

1.0 Description

BioBased® 502 is a water blown, two-part, open cell, bio-based spray applied, polyurethane foam having a nominal density of 0.5pcf (8 kg/m³). When spray applied, **BioBased® 502** expands 100:1, filling voids, crevices and building cavities, and reduces energy consumption needed for climate control by reducing infiltration. Once installed, **BioBased® 502** assists in increasing thermal resistance, minimizes sound transfer, and can reduce the risk of moisture accumulation within the building envelope.

2.0 Installation

BioBased® 502 must be installed by approved contractors who have successfully completed a BioBased Insulation® approved training program or BioBased Insulation® approved field certification training which covers proper application techniques, environmental health and safety, building science and building code standards. Always consult with local building code inspectors prior to installing **BioBased® 502**.

3.0 Evaluation Criteria

For proper use of this material, refer to the *BioBased Insulation® Training Manual* and the following building codes and guides:

2009 International Building Code® (IBC) — Chapter 26

2009 International Residential Code® (IRC) — Section 316

API publication Ax-230: Fire and Safety Guidelines for Use of Rigid Polyurethane and Polyisocyanurate Foam Insulation in Building Construction.

4.0 Architectural Reference

Division: 07 — Thermal and Moisture Protection

Section: 07210 — Building Insulation
Model architectural specifications in CSI three-part format are available upon request.

5.0 Recommended Uses

BioBased® 502 can be used in residential, commercial and industrial applications. The following design assemblies are a general design guide only. **BioBased® 502** may be useful in other applications. Always consult with the local authority having jurisdiction before use.

5.1 General:

BioBased® 502 must be separated from the occupants by ½" (12.7mm) thick gypsum wallboard or an equivalent 15-minute ther-



mal barrier complying with, and installed in accordance with, IBC Section 2603.4 or IRC Section 316.4 as applicable, except when installed in attics and crawlspaces. The maximum thickness of the insulation is 4" (101.6 mm).

6.0 Safety and Handling

Refer to the Material Safety Data Sheet (MSDS) for the **BioBased® 502** Storage temperatures for both 'A' and 'B' components should be between 60°F (15.6°C) and 90°F (32.2°C) out of direct sunlight. Conditioned trailers or storage areas may be necessary.

Use adequate ventilation to keep airborne particulates below the exposure level. Wear respiratory protection if material is heated, sprayed, or if the exposure limit is exceeded. Empty drums should be dry, punctured with a non-sparking tool and sent to a qualified drum recycler. Liquid product should be incinerated in a licensed facility in accordance with local, state and federal regulations. Do not discharge to waterways or sewer systems or dispose of on the ground.

In case of Chemical Emergencies:
Call **CHEMTREC (800) 424-9300** or **(Collect) (703) 527-3887 (USA)**

7.0 Application Guidelines*

While prepping equipment, heating drums and re-circulating for spray foam application, agitate the 'B' component mildly for 15 to 30 minutes before application using a pneumatic or equivalent performing mixer. Agitate for the remainder of the spray period on a low setting to prevent frothing.

Allow a 5 to 10 second time interval between passes to allow foam to cure and reduce the likelihood of blowing the uncured foam away from the substrate.

**It is important that applicators review and understand the BioBased Insulation® Training Manual prior to use or application of BioBased® 502. Failure to follow the manufacturer's recommended guidelines may cause the warranty to become null and void.*

7.1 Flushing/Purging

7.1.1 Chemical blown foams followed by BioBased® 502 water blown foam:

When using **BioBased® 502** after chemically blown spray polyurethane foams it is necessary to flush the entire B-side hoses and gun with a non-water based solvent in order to achieve maximum foam quality and yield.

7.1.2 Water blown foams followed by BioBased® 502:

Flushing the B-side hoses and gun with solvent may not be necessary when switching from one water blown foam system to the next, but it is important that any remaining product from the previous application is completely removed and flushed from applicator guns, lines and pumps by a throughput of **BioBased® 502** product until test sprays indicate that the previous system has been completely replaced with **BioBased® 502**.

7.2 Effect of Environment and Substrate Conditions on Application

The system settings required to achieve quality foam application will vary depending on environmental and substrate conditions. The following recommend parameters will help ensure optimum foam quality. Always consult the BioBased Insulation® Training Manual prior to installing any BioBased Insulation® product.

	A Component	B Component	
Drum Temp.	75 to 85°F (23.9 to 29.4°C)	110°F (43°C)	Hose
Proportioner Temp.	105 to 135°F (40.6 to 57.2°C)		
Pressure	1200 to 1600 psi (82.7 to 110 bar)		
Ambient Temp	50°F to 120°F (10°C to 49°C)		
Ambient Moisture	< 85% Relative Humidity		
Substrate Temperature	50°F to 120°F (10°C to 49°C)		
Moisture on Substrate	Substrate must be dry < 12% WMC		
Wind Velocity	< 12 m.p.h. < (19.3 km/h)		
Max Service Temp	< 180°F < (82.2°C)		

8.0 Containers

Shipping weight per set is 1,032 pounds (468.1 kg). A set **BioBased® 502** consists of one (1) 55 gallon (208 L) drum of 'A' component and one (1) 55 gallon (208 L) drum of 'B' component.

Properties	Value	Test Method	
Water Vapor Permeability†			
3.5" (89 mm)	4.807 perms	ASTM E96	
Air Leakage^Δ			
4" (101.6 mm) @ 75 PA	0.008 L/s/m ²	ASTM E283	
Closed Cell Content	0.8%	ASTM D2856	
Core Density (nominal)	0.5 pcf (8 kg/m ³)	ASTM D1622	
Dimensional Stability	1.34%	ASTM D2126	
Finished Foam Bio-Content	12%	ASTM D6866	
Tensile Strength	4.2 psi (29 kPa)	ASTM D1623	
Surface Burning Characteristics*	4" (101.6 mm)	ASTM E84	
Flame Spread Index	25	ASTM E84	
Smoke Developed Index	325	ASTM E84	
R-Value Aged 90 days @ 140°F (60°C)	ft ² ·°F·h/Btu	(K·m ² /W)	
1.2" (25.4 mm)	R – 3.9	RSI – 0.67	ASTM C518
3.5" (88.9 mm)	R – 13	RSI – 2.29	ASTM C518

- Δ The International Residential Code defines air impermeable as having less than 0.02 L/m-s at 75 Pa.
- * This numerical flame spread and all other data presented is not intended to reflect the hazards presented by this or any other material under actual fire conditions.
- † ASHRAE defines a Class III vapor retarder as a material having between 1 and 10 perms.

Read This Before You Buy - What You Should Know About R-Values

The chart shows the R-value of this insulation. R means resistance to heat flow. The higher the R-value, the greater the insulating power. Compare insulation R-values before you buy. There are other factors to consider. The amount of insulation you need depends mainly on the climate you live in. Also, your fuel savings from insulation will depend upon the climate, the type and size of your house, the amount of insulation already in your house, and your fuel use patterns and family size. If you buy too much insulation, it will cost you more than what you'll save on fuel. To get the marked R-value, it is essential that this insulation be installed properly.

Notice: The technical data contained herein is true and accurate to the best knowledge and information available to BioBased Insulation® on the date of publication. The technical data is subject to change, however, and the user should contact BioBased Insulation® prior to use or application to verify that the technical data is current. In addition, the technical data is provided for your guidance only. Because many factors can affect the processing or application of the product and/or its use, it is the user's responsibility to first test the product to determine its suitability for the user's intended use. The sale and use of this product is subject to all of the terms and conditions set forth in the BioBased Insulation® sales order, including the LIMITED WARRANTY, DISCLAIMER OF WARRANTY AND RELEASE, and EXCLUSION OF CONSEQUENTIAL AND OTHER DAMAGES. This technical data does not create an express warranty of any kind. The only warranty applicable to this product is the written, limited express warranty contained in the BioBased Insulation® sales order, which is extended to the purchaser only.

