ 2500 RPM for 10 seconds, liquid components at 77°F (25°C).

\*\*High pressure machine (Graco E30), liquid components at 73°F (23°C).

RECOMMENDED PROCESSING CONDITIONS*		
Initial Primary Heater Setpoint Temperature	125°F	52°C
Initial Hose Heat Setpoint Temperature	125°F	52°C
Initial Processing Setpoint Pressure	1000 psi	6895 kPa
Substrate & Ambient Temperature	> 50°F	> 10°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 Barnseal HD 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. Due to the exothermic reaction of the isocyanate and polyol blend, mixed components should be applied in layers (maximum 3" thickness per layer). Allow foam to cool completely before applying successive layers.

Many States exempt non-residential agricultural buildings from compliance with building code requirements. When Barnseal HD is used in buildings not exempted from the code, the foam 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. Check with the authority having jurisdiction to confirm building code exemption or requirement to comply. Barnseal HD 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). Barnseal HD 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.

