

DESCRIPTION

ENVELO-SEAL™ 2.0 IB S spray foam wall insulation is a two-component polyurethane foam insulation system. It has a 1.9 - 2.2 PCF spray in place density. ENVELO-SEAL™ 2.0 IB S was developed using an EPA approved zero ODP blowing agent. This product provides superior energy efficiency and air filtration control. The product can be used in open wall cavities, crawlspaces, perimeter rim joists, cathedral ceilings, and garage ceilings. ENVELO-SEAL™ 2.0 IB S meets the USDA criteria for incidental food contact.

FEATURES

- Liquid components can be shipped non-hazardous by OSHA Hazard Communication Standard (29 CFR 1910.1200).
- Contains rapidly renewable resource components.
- Bio-based contents 5% ("B" side).
- Utilizes recycled plastic materials.
- No dangerous heavy metal catalysts (such as lead or mercury).
- No ozone depleting products (ODP).
- No bromine or other halogenated components.
- No formaldehyde components.
- Mildew, bacteria, and fungus resistant.
- Considered safe for burial and landfill disposal.
- Compliant with USDA/FDA requirements for incidental food contact.

RECOMMENDED USES

- Residential insulation
- Industrial insulation
- Vented attics
- Floors
- Crawl spaces
- Fluid tanks
- Commercial insulation
- Exterior walls
- Unvented attics
- Foundations
- HVAC ducts
- Cold storage units in conjunction with vapor barrier

SURFACE BURNING CHARACTERISTICS

ASTM E84	CLASS I
Flame Spread	< 25
Smoke Development	< 300
Nominal Thickness (inches)	4.0
NOTE: The flame spread rating is not intended to re-flect hazards presented by this or any other material under actual fire conditions.	

TYPICAL PHYSICAL PROPERTIES

Viscosity @ 77°F (25°C)	"A" 200 ± 50 cps "B" 550 - 600 ± 50 cps		
Aged R-Value: ASTM C518 75°F (24°C)	6.62 at 1" 26.5 at 4"		
Core Free Density: ASTM D1622	1.7 - 1.8		
Closed Cell Content: ASTM D6226	>92%		
Compressive Properties: ASTM D1621	31 psi		
Tensile Strength: ASTM D1623	55 psi		
Rate of Air Leakage: ASTM E283	<.0002 at 1"		
Dimensional Stability: ASTM D2126 (% volume change)	-20°F	Initial, -0.5	28 days, -0.9
	158°F 100% R.T. Humidity	Initial, -1	28 days, -3
	158°F Dry	Initial, 2.1	28 days 5.2
Performance Permeability: ASTM E96	<1 perms at 1"		
Water Absorption: ASTM D2842	0.01 lb./ft. ² 0.80 by volume		
Shelf Life: stored in original unopened containers between 60° - 80°F (16° - 27°C)	"A" side 1 year "B" side 5 months		
These items are provided as general information only. They are approximate values and are not part of the product specifications.			

CONTAINER SIZES

This product sold in standard 100 gallon drum and 500 gallon tote sets. Available in other container sizes, contact sales representative for further information. Non-standard containers may require a longer lead time.

PROCESSING PARAMETERS & PHYSICAL CHARACTERISTICS

Pre-Heater/Hose Temperature:	"A" and "B" $\pm 125^{\circ}\text{F}$ (52°C) $\pm 5^{\circ}$
Pressures:	1100 - 1400 psi dynamic, at gun
Mix Ratio Parts:	1:1 by volume "A" to "B"
Substrate/Air Temperature:	15°F (-9°C) min 90°F (32°C) max
Thickness Per Lift:	2" (5 min cure between lifts) 3" 10 min cure between lifts

These settings will ensure thorough mixing in the spray gun mix chamber in typical applications. Optimum hose pressure and temperature may vary as a function of the type of equipment, ambient, and substrate conditions, and the specific application. It is the responsibility of the applicator to properly interpret equipment technical literature, particularly information that relates acceptable combinations of gun chamber size, proportioner output, and material pressures. The relationship between proper chamber size and the capacity of the proportioner pre-heat is critical.

IGNITION BARRIER

ENVELO-SEAL™ 2.0 IB S is compliant with ICC-ES AC 377, Appendix X, for use in attics and crawlspaces without a prescriptive ignition, thermal barrier or intumescent coating.

THERMAL BARRIER

IRC and IBC codes require that SPF be separated from the interior of a building by a thermal barrier, which is applied over SPF to slow thermal rise, and delay its involvement in a fire. A building code definition of an approved thermal barrier is one that is equal in fire resistance to ½ inch gypsum board. Thermal barriers limit the temperature rise of the underlying SPF to not more than 250°F (121°C) after 15 minutes of fire exposure in compliance with ASTM-E119 (Test Methods for Fire Tests of Building Construction Materials). Thermal barriers meeting this criteria are termed a "15 minute thermal barrier" or classified as having an "index of 15". Specialty Products, Inc. recommends that an approved thermal barrier separate ENVELO-SEAL™ 2.0 IB W foam from the building interior unless waived by a local building code official.

PRODUCT APPLICATION

ENVELO-SEAL™ 2.0 IB S should be applied in 2" to 3" lifts with suggested cure time between lifts. Note: Re-spraying too soon may result in charring and possible spontaneous ignition of foam. ENVELO-SEAL™ 2.0 IB S should only be applied to approved substrates recommended by the manufacturer. The data presented here should only be used as a guide since the actual foam properties are influenced by the efficiency of the spray gun, component temperatures, foam thickness, 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. When removing bungs from containers use caution, contents may be under pressure. Loosen the small bung first and let any built up gas escape before completely removing. The resin "B" component will froth at elevated temperatures.

GENERAL GUIDELINES

ENVELO-SEAL™ 2.0 IB S is suitable for application to most construction materials including wood, masonry, concrete, and metal. All surfaces to be sprayed with foam should be clean, dry, and free of dew or frost. All metal to which the foam is to be applied must be free of oil, grease, etc. Multiple layers can be applied to reach the desired thickness and R-value. Substrate temperature at the time of the ENVELO-SEAL™ 2.0 IB S application should be between 15°F to 90°F, the warmer the surface, the better the adhesion. When substrates to be sprayed are cooler than 50°F, a half inch lift should be applied to provide a thermal break. Follow with a second lift soon as the original lift is no longer tacky to the touch. For service temperatures in the range of 120°F to 180°F, the substrate should to be sprayed at 120°F or above at the time of spraying. As with all spray polyurethane foam systems, improper application techniques should be avoided. Examples of improper techniques include, but are not limited to, excessive thickness of spray polyurethane foam, off ratio material and spraying into or under rising foam. Potential results of improperly installed spray polyurethane foam include: dangerously high reaction temperatures that may result in fire and offensive odors that may or may not dissipate. Improperly installed foam must be removed and replaced with properly installed spray polyurethane foam. It is the responsibility of the applicator to thoroughly understand all equipment technical information and safe operating procedures that pertain to a spray polyurethane foam application. When changing the "B" side (resin) to another type of spray polyurethane foam it is very important that the supply hoses and pumps are completely drained. Mixing of dissimilar product types will have an adverse effect on the foam. Spray polyurethane foam insulation is combustible. High intensity heat sources such as welding or cutting torches must not be used in close proximity to any polyurethane foam. Large masses of spray polyurethane foam should be removed to an outside safe area, cut into smaller pieces, and allowed to cool before discarding into a trash receptacle. ENVELO-SEAL™ 2.0 IB S is NOT designed for use as an exterior roofing product. Please contact Specialty Products, Inc. for information on our spray polyurethane roofing systems. Cold chemicals can cause poor mixing, pump cavitation, or other process problems due to higher viscosity at lower temperatures. Storage temperatures should be 60°F to 80°F for several days before use, and should not exceed 90°F. Do not store in direct sunlight. Keep drums tightly closed when not in use and under dry air or nitrogen pressure of 2 - 3 psi after they have been opened. Store in a dry and well-ventilated area.

FIRST AID

Safety Data Sheets are available for this coating material. Any individual who may come in contact with these products should read and understand the S.D.S. **CHEMTREC EMERGENCY NUMBER 1-800-424-9300**

WARNING: Contact with skin or inhalation of vapors may cause an allergic reaction. Causes eye damage/irritation. Avoid eye contact with liquid or spray mist. Hypersensitive persons should wear protective clothes, gloves and use protective cream on face, hands and other exposed areas.

CONTAMINATION: Avoid moisture contamination in containers. Containers should not be resealed if contamination is suspected. Carbon dioxide created pressure can develop. Do not attempt to use contaminated material.

EYE PROTECTION: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield.

SKIN PROTECTION: Personal protective equipment for the body should be selected based on the task being performed; the risks involved, and should be approved by an industrial hygiene specialist before handling this product. Chemical resistant gloves are recommended. Cover as much of the exposed skin area as possible with appropriate clothing.

RESPIRATORY PROTECTION: Respiratory protection is **MANDATORY!** The vapors must not exceed the TLV (0.02 parts per million). Harmful if inhaled and may cause allergy or asthma symptoms. Use a respirator approved for isocyanates and organic vapors. If you are not sure, or not able to monitor levels, or if you are spraying in an enclosed/indoor area, use MSHA/NIOSH approved supplied air respirator. Consider the application and environmental concentrations when deciding if additional protective measures are necessary.

INGESTION: Do not take internally. It is believed that ingestion of polymeric isocyanates would not be fatal to humans, but may cause inflammation of mouth and stomach tissue.

FIRE HAZARD: Fires involving "A" or "B" components may be extinguished with carbon dioxide, dry chemical, or inert gas. Application of large quantities of water spray is recommended for spill fires. Personnel fighting the fire must be equipped with NIOSH approved self contained breathing apparatus.

Cleaning of Spills or Leakage

Cover the area with an inert absorbent material such as clay or vermiculite and transfer to metal waste containers. Saturate with water but do not seal the container with the isocyanates and water mixture. The area should then be flushed with large amounts of water, in the case of the "B" component, or 5% aqueous ammonia, in the case of the "A"

component. Dispose of these materials in compliance with federal, state and local regulations.

Caution: Isocyanates will react with water and generate carbon dioxide. This could result in rupture of closed containers.

WARRANTY & DISCLAIMER

Specialty Products, Inc. has no role in the manufacture of the finished polymer other than to supply its two components. It is vital that the person applying this product understands the product, and is fully trained and certified in the use of plural-component equipment. Specialty Products, Inc., an Alaska corporation, warrants only that the two components of this product shall conform to the technical specifications published in the product literature. The quality and fitness of the product are dependent upon the proper mixture and application of the components by the applicator. There are no warranties that extend beyond the description on the face of this instrument. Failure to apply the product within the parameters stated on this document shall void the warranty. **SPECIALTY PRODUCTS, INC. MAKES NO WARRANTY OF MERCHANTABILITY OF THE PRODUCT OR OF FITNESS OF THE PRODUCT FOR ANY PARTICULAR PURPOSE.** Specialty Products, Inc. makes no warranty as to the quality of any product modified, supplemented, tinted, or altered in any way after it leaves the manufacturing plant. Specialty Products, Inc. does not warrant that this product is suitable for use as a liner for potable water containers. Use of this product in a potable water container could be hazardous to health if it is improperly processed or applied. The liability of Specialty Products, Inc. for any nonconformity of the product to its technical specifications shall be limited to replacement of the product. The sole exclusive remedy of buyer, which is to have Specialty Products, Inc. replace any nonconforming product at no cost to buyer, is conditioned upon buyer notifying Specialty Products, Inc. or its distributor in writing of such defect within thirty days of the discovery of such defect. Specialty Products, Inc. shall not be liable for any direct, incidental, or consequential damages resulting from any breach of warranty. The data presented herein is intended for professional applicators or those persons who purchase or utilize this product in the normal course of their business. The potential user must perform any pertinent tests in order to determine the product's performance and suitability in the intended application, since final determination of fitness of the product for any particular use is the responsibility of the buyer. The aforementioned data on this product is to be used as a guide and is subject to change without notice. The information herein is believed to be reliable, but unknown risks may be present. Specialty Products, Inc. makes no warranties, expressed or implied, including patent warranties or warranties of merchantability or fitness of use, with respect to products or information set forth herein. Nothing contained herein shall constitute permission or recommendation to practice any invention covered by a patent without a license from the owner of the patent. Accordingly, the buyer assumes all risks whatsoever as to the use of these materials and buyer's exclusive remedy as to any breach of warranty, negligence, or other claim shall be limited to the purchase price of the materials. Failure to adhere to any recommended procedures shall relieve Specialty Products, Inc. of all liability with respect to the materials and the use thereof



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