



EPS Foam Insulation and Void Fill for Concrete Structures

High Quality Foam for Forming, Insulating, and Light-Weighting Concrete Structures

Cellofoam® EPS foam is an excellent solution for a wide variety of concrete applications, from one-time use in concrete forms to serving as permanent core insulation and light-weighting void fill in precast and cast-in-place concrete walls and floors.

Foam Core EPS for Permanent Concrete Structures

For permanent applications, Cellofoam EPS Foam is made of premium expanded polystyrene (EPS) rigid insulation that meets or exceeds the requirements of ASTM C578, *Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation*. This EPS is composed of closed cells with excellent dimensional stability, flexural and compressive strength, and water resistance. The foam may be hot-wire cut to fit nearly any concrete core shape. With its high compressive strength, the EPS can handle the considerable weight of the wet concrete and provides not only light-weighting of the final product but also considerably improves R-value. In such applications Cellofoam EPS is delivered to the manufacturer's facility in the correct shape, density, and compressive strength properties with high on-time assurance.



Tilt-up, pre-cast, pre-stressed concrete wall panels are a popular use for Cellofoam EPS foam, but it is also used in manufacturing lightweight concrete utility equipment pads, concrete encapsulated pontoons, and bridge steel deck flutes. In the latter application, concrete is more expensive and about 140 times heavier than EPS foam flute fill, resulting in a significantly lighter and lower cost bridge deck without sacrificing structural integrity.

EPS for Temporary Concrete Forms & Block Outs

For temporary applications, Cellofoam EPS foam is used to create inexpensive, detailed molds to form complex concrete shapes such as curved walkways and columns. It is also commonly employed as temporary block outs for windows in concrete railings. Due to its lower cost, non-spec EPS foam is often selected for such one-time use applications depending upon needed physical properties.



ADVANTAGES

Premium Quality: Meets or exceeds ASTM C578 specs, with excellent dimensional stability & compressive strength. Very light weight. Non-spec, lower cost versions also offered for temporary forms.

Stable R-value: Unlike Polyiso or XPS whose blowing agents outgas, the R-value of Cellofoam EPS is permanent because EPS and R-values do not degrade over decades of use.

Environmentally Friendly: Cellofoam EPS contains no formaldehyde or ozone-depleting CFCs or HCFCs. It is 100% recyclable and may contain recycled material.

Code Approvals: Cellofoam EPS is Underwriters Laboratory Listed, UL ER7260, for many building and geofoam applications.

Moisture Resistant: Cellofoam EPS is quick drying and does not readily absorb moisture from the air. Its closed-cell structure reduces the absorption and migration of moisture.

Manufactured to your Needs: Cellofoam EPS is hot wire cut to customer dimensioned drawings and is available in ASTM C578 nominal densities of 1.0, 1.25, 1.5, 2.0, 2.5, and 3.0 lb/ft³. As with all Cellofoam EPS foam building products, our EPS for concrete structures is manufactured from raw material that includes a fire retardant.



EPS Foam Insulation and Void Fill for Concrete Structures

| Cellofoam® EPS Typical Physical Properties ¹ | | ASTM Test | ASTM C578 Type | | | |
|---|------------|---|--|-----------|-----------|-----------|
| | Units | | Type I | Type VIII | Type II | Type IX |
| Density (Nominal) | lb/ft³ | C303 or | 1.0 | 1.25 | 1.5 | 2.0 |
| Density (Minimum) | lb/ft³ | D1622 | 0.90 | 1.15 | 1.35 | 1.80 |
| Thermal Resistance | | | | | | |
| R-Value ² | at 25° F | (°F ft² hr) / Btu per inch C177 or C518 | 4.35 | 4.54 | 4.76 | 5.00 |
| | at 40° F | | 4.17 | 4.25 | 4.55 | 4.76 |
| | at 75° F | | 3.85 | 3.92 | 4.17 | 4.35 |
| Compressive Strength at 10% deformation | psi | D1621 | 10 - 14 | 13 - 18 | 15 - 21 | 25 - 33 |
| Flexural Strength | psi | C203 | 25 - 30 | 30 - 38 | 40 - 50 | 50 - 75 |
| Water Vapor Permeance 1.0 in. thickness | perm. | E96 | 2.0 - 3.0 | 1.5 - 2.8 | 0.9 - 2.5 | 0.6 - 1.5 |
| Water Absorption by total immersion | volume % | C272 or C1763 | < 1.5 | < 1.5 | < 1.5 | < 1.5 |
| Capillarity | -- | -- | none | none | none | none |
| Dimensional Stability maximum | change % | D2126 | < 0.5 | < 0.5 | < 0.5 | < 0.5 |
| Coefficient of Thermal Expansion | in/(in °F) | D696 | 0.000035 | 0.000035 | 0.000035 | 0.000035 |
| Fungus & Bacterial Resistance | - | C1338 | Will not support bacterial or fungus growth; no food value | | | |

¹ Typical physical properties are based on data provided by resin manufacturer, independent test agencies, and Cellofoam North America Inc. All data is for plain, un laminated EPS foam.

² R means resistance to heat flow. The higher the R value, the greater the insulating power.

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Warning: This product is combustible and if exposed to a fire of sufficient heat and intensity may burn rapidly. It should not be left exposed or inadequately protected. Protect Cellofoam expanded polystyrene from exposure to hydrocarbons, coal tar pitch, solvents, and solvent fumes. Consult specific instructions and applicable building codes for use of this product.

Cellofoam North America Inc. is an expanded polystyrene foam manufacturer and not an engineering consulting firm. Thus, it is beyond our scope to provide design services on the specific use for our products. Users of our EPS products should consult with appropriate engineering and code experts to determine the exact type and specifications of EPS required for their project. The sale of these products shall be subject to Terms and Conditions of Sale, including those limiting warranties as set forth in Cellofoam's invoices. No agent, employee, or representative of Cellofoam North America Inc. or its subsidiary or affiliated companies is authorized to modify this disclaimer.