

BAYSEAL[®] OC

Characterization

Bayseal open-cell (OC) is a spray-applied polyurethane foam (SPF) insulation.

Properties / Applications

Bayseal 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 Bayseal 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 Bayseal 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*

Properties	Test Method	Value
Fungi Resistance:	ASTM G-21	Zero Rating
R Value (aged) ^a :	ASTM C-518	3.7 at 1 inch 13 at 3.5 inches
Air Leakage Rate:	ASTM E-283	< 0.02 (L/s)/m ²
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 ⁻¹ m ⁻¹
Surface Burning Characteristics**	ASTM E-84 4-inches	Flame Spread Index < 25 Smoke Developed Index < 450

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

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

a 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

Store at 70°F to 80°F in a dry and well ventilated area. Materials in containers should be maintained at 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 Bayseal OC system containers.

"A" or "B" component into Bayseal 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.

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 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. 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.

Processing Parameters and Physical Characteristics

Pre-heater Temperature:	"A" and "B" 115-140°F
Hose Temperature:	"A" and "B" 115-140°F
Pressures:	1000-1500 psi (dynamic)*
Mix Ratio Parts:	1 to 1 by volume "A" to "B"
Viscosity at 75°F	225 cps "B" Component
Shelf Life	6 months at 65°F to 85°F

* Dependent upon hose length.

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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. Consult a Bayer Material Science LLC Technical Representative for details.

Per Lift Application

Applicators should limit Bayseal 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.

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.

Moisture Vapor Transmission (Permeance)

Bayseal 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.

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. For further information contact your Bayer MaterialScience representative or the Product Safety and Regulatory Affairs Department in Pittsburgh, PA.

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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