



STYROFOAM™ Panel Core 20 Extruded Polystyrene Foam

STYROFOAM™ Panel Core 20 extruded polystyrene foam is a closed-cell high-performance core material. Dow's proprietary extrusion process enables precise control of parameters such as density, cell size and cell orientation. This yields foam boards that can meet the most demanding composite panel applications. STYROFOAM Panel Core 20 is supplied in sheets that have been carefully engineered and planed to precise tolerances for a superior bonding surface.

Applications

STYROFOAM™ Panel Core 20 extruded polystyrene foam is used extensively in composite panel applications. The closed-cell structure of STYROFOAM Panel Core 20 prevents the foam from absorbing water,

which helps maintain panel integrity and insulating properties in low-temperature applications and other environments with high humidity and moisture conditions. The foam also resists absorption of adhesives, so less glue is required for effective, long-lasting adhesion of facer materials.

Dow can provide general guidelines and recommendations for STYROFOAM Panel Core 20. Call 1-866-583-BLUE (2583) or contact your local Dow representative for details. Some typical applications include:

- Architectural building panels
- Modular structures
- Incubators
- Conservatories
- Sunrooms
- Recreational vehicle sidewalls
- Exterior door panels
- Insulated roof panels
- Clean-room panels

SIZE

STYROFOAM™ Panel Core 20 products are manufactured to customer requirements in lengths up to 96" (244 cm), widths up to 48" (122 cm) and thicknesses up to 5" (12.5 cm). Custom lengths are also available. Contact your local Dow representative for details.

PHYSICAL/CHEMICAL PROPERTIES

STYROFOAM™ Panel Core 20 extruded polystyrene foam exhibits the properties and characteristics indicated in Table 1 when tested as represented.

For chemical resistance properties of STYROFOAM Panel Core 20, see Table 2.

Like all cellular polymers, this product will degrade upon prolonged exposure to sunlight. A covering may be used to block ultraviolet radiation and prevent degradation. Other coverings to protect the foam from the elements and to meet applicable fire regulations may also be required. Consultation with local building code officials, design engineers/specifiers or insurance personnel is recommended before application.

ENVIRONMENTAL DATA

STYROFOAM™ Panel Core 20 extruded polystyrene foam is manufactured with HCFC blowing agents, which have 94 percent less ozone depletion potential than standard CFC blowing agents. STYROFOAM extruded polystyrene foam can be reused in many applications.

TABLE 1

Physical Properties of STYROFOAM™ Panel Core 20 Extruded Polystyrene	
Property and Test Method	Value
Density, ASTM D1622, lb/ft ³ (kg/m ³)	1.5 (24)
Compressive Strength, ASTM D1621, lb/in ² (kPa), vertical	20 (140)
Tensile Strength, ASTM D1623, lb/in ² (kPa), vertical	50 (340)
Shear Strength, ASTM C273, lb/in ² (kPa)	25 (170)
Shear Modulus, ASTM C273, lb/in ² (kPa)	330 (2,275)
Flexural Strength, ASTM C203, lb/in ² (kPa), extruded	50 (340)
Flexural Modulus, ASTM C203, lb/in ² (kPa), extruded	1,600 (11,000)
Water Absorption, ASTM C272, % by vol.	0.5
R-Value per inch (25 mm), ASTM C518, °F•ft ² •h/Btu (m ² •°C/W), Aged 180 days @ 75°F (24°C)	5.0 (0.88)
Surface Burning Characteristics ⁽¹⁾ , ASTM E84, Flame Spread/Smoke Developed, FS/SD	15/165 up to 4" (10 cm) thickness

(1) For areas outside of the U.S., check your local building code for use of STYROFOAM Panel Core 20.

TABLE 2

Chemical Resistance ⁽¹⁾ of STYROFOAM™ Panel Core 20 Extruded Polystyrene	
Acid, inorganic, weak	Excellent
Acid, inorganic, strong	Excellent
Acid, organic, weak	Excellent
Acid, organic, strong	Good
Bases	Excellent
Alcohols, including isopropyl alcohol	Excellent
Methyl ethyl ketone	Not recommended
Polyglycols, including propylene glycol	Excellent
Hydrocarbons	Not recommended
Salts	Excellent
Insecticides	Not recommended
Kerosene	Poor
Mineral oil USP	Excellent
Naphtha (VMP)	Not recommended
Turpentine	Not recommended
Beer	Good
Gasoline	Not recommended
Fruit juices	Good

(1) Explanation of ratings:
 Excellent = The plastic was unaffected for the duration of the test.
 Good = A very slight clouding or discoloration of the plastic.
 Poor = Considerable changes in plastic during exposure.
 Not recommended = Severe attack of the plastic. Became soft and unusable after a few hours of exposure.

NOTE: This table should be used as a guide only. For design purposes, specific test data on the intended application may be needed.

Safety Considerations

STYROFOAM™ Panel Core 20 extruded polystyrene foam requires care in handling. All persons who work with this material must know and follow the proper handling procedures. The current Material Safety Data Sheet (MSDS) and handling guide contain information on the safe handling, storage and use of this material. For a copy of the MSDS, call 1-866-583-BLUE (2583), visit www.dowcorefoams.com or contact your local Dow representative.

Fabrication/ Installation

STYROFOAM™ Panel Core 20 extruded polystyrene foam is easy to fabricate into various sizes and shapes to meet specific design needs. However, because of the critical design aspects of many of its applications, Dow recommends that qualified designers or consultants design the total system. Contact a local Dow representative or access the literature library at www.dowcorefoams.com for more specific instructions.

Availability

STYROFOAM™ Panel Core 20 extruded polystyrene foam is available through select distributors and laminators or may be ordered direct from Dow. For more information, call 1-800-232-2436.

Technical Services

Dow can provide technical information to help address questions when using STYROFOAM™ Panel Core 20 extruded polystyrene foam. Technical personnel are available at 1-866-583-BLUE (2583).

IN THE U.S.:

- For Technical Information: **1-866-583-BLUE (2583)**
- For Sales Information: **1-800-232-2436**

THE DOW CHEMICAL COMPANY

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COMBUSTIBLE: Protect from high heat sources. Local building codes may require a protective or thermal barrier. For more information, consult MSDS, call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-989-636-4400.

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