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## Product Specification - BioBased 2000 NB Spray Foam

### A. Product

*BioBased 2000 NB* 2.0 lb/ft<sup>3</sup> spray foam polyurethane closed cell insulation formulated with HFC-245fa as the blowing agent.

### B. Product Description

*BioBased 2000 NB* spray foam insulation is a two-part product installed by Certified Dealers using custom designed application equipment. When installed, *BioBased 2000 NB* expands to completely fill all voids to effectively seal against air infiltration—often the major source of heat/cooling loss. *BioBased 2000 NB* also provides superior thermal and structural performance when compared to other insulation products. *BioBased 2000 NB* provides superior thermal and structural performance in conventional construction when compared to other insulation products, but is especially effective in steel framed structures, metal buildings, and older homes.

*BioBased 2000 NB* is applied by spraying liquid chemical components onto open wall, ceiling, and floor surfaces; or into wall and other cavities. When applied, the components quickly expand to make a foam layer of millions of air pockets—covering surfaces and filling cracks and voids. The foam adheres to almost all surfaces, and when cured can be trimmed off to provide a surface that is ready for drywall or other finishing.

### C. Foam Physical Properties (ICC Acceptance Criteria)

International Code Council (ICC) Acceptance Criteria (AC12) Testing Requirements for Structural Foam	Required Test Results	BBS 2000NB Test Results
Thermal Resistance at 75°F (24°C) mean temperature: • ASTM C518	As reported	6.3 R (resistivity) per inch of thickness
Core Density: • ASTM D1622	1.5 – 3.0 lb/ft <sup>3</sup> (pounds per cubic foot)	2.0 lb/ft <sup>3</sup>
Tensile Strength: • ASTM D1623	15 lbf/in <sup>2</sup> minimum (pounds per square inch)	50 lbf/in <sup>2</sup>
Dimensional Stability: • ASTM D2126	15% maximum total change	10%
Surface Burning Characteristics: • International Building Code (IBC) ASTM E84	75 or less flamespread index 450 or less smoke developed index	25 flamespread index 400 smoke developed index
Compressive Strength: • ASTM D1621	15 lbf/in <sup>2</sup> minimum (pounds per square inch)	25 lbf/in <sup>2</sup>

### D. Additional Physical Properties

#### SHEAR STRENGTH

- Test Standard..... ASTM C273
- Strength in pounds per square inch.....45

#### CLOSED CELL CONTENT

- Test Standard..... ASTM D1940
- Percentage .....93

#### WATER ABSORPTION

- Test Standard..... ASTM D2842
- Rate in grams per cm<sup>3</sup> of insulation..... 0.020

#### WATER PERMEABILITY

- Test Standard ..... ASTM E96
- Perms per inch.....0.94

#### VISCOSITY

- 'A' Component..... 200 cps
- 'B' Component..... 600 ±200 cps

#### SPECIFIC GRAVITY AT 70°F

- 'A' Component..... 1.24
- 'B' Component..... 1.24



## E. Containers

A set of chemicals for *BioBased 2000 NB* spray foam insulation consists of one (1) 55 gallon drum each of 'A' component and 'B' component. The shipping weight for each set is 1090 lbs.

## F. Storage and Handling

**Refer to component MSDS's before handling or storing this product.** All materials should be stored in their original containers and away from heat and moisture - especially after the seals have been broken and the containers opened. Both components should be stored indoors at a temperature between 50°F and 75°F. Temperatures above 75°F may decrease the standard shelf life of 6 months. Containers should be opened carefully to allow any pressure buildup to be vented safely. Extensive venting of the 'B' component may result in higher density foam and reduced yield. Component temperatures below 50°F increases the viscosity of the components.

For further information, refer to "*MDI-Based Polyurethane Foam Systems: Guidelines for Safe Handling and Disposal*" (publication AX-119) published by *Alliance for the Polyurethanes Industry*, 1300 Wilson Blvd., Suite 800, Arlington, VA 22209.

## G. Installation

*BioBased 2000 NB* must be installed only by certified technicians specializing in the installation of spray foam and who are fully familiar with the MSDS's, product labels, and all related safety and handling instructions.

*BioBased 2000 NB* is a fast reacting 2.0 lb/ft<sup>3</sup> density spray foam system designed to be processed on substrates that are clean, dry, and free of moisture or frost. All metal substrates must be free of oil and grease, and should be properly primed. All new plywood and other new wood surfaces must also be primed. Refer to "*Application Bulletin - BioBased 2000 NB Spray Foam*" for installation information.

General applications include structural reinforcement, insulation, recreation and transportation industries.

*BioBased 2000 NB* is not recommended for use as roofing, or for any application that requires compressive strengths greater than 25 psi.

The above data should only be used as a guide since the actual foam properties are influenced by the efficiency of the spray gun, component temperatures, foam thicknesses, and ambient conditions. While the above technical information is based on results of actual tests, it should only be used as a guideline for typical chemical and physical properties. The user must test and qualify the product. Final determination of suitability is the responsibility of the user.

*BioBased Systems* warrants that the physical properties of *BioBased 2000 NB* meet or exceed the numbers listed in the technical data, and that they have been verified through testing by independent laboratories. Further testing and product development is ongoing and those results will be listed in the most current specification literature.

## H. Installation Specifications

Description	'A' Comp.	'B' Comp
Mixing Ratio	50%	50%
Block Heater Temperature	110°F	120–130°F
Hose Temperature	110–130°F	110–130°F
Drum Temperature	70°F	70°F

Description	Regular Blend	Winter Blend
Cream Time	2 seconds	1 second
Tack Free Time	on rise	on rise
Cure Time	4 hours	4 hours
Substrate Temp.	60°–120°F	40°–80°F

**Please contact *BioBased Systems* for building science information for your particular application.**

## I. Warranty

*BioBased Systems* warrants that *BioBased 2000 NB* spray foam insulation, when installed according to *BioBased Systems* certified installation instructions and by a *BioBased Systems* Certified Dealer, will perform as indicated in the current product specification sheet.

## J. Technical Support

*BioBased Systems* Certified Dealers and *BioBased Systems, LLC* both provide information for technical and regulatory issues. Architectural specifications in CSI three-part format are available upon request.

For safety, health, and toxicity information, refer to the *Material Safety Data Sheets* (MSDS) for this product.

## K. Disclaimers

- *BioBased Systems, LLC* does not endorse open combustion appliances located in atticspaces.
- *BioBased 2000 NB* must be separated from living areas by a 15 minute thermal barrier.
- For proper use of this insulating material, refer to *BioBased Systems* application information and any of the following codes or guides:
  - ICC, International Building Code, Section 2603
  - ICC, International Building Code, Section R314
  - API publication AX-230: *Fire and Safety Guidelines for Use of Rigid Polyurethane and Polyisocyanurate Foam Insulation in Building Construction.*



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