

## TECHNICAL DATA SHEET

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

PHYSICAL PROPERTIES			
ASTM D 1622	Density	2.2 - 2.3 lb/ft <sup>3</sup>	35 - 37 kg/m <sup>3</sup>
ASTM C 518	Initial Thermal Resistance (R-value @ 1 inch)	7.15 ft <sup>2</sup> h°F/BTU	1.26 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 @ 1.2"	< 1 perm	< 57.2 ng/Pa•s•m <sup>2</sup>
ASTM D 1621	Compressive Strength	23 psi	158 kPa
ASTM D 1623	Tensile Strength	> 35 psi	> 241 kPa
ASTM D 2842	Water Absorption (qualifies as moisture barrier and drain plane)	< 2%	
ASTM D 2126	Dimensional Stability @ 158°F (70°C) 90% R.H. (28 days, sample without any substrate) 4"x4"x2"	(% volume change) + 1.8	
ASTM C 1338	Fungi Resistance	Rating: 0 (no significant growth identified)	
ASTM D 2856	Closed Cell Content	> 92%	

FIRE TEST RESULTS		
ASTM D 1929	Ignition Properties (spontaneous ignition temperature)	> 842°F (450°C)

LIQUID COMPONENT PROPERTIES*		
PROPERTY	A-PMDI ISOCYANATE	BARNSEAL MD RESIN
Color	Brown	Green/Blue
Viscosity @ 77°F (25°C)	180 - 220 cps @ 77°F (25°C)	Summer 210 - 310 cps Winter 180 - 280 cps
Specific Gravity	1.24	Summer 1.19 - 1.21 Winter 1.20 - 1.22
Shelf Life of unopened drum properly stored	12 months	6 months
Storage Temperature	50 - 100°F (10 - 38°C)	59 - 77°F (15 - 25°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
1 - 2 seconds	4 - 5 seconds	6 - 7 seconds	7 - 8 seconds

RECYCLED & RENEWABLE CONTENT	
Polyols Containing Recycled and Renewable Content	~ 40%
Renewable Content	13.5%

RECOMMENDED PROCESSING CONDITIONS*		
Initial Primary Heater Setpoint Temperature	Summer 108 - 112°F Winter 100 - 120°F	Summer 42 - 44°C Winter 38 - 49°C
Initial Hose Heat Setpoint Temperature	Summer 108 - 112°F Winter 100 - 120°F	Summer 42 - 44°C Winter 38 - 49°C
Initial Processing Setpoint Pressure	Summer 800 psi Winter 800 psi	Summer 5516 kPa Winter 5516 kPa
Substrate & Ambient Temperature	Summer > 41°F Winter 14 - 59°F	Summer > 5°C Winter -10 - 15°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 MD 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 2" 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 MD 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 MD 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 MD 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.