

Soy Seal® HD and Soy Seal® XD

Technical Data Sheet



1.0 Description

Soy Seal® HD and **Soy Seal® XD** are water blown, closed cell, spray polyurethane foam sealants. **Soy Seal® HD** has a nominal density of 3.0 pounds per cubic foot. **Soy Seal® XD** has a nominal density of 6.0 pounds per cubic foot. Both products are ideal for use in agricultural and industrial applications.

When installed by an approved installer, **Soy Seal® HD** and **Soy Seal® XD** expand to fill voids, crevices, and cavities, thereby reducing air and moisture flow. This high density polyurethane foam resists the harsh environments typically seen in industrial/agricultural applications. Available in white, black and neutral.

Advantages Summary

- Low VOC (less than 50g/l)
- Adheres to and seals practically any sound surface
- Immediate bond
- Acts as a vapor retarder and air barrier
- Reduces condensation potential
- Contains Agrol® bio-based polyols

2.0 Installation

Soy Seal® HD and **Soy Seal® XD** must be installed by certified dealers who have successfully completed a BioBased Insulation® approved training program or BioBased Insulation® approved field certification program which covers proper application techniques, environmental health and safety.

If used in buildings, **Soy Seal® HD** and **Soy Seal® XD**, must be separated from the interior of habitable spaces of buildings by ½" (12.7 mm) gypsum or equivalent 15 minute thermal barrier. This product is not intended for use in residential or commercial structures.

3.0 Evaluation Criteria

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

ASTM C1029: Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation.

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

ANSI/ASAE S401.2 - Guidelines for Use of Thermal Insulation in Agricultural Buildings

4.0 Recommended Uses

Soy Seal® HD and **Soy Seal® XD** can be used as a sealant in various agricultural

and industrial applications such as but not limited to:

- Poultry Houses/Barns
- Tanks/Silos
- Industrial Duct Work
- Soil Stabilization

5.0 Application Guidelines*

While prepping equipment, heating drums and re-circulating for spray foam application, agitate the 'B' component mildly using a pneumatic or equivalent performing mixer. Mild agitation may be necessary, not to exceed 4 hours per day.

Depth per pass of **Soy Seal® HD** should be between ½" (12.7 mm) and 1½" (38 mm). Depth per pass of **Soy Seal® XD** should be between ½" (12.7 mm) and ¾" (19 mm). Thin passes (¼" [6.35 mm] or less) should be avoided and may result in reduced yield.

Allow a 4 to 6 second time interval between passes to allow foam to cure and reduce the likelihood of blowing the reacting material away from the substrate.

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

6.0 Safety and Handling

Refer to Material Safety Data Sheet (MSDS) prior to application of **Soy Seal® HD** and **Soy Seal® XD**. 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 APR or SAR 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 Flushing/Purging

Enovate® 245fa blown foams followed by Soy Seal® HD or Soy Seal® XD water blown foam: When using **Soy Seal® HD** or **Soy Seal® XD**

after an Enovate® 245fa blown spray polyurethane foam it is necessary to flush the B-side lines with a non-water based solvent in order to achieve maximum foam quality and yield.

Water blown foams followed by Soy Seal® HD or Soy Seal® XD:

Flushing the system with solvent may not be necessary when switching from one water blown foam system to the next, but it is imperative that any remaining product from the previous application is completely removed or flushed from applicator guns, B-side lines and pumping system by a throughput of **Soy Seal® HD** or **Soy Seal® XD** product until test sprays indicate that no mixed foam is present in the system.

When flushing or purging lines, never spray polyurethane foam into large, thick piles as the heat generated during the curing process can cause spontaneous combustion. Before adding additional foam, ensure that the core temperature is less than 150°F.

8.0 Containers

Shipping weight per set is 1,032 pounds (468 kg). A set of **Soy Seal® HD** or **Soy Seal® XD** consists of one (1) 55 gallon (208 L) drum of 'A' component and one (1) 55 gallon (208 L) drum of 'B' component.

9.0 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 recommended parameters will help ensure optimum foam quality. Always consult the *BioBased Insulation® Certified Dealer Training Manual* prior to installing any BioBased Insulation® product.

	A Component	B Component	
Drum Temp.	85 to 100°F (29.4 to 38°C)	85 to 100°F (29.4 to 38°C)	Hose
Proportioner Temp.	125°F (52°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)		
Approximate Yield	Soy Seal® HD 2500-3000 bd. ft. Soy Seal® XD 1200-1500 bd. ft.		

Properties	Soy Seal® HD Value	Soy Seal® XD Value	Test Method
Water Vapor Permeability†			
1½" (38 mm)	< 1 perm		ASTM E96
½" (12.7 mm)		< 1 perm	ASTM E96
Air Permeability			
½" (12.7 mm)	0.07 L/s/m² @ 75 pa	0.04 L/s/m² @ 75 pa	ASTM E283
Closed Cell Content (estimated)	> 90%	> 90%	ASTM D2856
Core Density (nominal)	3.0 lbs./ft³	6.0 lbs./ft³	ASTM D1622
Compressive Strength	42 p.s.i. (290 kPa)	40 p.s.i. (275 kPa)	ASTM D1621
Finished Foam Bio-Content	15%	15%	ASTM D6866
Dimensional Stability			
180°F (82°C), Ambient Humidity	< 1%	< 1%	ASTM D2126
73°F (23°C), 50% Relative Humidity	< 1%	< 1%	ASTM D2126
Surface Burning Characteristics*	1½" (38 mm) (nominal)	Not Rated	
Flame Spread Index	< 25	Not Rated	ASTM E84-04
Smoke Developed Index	< 450	Not Rated	ASTM E84-04
Thermal Transmission Properties			
Initial R-Value	R - 5.0 at 1"	R - 1.25 at ¼"	ASTM C518

† ASHRAE defines a Class II vapor retarder as a material having between 0.1 and 1 perms. **Soy Seal® HD**, when installed at 1½" thickness; and **Soy Seal® XD**, when installed at ½" thickness qualify under this definition as a Class II vapor retarder.

* 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.

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.

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