

## DESCRIPTION

ECOBAY open-cell (OC) spray-applied polyurethane foam insulation is produced with a two component, low density, non-structural insulation system designed for commercial, industrial and residential applications. The system used to produce ECOBAY OC SPF foam comprises an "A" component or aromatic diisocyanate and a blended "B" component which included polyols, fire retarding materials, catalysts and blowing agent. As with any product, use of ECOBAY OC foam-forming system must be tested (including, but not limited to, field testing) in advance by the user to determine suitability.

## TYPICAL PHYSICAL PROPERTIES

### (For components)

	COMPONENT A	COMPONENT B
Mixing Ratio	50	50
Shelf Life - Unopened Containers	6 months	6 months

### (For cured material)

	TEST METHOD	RESULTS
Fungi Resistance:	ASTM G-21	Zero Rating
R Value (aged):	ASTM C-518	3.7 at 1 inch 13 at 3.5 inches
Air Leakage Rate:	ASTM E-283	< 0.02 (L/s)/m <sup>2</sup>
Compressive Strength:	ASTM D-1621	< 5 psi
Apparent Density:	ASTM D-1622	0.5 pcf (nominal)
Open Cell Content:	ASTM D-2856	> 90%
Tensile Strength:	ASTM D-1623	< 5 psi
Water Vapor Permeability:	ASTM E-96	21 perm-in
Dimensional Stability: (158°F at 97% R.H.)	ASTM D-2126 % Change in Volume	< 15%
Air Leakage Rate:	ASTM E-2178	< 0.02 L s <sup>-1</sup> m <sup>-1</sup>
Surface Burning Characteristics	ASTM E-84 4-inches	Flame Spread Index < 25 Smoke Developed Index < 450

## PROCESS SPECIFICATIONS

The system settings required to achieve quality spray foam application will vary depending on environmental and substrate conditions. The following recommended parameters will help ensure optimum foam quality. Mix B-side on high speed for 30 minutes before application. Mix B-side at 25% speed during application. Do not mix A-side. Mix before recirculation.

Equipment pre-heater temperature		
Component A	115 – 140°F	46 – 60°C
Component B	115 – 140°F	46 – 60°C
Hose temperature	115 – 140°F	46 – 60°C
Spray pressure (Dynamic)	1000 – 1500 PSI	69 – 103 Bar

## PROCESSING EQUIPMENT

2:1 transfer pumps are recommended for material transfer from container to the proportioner. The plural component proportioner must be capable of supplying each component within ± 2% of the desired 1:1 mixing ratio by volume. Hose heaters should be set to deliver 46°C to 60°C (115°F to 140°F) materials to the spray gun. These settings will ensure thorough mixing in the spray gun mix chamber in typical applications. Optimum hose pressure and temperature will vary with equipment type and condition, 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 to the acceptable combinations of gun chamber size, proportioner output, and material pressures. The relationship between proper chamber size and the capacity of the proportioner's pre-heater is critical. CAUTION: Extreme care must be taken when removing and reinstalling drum transfer pumps so as NOT to reverse the "A" and "B" components.

## ENVIRONMENTAL CONSIDERATION AND SUBSTRATE TEMPERATURES

Applicators must recognize and anticipate climatic conditions prior to application. Ambient air and substrate temperature, moisture, and wind velocity are all critical determinants of foam quality and selection of the appropriate reactivity formulation. Variations in ambient air and substrate temperature will influence the chemical reaction of the two components, directly affecting the expansion rate, amount of rise, yield, adhesion and the resultant physical properties of the foam insulation. All substrates to be sprayed must be dry at the time of application. Moisture in the form of rain, fog, frost, dew or high humidity (>85%R.H.), will react chemically with the mixed components, adversely affecting the polyurethane foam formation, dimensional stability and physical properties of the finished product. Wind velocities in excess of 12 miles per hour may result in excessive loss of exotherm and interfere with the mixing efficiency, affecting foam surface temperature, cure, and physical properties and will cause overspray. Precautions must be taken to prevent damage to adjacent areas from overspray.

CAUTION: Extreme cold temperature application may require changing of spray technique, material temperatures, application temperatures, substrate preparation and environmental conditioning.

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## PER LIFT APPLICATION

Applicators should limit ECOBAY OC foam thickness to 6 inches per lift for optimal processing and physical properties. Second lifts, if necessary, should be applied after 10 minutes of cure time. For substrates with special sensitivity to heat, the resultant exotherm must be considered before application of SPF. It is the responsibility of the applicator to ensure SPF exotherm will not adversely affect substrates.

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## HANDLING INFORMATION

Applicators should ensure the safety of the jobsite and construction personnel by posting appropriate signs warning that all "hot work" such as welding, soldering, and cutting with torches should not take place until a thermal barrier or approved equivalent is installed over any exposed polyurethane foam.

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## STORAGE

Store at 21°C to 27°C (70°F to 80°F) in a dry and well ventilated area. Materials in containers should be maintained at 18°C to 30°C (65°F to 85°F) while in use. Conditioned trailers or tanks may be necessary. Material temperature should be confirmed with a thermometer or an infrared gun. Do not recirculate or mix other suppliers' "A" or "B" component into ECOBAY OC system containers. CAUTION: If components are below suggested temperatures, the increased viscosity of the components may cause pump cavitation resulting in unacceptable SPF application.

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## THERMAL BARRIER

The International Building Code and International Residential Code requires that SPF be separated from the interior of a building by an approved fifteen (15) minute thermal barrier, such as 1/2" gypsum wall board or equivalent, installed per manufacturer's instructions and corresponding code requirements. The International Building Code allows for omission of the prescribed thermal barrier in certain instance, such as:

- attics and crawlspaces with limited access
- approval by way of diversified testing, such as room corner protocols

Local building codes may vary and must be consulted for applicability of thermal barrier exceptions.

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## MOISTURE VAPOR TRANSMISSION

ECOBAY OC foam is intended for indoor applications, and is not a vapor retarder. It is vapor permeable and will allow for some diffusion of moisture through the insulation. Refer to local building codes for vapor retarder requirement.

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## ADDITIONAL TECHNICAL REFERENCE

Construction Specification Institute Division 7 - Thermal and Moisture Protection ICC-ES Evaluation Report ESR-1655.



## HEALTH AND SAFETY INFORMATION

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling this product. Before working with this product, you must read and become familiar with the available information on its risks, proper use, and handling. This cannot be overemphasized. Information is available in several forms, e.g., material safety data sheets and product labels.

## PACKAGING

A set of ECOBAY OC consists of one (1) 55 gallon (208 L) drum of 'A' component and one (1) 55 gallon (208 L) drum of 'B' component. Net contents per set is 1000 pounds (453 kg).

## PRECAUTIONS

Protect from exposure to moisture. Water will cause the "A" component (ISO) to generate carbon dioxide with resulting high pressure in closed containers.

## TECHNICAL SUPPORT

We have a dedicated technical support team offering knowledgeable support for everything from preventative maintenance, equipment calibration and servicing through to coating and foam application advice. If you have any questions regarding the use of this product please call us toll free at 1-800-901-0088 or email us [info@pinnaclewest.net](mailto:info@pinnaclewest.net).

## ON-SITE TRAINING

Our on-site training programs provide the necessary equipment and application training, including the health and safety aspects, needed to apply a wide variety of products. The goal of our programs are to give the skills required to be a professional and productive installer.

## SAFETY PRECAUTIONS

Health Considerations - Consult the Material Safety Data Sheets. This chemical system requires the use of proper safety equipment and procedures. Please follow the product MSDS for detailed information and handling guidelines. In addition to reading and understanding the MSDS, all contractors and applicators must use appropriate respiratory, skin and eye Personal Protective Equipment (PPE) when handling and processing polyurethane chemical systems. Personnel should review the following documents published by Spray Polyurethane Foam Alliance (SPFA): (1) AY-104 Spray Polyurethane Foam Systems for New and Remedial Roofing and (2) AX-171 Course 101-R Chapter 1: Health, Safety and Environmental Aspects of Spray Polyurethane Foam and Coverings. Additionally, following document available from the Center for the Polyurethanes Industry (CPI): Model Respiratory Protection Program for Compliance with the Occupational Safety and Health Administration's Respiratory Protection Program Standard 29 C.F.R. §1910.134. As with all SPF systems, improper application techniques such as: excessive thickness of SPF, spraying into or under rising SPF and off-ratio material. Potential results of improperly installed SPF include: dangerously high reaction temperatures that may result in fire and offensive odors that may or may not dissipate. Improperly installed SPF must be removed and replaced with properly installed materials. Large masses of ECOTITE 3.0 should be removed to an outside safe area cut into smaller pieces and allowed to cool before discarding into any trash receptacle. AIR INTAKE UNITS SHOULD BE SHUT DOWN AND VENTS SEALED DURING POLYURETHANE SPRAY APPLICATIONS.

For Your Protection - The information and recommendations in this publication are, to the best of our knowledge, reliable. Suggestions made concerning the products and their uses, applications, storage and handling are only the opinion of Pinnacle West Enterprises Inc. Users should conduct their own tests to determine the suitability of these products for their own particular purposes and of the storage and handling methods herein suggested. The toxicity and risk characteristics of products distributed by Pinnacle West Enterprises Inc. will necessarily differ from the toxicity and risk characteristics developed when such products are used with other materials during a manufacturing process. The resulting risk characteristics should be determined and made known to ultimate end-users and processors. Because of numerous factors affecting results, Pinnacle West Enterprises Inc. makes no warranty of any kind, express or implied, other than that the material conforms to its applicable current Standard Specifications. Pinnacle West Enterprises Inc. hereby disclaims any and all other warranties, including but not limited to those of merchantability or fitness for a particular purpose. No statements made herein may be construed as a representation or warranty. The liability of Pinnacle West Enterprises Inc. for any claims arising from or sounding in breach of warranty, negligence, strict liability, or otherwise shall be limited to the purchase price of the material.