

# Styrofoam™ Brand Deckmate™ Plus Extruded Polystyrene Foam Insulation

Durable Water and Freeze-Thaw Resistant Roof Insulation

## FEATURES/BENEFITS

### Description

Styrofoam™ Brand Deckmate™ Plus Extruded Polystyrene Foam Insulation\* is an extruded polystyrene foam featuring a planed surface with smooth, high-density skins and a closed cellular structure. It is designed specifically to provide a higher compressive strength and additional membrane support for conventional low-slope roof applications.

Styrofoam™ Brand Deckmate™ Plus Insulation boasts excellent insulating characteristics (R-value of 5.0 [.88 RSI] per inch of thickness), low water absorption and excellent compressive strength.

### Ease of Installation

Styrofoam™ Brand Deckmate™ Plus Insulation is easy to handle, cut and install, and can be used over any substrate in new construction or thermal upgrading of existing roofing when reroofing is required. The rigid foam insulation boards can be installed directly on structural steel decks beneath a non-bituminous sheet membrane or on a standing seam metal roof, eliminating the need for a thermal barrier.

Styrofoam™ Brand Deckmate™ Plus Insulation features:

- Specially designed smooth, high-density skins
- Excellent insulating characteristics
- High resistance to water and water vapor
- Excellent freeze-thaw resistance
- Excellent compressive strength
- Long-term durability

### High Performance Durability

Properties imparted by DuPont's extrusion process coupled with the hydrophobic nature of polystyrene give Styrofoam™ Brand extruded polystyrene insulation high resistance to both water and water vapor. Durable and reusable, it exhibits dependable and predictable long-term mechanical and thermal performance, even in the most severe environments.

### Available Sizes

Styrofoam™ Brand Deckmate™ Plus Insulation is available in a range of sizes and thicknesses in the U.S. and Canada, as shown in Tables 1 and 2, respectively.

**TABLE 1: U.S. Sizes, R-Values and Edge Treatments for Styrofoam™ Brand Deckmate™ Plus Extruded Polystyrene Foam Insulation**

Nominal Board Thickness <sup>(1)</sup> (in.)	R-Value	Board Size (ft.)	Edge Treatment
2.0	10.0	2 x 8, 4 x 8	Square Edge.
2.5	12.5	4 x 8	Square Edge.
3.0	15.0	2 x 8, 4 x 8	Square Edge.
4.0	20.0	2 x 8, 4 x 8	Square Edge.

<sup>1</sup> Not all product sizes are available in all regions.

<sup>2</sup> R means resistance to heat flow. The higher the R-value, the greater the insulating power. R-values are expressed in ft<sup>2</sup> · h<sup>2</sup>°F/Btu. RSI values are expressed in m<sup>2</sup>°C/W. R-value determined by ASTM C518.

**TABLE 2: Canadian Sizes, R-Values and Edge Treatments for Styrofoam™ Brand Deckmate™ Plus Extruded Polystyrene Foam Insulation**

Nominal Board Thickness <sup>(1)</sup> (in.)	R-Value	Board Size (ft.)	Edge Treatment
4 in (102 mm)	20.0	600 x 2400	Shiplap Edge.

<sup>1</sup> Not all product sizes are available in all regions.

### Sustainable Solutions

Styrofoam™ Brand Deckmate™ Plus Insulation is hydrochlorofluorocarbon (HCFC) free with zero ozone-depletion potential and is reusable in many applications.

\* Styrofoam™ Brand Deckmate™ Plus Extruded Polystyrene Foam Insulation is a former product of The Dow Chemical Company.

## PROPERTIES

**Styrofoam™ Brand Deckmate™ Plus Insulation** exhibits the properties and characteristics indicated in Tables 3 and 4 when tested as represented. Maximum flute spanability varies based on product thickness.\* Review all instructions and (Material) Safety Data Sheet ((M)SDS) before use. Please contact DuPont at 1-866-583-2583 when additional guidance is required for writing specifications that include this product.

**TABLE 3: Physical Properties (U.S.) of Styrofoam™ Brand Deckmate™ Plus Extruded Polystyrene Foam Insulation**

Property and Test Method	Value
Thermal Resistance <sup>(1)</sup> per in., ASTM C518 @ 75°F mean temp., ft <sup>2</sup> ·h·°F/Btu, R-value	5.0
Compressive Strength <sup>(2)</sup> , ASTM D1621, psi min.	25
Water Absorption, ASTM C272, % by volume, max.	0.3
Water Vapor Permeance <sup>(3)</sup> , ASTM E96, perm, max.	1.5
Maximum Operating Temperature, °F	165
Coefficient of Linear Thermal Expansion, ASTM D696, in/in·°F	3.5 x 10 <sup>-5</sup>
Flexural Strength, ASTM C203, psi, min.	50
Dimensional Stability, ASTM D2126 / CAN/ULC S701, % linear change, max.	2.0
Flame Spread <sup>(4)</sup> , ASTM E84	1.5
Smoke Developed, ASTM E84 <sup>(4)</sup>	165

<sup>1</sup> R means resistance to heat flow. The higher the R-value, the greater the insulating power.

<sup>2</sup> Vertical compressive strength is measured at 10 percent deformation or at yield, whichever occurs first.

<sup>3</sup> Based on 1" thickness.

<sup>4</sup> These numerical flame spread and smoke developed ratings are not intended to reflect hazards presented by this or any other material under actual fire conditions.

**TABLE 4: Physical Properties (Canadian) of Styrofoam™ Brand Deckmate™ Plus Extruded Polystyrene Foam Insulation**

Property and Test Method	Value
Thermal Resistance per in. (25 mm), ASTM C518, 24°C mean temp., ft <sup>2</sup> ·h·°F/Btu (m <sup>2</sup> ·°C/W), R-value (RSI) <sup>(1)</sup> min.	5.0 (0.87)
Compressive Strength <sup>(2)</sup> , ASTM D1621, psi (kPa), min.	20 (140)
Water Absorption, ASTM D2842, % by volume, max.	0.7
Water Vapour Permeance <sup>(3)</sup> , ASTM E96, perm (ng/Pa·s·m <sup>2</sup> ), max.	1.5 (90)
Maximum Use Temperature, °F (°C)	165 (74)
Coefficient of Linear Thermal Expansion, in/in·°F (mm/m·°C)	3.5 x 10 <sup>-5</sup> (6.3 x 10 <sup>-5</sup> )
Flexural Strength, ASTM C203, psi (kPa) min.	43.5 (300)
Dimensional Stability, ASTM D2126 / CAN/ULC S701, % linear change, max.	1.5

<sup>1</sup> R means resistance to heat flow. The higher the R-value or RSI, the greater the insulating power.

<sup>2</sup> Vertical compressive strength is measured at 10 percent deformation or at yield, whichever occurs first.

<sup>3</sup> Based on 1" (25 mm) thickness.

\* Flute spanability – maximum flute spanability is 1-3/4" for 1" product, 3" for 1-1/2" product, 4-3/8" for 2" product or greater.

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## TESTING

### Applicable Standards

**Styrofoam™ Brand Deckmate™ Plus Insulation** meets ASTM C578, Type IV –Standard Specification for Rigid Cellular Polystyrene Thermal Insulation. Applicable standards include:

- **C518** – Standard Test Method for Steady State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- **D1621** – Standard Test Method for Compressive Properties of Rigid Cellular Plastics
- **C272** – Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions
- **E96** – Standard Test Methods for Water Vapor Transmission of Materials
- **C203** – Standard Test Methods for Breaking Load and Flexural Properties of Block Type Thermal Insulation
- **D2126** – Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging

- **E84** – Standard Test Method for Surface Burning Characteristics of Building Materials
- CAN/ULC S701, Type 3

### Notice

The roof system must be designed to meet all applicable building codes. **Styrofoam™ Brand Deckmate™ Plus Insulation** complies with the following:

- Factory Mutual Approved
- Meets IBC/IRC requirements for foam plastic insulation; see ICC-ES ESR-2142
- Underwriters Laboratories, Inc. (UL) Classified, see Classification Certificate D369
- CCMC-Evaluation listing 11420-L

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## HANDLING

**WARNING: For Professional Use Only** – Read and follow the entire Handling section and the Safety Data Sheets (SDSs, formerly MSDSs or Material Safety Data Sheets) carefully before use. The information below is designed to protect the user and allow for safe use and handling of DuPont products. Follow all applicable federal, state, local and employer regulations.

### Precautionary Statements

- Before installation, roof substrate must be clean, dry, smooth and free from oil, grease, rust, frost and snow. Since dust would impair the performance of adhesives and finishes, dusty surfaces should be brushed off before products are applied.
- **Styrofoam™ Brand Deckmate™ Plus Insulation** is combustible; protect from high heat sources. Local building codes may require a protective or thermal barrier. For more information, consult MSDS, call DuPont at 1-866-583-2583 or contact your local building inspector.
- Do not leave **Styrofoam™ Brand Deckmate™ Plus Insulation** exposed to direct sunlight for more than 90 days. Consult a DuPont representative if exposure is expected to be longer than 90 days.
- Prolonged exposure to ultraviolet radiation may cause the surface of **Styrofoam™ Brand Deckmate™ Plus Insulation** to become faded and dusty. The surface degradation will have no measurable effect on the insulating value of the plastic foam unless the deterioration is allowed to continue until actual foam thickness is lost. A light-colored, opaque protective covering should be used if excessive solar exposure is expected.

- Caution: Use a temporary white covering over dark membranes or immediately cover with pavers or stone to prevent excessive heat exposure to the foam board.

### Shelf Life and Storage

When stored outdoors, keep insulation boards tarped or covered to protect from weather and weighted down to prevent boards from being blown around by the wind. Store above standing water.

### Disposal

Dispose of any residual DuPont product, coated debris, or solvent in accordance with applicable federal, state, and local government regulations.



**For more information visit us at  
[styrofoam.com/deckmate](http://styrofoam.com/deckmate)  
or call 1-866-583-2583**

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**STYROFOAM™ Extruded Polystyrene Foam Insulation**

**CAUTION:** This product is combustible. Protect from high heat sources. A protective barrier or thermal barrier may be required as specified in the appropriate building code. For more information, consult (Material) Safety Data Sheet ((M)SDS), call DuPont at 1-866-583-2583 or contact your local building inspector. In an emergency, call 1-989-636-4400 in the U.S. or 1-519-339-3711 in Canada.

**WARNING:** Rigid foam insulation does not constitute a working walkable surface or qualify as a fall protection product.

Building and/or construction practices unrelated to building materials could greatly affect moisture and the potential for mold formation. No material supplier including DuPont can give assurance that mold will not develop in any specific system.

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