



# ECOBAY<sup>®</sup> CC

## Characterization

EcoBay CC closed-cell is a spray-applied polyurethane foam (SPF) insulation.

## Properties / Applications

EcoBay CC closed cell spray-applied polyurethane foam insulation is produced from a two component, HFC-245fa blown, medium density, structural system designed for commercial applications. EcoBay CC closed cell spray-applied polyurethane forms an integral part of any air barrier system.

The EcoBay CC foam is made with an "A" component or aromatic diisocyanate and a blended "B" component which includes polyols, fire retarding materials, and additives. Both components are manufactured by Covestro LLC.

EcoBay CC foam is available in two grades for warm and cold weather applications; suggested ambient temperatures are specified below:

Grade	Substrate/Ambient Temperature
Standard	50°F to 120°F
Polar	30°F to 80°F



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## Typical Physical Properties\*

Properties**	Test Method	Value
Air Permeance at 75 Pa	ASTM E-2178	< 0.02 L/s-m <sup>2</sup>
Water Vapor Permeance	ASTM E-96 (B)	0.7 perm-in
Density	ASTM D-1622	1.9 - 2.2 lbs/ft <sup>3</sup>
Aged R-value, 6 months	ASTM C-518	6.9 at 1 inch <sup>b</sup> 24.1 at 3.5 inch <sup>b</sup>
Compressive Strength	ASTM D-1621	25 psi
Tensile Strength	ASTM D-1623	60 psi
Water Absorption	ASTM D-2842	< 2% by volume
Dimensional Stability:	ASTM D-2126	
28 days at -20°C		< 5% Change in volume
28 days at 80°C		< 5% Change in volume
28 days at 70°C, 97% RH		< 5% Change in volume
Open Cell Content	ASTM D-6226	> 90% By volume
Surface Burning Characteristics <sup>a</sup> , Flame Spread	ASTM E-84	< 25
Surface Burning Characteristics**, Smoke Index	ASTM E-84	< 450
Fungi Resistance	ASTM G-21	Zero Rating
Crack Bridging	ASTM C-1305	Pass
Water Resistance, Hydrostatic Water Test	AATCC 127	> 400 mBar
Pull Adhesion, CMU	ASTM D-4541	> 35 psi
Pull Adhesion, Precast Concrete	ASTM D-4541	> 44 psi
Pull Adhesion, Exterior Gypsum Board	ASTM D-4541	> 16 psi
Pull Adhesion, Metal Deck, primed/washed	ASTM D-4541	> 29 psi
Pull Adhesion, OSB, Wood Studs, Plywood	ASTM D-4541	> 29 psi

\* These items are provided as general information only. They are approximate values and are not part of the product specifications.

\*\* Prepared on a Graco H-40, 60-ft of hose using a GX7 with no. 1 mix module and 90 PCD, stream temperatures 120-125°F, pressure 1000 psi (dynamic).

<sup>a</sup> These numerical flame spread values are not a true reflection on how this or any material will perform in actual fire conditions.

<sup>b</sup> The higher the R-value, the greater the insulating power. Ask your seller for the fact sheet on R-values.



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## Storage Conditions

Material should be stored from 50°F to 80°F (10°C to 27°C) in a dry and well-ventilated area. Storage outside this range can affect shelf life and material performance. The material will need to be conditioned to between 70°F and 80°F (21°C and 27°C) prior to use. It takes approximately 48 hours in a heated area to condition all the material in a drum to the correct temperature.

Material temperature should be confirmed with a thermometer or an infrared gun. Do not configure equipment to recirculate Ecobay system components from proportioner back into drum. Do not recirculate or mix other suppliers' "B" component into Ecobay system containers.

**CAUTION: If components are below suggested temperatures, the increased viscosity of the components may cause pump cavitation resulting in unacceptable SPF application. If components are above suggested temperatures, there may be loss of blowing agent resulting in diminished yield.**

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## 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  $\pm 2\%$  of the desired 1:1 mixing ratio by volume. Hose heaters should be set to deliver 120°F to 135°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. Mechanical purge spray guns (specifically direct impingement or DI type) are recommended for highest foam quality.

**CAUTION: Extreme care must be taken when removing and reinstalling drum transfer pumps so as NOT to reverse the "A" and "B" components.**



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## Processing Parameters and Physical Characteristics

Pre-heater Temperature:	"A" and "B" 120-135°F
Hose Temperature:	"A" and "B" 120-135°F
Pressures:	1,000 - 1,500 psi (dynamic)*
Mix Ratio Parts:	1 to 1 by volume "A" to "B"
Viscosity at 75°F	400-500 cps "B" Component 15-250 cps "A" Component
Shelf Life	6 months at 50°F to 80°F
<b>Or With Measuring Capabilities at Gun:</b>	
Material temperature at gun	"A" and "B" 100-130°F
Pressure at gun (w/in 15')	>800 psi

\* Dependent upon hose length.

## Environmental Consideration and Substrate Temperatures

Applicators must recognize and anticipate environmental conditions prior to application to ensure the highest quality foam and to maximize yield. 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.

To obtain optimum results, EcoBay CC foam should be spray-applied to substrates when ambient air and surface temperatures fall within the range of 50°F and 120°F. All substrates to 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 of the spray gun affecting foam surface texture, cure, and physical properties and will cause overspray. Precautions must be taken to prevent damage to adjacent areas from overspray.

## Per Lift Application

Applicators should apply a maximum pass thickness of 2 inches. Allow the surface temperature to cool to 100°F, or ambient temperature if higher than 100°F, between passes.



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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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## 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 (Permeance)

EcoBay CC qualifies as a vapor retarder as defined by the International Code Council and ASHRAE (Class II) at a minimum thickness of one inch. Building construction types with a persistent, high moisture drive require additional moisture remediation. The contractor should consult local building codes to establish the vapor retarder requirement.

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## Additional Technical Reference

Construction Specification Institute Division 7 - Thermal and Moisture Protection

ICC- ES Evaluation Report ESR-3076

Ecobay Spray Polyurethane Foam (SPF) Installation Guidelines

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## 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., safety data sheets and product labels. For further information contact your Covestro LLC representative or the Product Safety and Regulatory Affairs Department in Pittsburgh, PA.



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The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether our products, technical assistance and information are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale which are available upon request. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with any claim of any patent relative to any material or its use. No license is implied or in fact granted under the claims of any patent.

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Document contains important information and must be read in its entirety.

Edition 2016-07-08

Replaces edition dated 2016-03-21



**Product Datasheet**