

DuPont™ Styrofoam™ Brand Deckmate™ Plus Tapered XPS Foam Insulation

Sloped Roof Insulation Engineered with High Compressive Strength and Membrane Support

FEATURES/BENEFITS

Description

DuPont™ Styrofoam™ Brand Deckmate™ Plus Tapered Extruded Polystyrene (XPS) Foam Insulation* is an extruded polystyrene foam featuring smooth, high-density skins and a closed cellular structure. Designed with a positive slope for drainage, it has a higher compressive strength than other commonly used foam plastic insulations in order to provide additional membrane support for conventional low-slope roof applications.

Styrofoam™ Brand Deckmate™ Plus Tapered boasts excellent insulating characteristics (R-value of 5.0 [.88 RSI] per inch of thickness) and low water absorption. Its excellent compressive strength meets CAN/ULC S701 Type 3 and ASTM C578 Type IV.

Ease of Installation

Styrofoam™ Brand Deckmate™ Plus Tapered Insulation is easy to handle, cut and install, and can be used over any substrate in new construction or for thermal upgrading of existing roofing when reroofing is required. Roof substrate must be clean, dry, smooth and free from oil, grease, rust, standing water, frost and snow. Detailed tapered layouts are available to describe how the insulation is to be installed.

Styrofoam™ Brand Deckmate™ Plus Tapered 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 Tapered Insulation panels are 2' x 8' with standard slopes of 1/8" per foot or 1/4" per foot. However, any specified slope can be accommodated by DuPont approved fabricators.

Sustainable Solutions

Styrofoam™ Brand Deckmate™ Plus Tapered Insulation uses BluEdge™ technology. It is hydrochlorofluorocarbon (HCFC) free with zero ozone depletion potential.

PROPERTIES

DuPont™ Styrofoam™ Brand Deckmate™ Plus Tapered Extruded Polystyrene (XPS) Foam Insulation exhibits the properties and characteristics indicated in Tables 1 and 2 when tested as represented. For chemical resistance properties of Styrofoam™ Brand extruded polystyrene insulation, see Table 3. 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 1: U.S. Physical Properties of Styrofoam™ Brand Deckmate™ Plus Tapered XPS Insulation

Property and Test Method	Value
Thermal resistance ⁽¹⁾ per in., ASTM C 518, 75°F mean temp., ft ² hr°F/BTU as min	5.0
Compressive strength ⁽²⁾ , ASTM D 1621, psi min.	25
Water absorption, ASTM C 272, % by volume, max..	0.1
Water Vapor Permeance ⁽³⁾ , ASTM E96, perm, max.	1.1
Maximum Operating Temperature, °F	165
Coefficient of Linear Thermal Expansion, ASTM D696, in/in·°F	3.5 x 10 ⁻⁵
Flexural Strength, ASTM C203, psi, min.	50
Dimensional Stability ⁽⁵⁾ , ASTM D2126, % linear change, max.	2.0
Flame Spread ⁽⁴⁾ , ASTM E84	5
Smoke development, ASTM E 84	165

¹ Values are consistent with criteria of ASTM C 578 and requirements of FTC R-value rule.

² Vertical compressive strength is measured at 10% deformation or at yield, whichever comes first. Since Styrofoam™ Brand extruded polystyrene insulation are visco-elastic materials, adequate design safety factors should be used to prevent long-term creep and fatigue deformations.

³ Based on 1" thickness.

⁴ This numerical flame spread rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

TABLE 2: Canadian Physical Properties of Styrofoam™ Brand Deckmate™ Plus Tapered XPS Insulation

Property and Test Method	Value
Thermal resistance ⁽¹⁾ per in. (25 mm), ASTM C 518, 24°C mean temp., ft ² hr°F/BTU (m ² °C/W) min.	5.0 (.88 RSI)
Compressive strength ⁽²⁾ , ASTM D 1621, psi (kPa) min.	20 (140)
Water Absorption, ASTM D2842, % by volume, max..	0.3
Water vapour permeance ⁽³⁾ , max., ASTM E 96, perms (ng/([Pa·s·m ²]))	1.5 (90)
Maximum operating temperature, °F (°C)	165 (74)
Coefficient of linear thermal expansion, in/in, °F (mm/mm, °C)	3.5 x 10 ⁻⁵
Flexural Strength, ASTM C203, psi (kPa) min.	43 (300)
Dimensional stability, max., ASTM D 2126, % linear change, max.	1.5
Flame spread, ULC S 102.2, CAN/ULC S102.2	100 - 205
Surface Burning Characteristics, CAN/ULC S102.2 for both foam core and finished product ⁽⁴⁾	
Flame Spread	<300
Smoke Developed	<700

¹ Values are consistent with criteria of CAN/ULC S701.1.

² Vertical compressive strength is measured at 10% deformation or at yield, whichever comes first. Since Styrofoam™ Brand extruded polystyrene insulations are visco-elastic materials, adequate design safety factors should be used to prevent long-term creep and fatigue deformations.

³ Tested per CAN/ULC S102.2. Refer to UL and CCMC listings for details on foam thickness and maximum density evaluated.

TABLE 3: Chemical Resistance of Styrofoam™ Brand XPS Insulation

Acid, inorganic	Good	Gases, carbon hydroxide (CH ₄)	Good
Acid, organic	Good	Gases, chlorofluorocarbons	Good
Alcohol	Good	Gases, dioxide (O ₂)	Good
Asphalts, water-based	Good	Gases, nitrous hydroxide (NH ₃)	Good
Bases (caustics)	Good	Gases, sulfur dioxide (SO ₂)	Good
Bleach	Good	Mineral oil USP	Excellent
Brines and other salts	Good	Paints, alcohol-based	Good
Cements and mortar	Good	Paints, water-based	Good
Gases, carbon dioxide (CO ₂)	Good	Water	Good

* 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.

TESTING

Applicable Standards

ASTM International

- **ASTM C 518** – Standard Test Method for Steady State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- **ASTM D 1621** – Standard Test Method for Compressive Properties of Rigid Cellular Plastics
- **ASTM C 272** – Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions
- **ASTM E 96** – Standard Test Method for Water Vapor Transmission of Materials
- **ASTM C 203** – Standard Test Method for Breaking Load and Flexural Properties of Block Type Thermal Insulation
- **ASTM D 2126** – Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging
- **ASTM E 84** – Standard Test Method for Surface Burning Characteristics of Building Materials

Notice

The roof system must be designed to meet all applicable building codes. **DuPont™ Styrofoam™ Brand Deckmate™ Plus Tapered Extruded Polystyrene (XPS) Foam Insulation** complies with the following codes:

- ICBO-ES ER 2257
- ICBO-ES ER 5155
- BOCA-ES RR 21-02
- SBCCI PST & ESI, ER 9576D
- CCMC Listing 11420-L

Warranty

A limited warranty is available that covers thermal resistance retention of **Styrofoam™ Brand Deckmate™ Plus Tapered Insulation** when used below sheet membranes. Visit building.dupont.com/warranties or contact your DuPont representative for details.

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.
- Prolonged exposure to ultraviolet radiation may cause the surface of **Styrofoam™ Brand Deckmate™ Plus Tapered 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.
- **Styrofoam™ Brand Deckmate™ Plus Tapered** 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.
- All roof systems incorporating **Styrofoam™ Brand Deckmate™ Plus Tapered** should provide adequate fire protection. Coverings such as 15-minute thermal barriers or other code-approved tests or assemblies such as UL260 and UL440 are regarded as acceptable in most applications, but always verify all federal, state/provincial and local requirements.
- Consideration should be given to the benefits of and costs of additional fire protection gained by installing automatic fire detection, alarm and suppression systems.

Shelf Life and Storage

When stored outdoors, keep insulation boards covered with white plastic film or light-colored tarps to protect from weather and weighted down to prevent boards from being blown around by the wind. Store above standing water. For proper protection of plastic foam in storage, consult an insurer, local fire department or other authority having jurisdiction.

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
or call 1-866-583-2583**

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DuPont™ Styrofoam™ Brand 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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