STYROFOAM™ DECKMATE™ Plus Tapered Insulation

1. PRODUCT NAME
STYROFOAM™ DECKMATE™ Plus Tapered Insulation

2. MANUFACTURER
The Dow Chemical Company
Dow Building Solutions
200 Larkin Center, 1605 Joseph Drive
Midland, MI 48674
1-866-583-BLUE (2583)
Fax 1-989-832-1465
dowbuildingsolutions.com

3. PRODUCT DESCRIPTION

Basic Use
STYROFOAM* DECKMATE* Plus Tapered extruded polystyrene foam insulation is designed to provide positive slope for drainage to improve the sustainable performance of the roof system and to meet building code requirements in the US and Canada. This product has a higher compressive strength than other commonly used foam plastic insulations to provide additional membrane support for conventional low-slope roof applications.

STYROFOAM™ DECKMATE™ Plus Tapered insulation is a closed cell extruded polystyrene foam insulation which provide excellent insulating characteristics (R-value of 5.0 (0.88 RSI) per inch of thickness and low water absorption. It’s excellent compressive strength meets CAN/ULC S701 Type 3 and ASTM C578 Type IV.

Properties imparted by Dow’s extrusion process, coupled with the hydrophobic nature of polystyrene give STYROFOAM” DECKMATE™ Plus Tapered 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.

Sizes
STYROFOAM™ DECKMATE™ Plus Tapered insulation panels are 2’ x 8’ with standard slopes of 1/8” per foot or 1/4” per foot. However, any slope you specify can be accommodated by Dow approved fabricators.

4. TECHNICAL DATA

Applicable Standards
ASTM International
- ASTM C 203 – Standard Test Method for Breaking Load and Flexural Properties of Block Type Thermal Insulation

TABLE 1: U.S. PROPERTY CHART – PHYSICAL PROPERTIES OF STYROFOAM™ DECKMATE™ PLUS TAPERED INSULATION

<table>
<thead>
<tr>
<th>Property and Test Method</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal resistance(1) per in., ASTM C 518, 75°F mean temp., ft² hr°F/BTU as min.</td>
<td>5.0</td>
</tr>
<tr>
<td>Compressive strength(2), ASTM D 1621, psi min.</td>
<td>25</td>
</tr>
<tr>
<td>Water absorption, ASTM C 272, % by volume, max.</td>
<td>0.1</td>
</tr>
<tr>
<td>Water vapor permeance(3), max., ASTM E 96, perms</td>
<td>1.1</td>
</tr>
<tr>
<td>Maximum operating temperature, °F</td>
<td>165</td>
</tr>
<tr>
<td>Coefficient of linear thermal expansion, in./in., °F</td>
<td>3.5 x 10⁻⁵</td>
</tr>
<tr>
<td>Flexural strength, ASTM C 203, psi min.</td>
<td>50</td>
</tr>
<tr>
<td>Dimensional stability, max., ASTM D 2126, % linear change, max.</td>
<td>2.0</td>
</tr>
<tr>
<td>Flame spread(4), ASTM E 84</td>
<td>5</td>
</tr>
<tr>
<td>Smoke development, ASTM E 84</td>
<td>165</td>
</tr>
</tbody>
</table>

(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™ extruded polystyrene insulations 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: CANADA PROPERTY CHART – PHYSICAL PROPERTIES OF STYROFOAM™ DECKMATE™ PLUS TAPERED INSULATION

<table>
<thead>
<tr>
<th>Property and Test Method</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal resistance(1) per in. (25 mm), ASTM C 518, 24°C mean temp., ft² hr°F/BTU (m²°C/W) min.</td>
<td>5.0 (0.88 RSI)</td>
</tr>
<tr>
<td>Compressive strength(2), ASTM D 1621, psi (kPa) min.</td>
<td>20 (140)</td>
</tr>
<tr>
<td>Water absorption, ASTM D 2842, % by volume, max.</td>
<td>0.7</td>
</tr>
<tr>
<td>Water vapour permeance(3), max., ASTM E 96, perms (ng/(Pa•s•m²))</td>
<td>1.5 (90)</td>
</tr>
<tr>
<td>Maximum operating temperature, °F (°C)</td>
<td>165 (74)</td>
</tr>
<tr>
<td>Coefficient of linear thermal expansion, in./in., °F (mm/mm, °C)</td>
<td>3.5 x 10⁻⁵</td>
</tr>
<tr>
<td>Flexural strength, ASTM C 203, psi (kPa) min.</td>
<td>43 (300)</td>
</tr>
<tr>
<td>Dimensional stability, max., ASTM D 2126, % linear change, max.</td>
<td>1.5</td>
</tr>
<tr>
<td>Flame spread(4), ULCS 102.2, CAN/ULC S102.2</td>
<td>100 - 205</td>
</tr>
</tbody>
</table>

(1) Values are consistent with criteria of ASTM C 578.
(2) Vertical compressive strength is measured at 10% deformation or at yield, whichever comes first. Since STYROFOAM™ extruded polystyrene insulations are visco-elastic materials, adequate design safety factors should be used to prevent long-term creep and fatigue deformations.
(3) Based on 1” (25.4 mm) 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 3: CHEMICAL RESISTANCE OF STYROFOAM™ EXTRUDED POLYSTYRENE INSULATION

<table>
<thead>
<tr>
<th>Acid, inorganic</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid, organic</td>
<td>Good</td>
</tr>
<tr>
<td>Alcohol</td>
<td>Good</td>
</tr>
<tr>
<td>Asphalts, water-based</td>
<td>Good</td>
</tr>
<tr>
<td>Bases (caustics)</td>
<td>Good</td>
</tr>
<tr>
<td>Bleach</td>
<td>Good</td>
</tr>
<tr>
<td>Brines and other salts</td>
<td>Good</td>
</tr>
<tr>
<td>Cements and mortar</td>
<td>Good</td>
</tr>
<tr>
<td>Gases, carbon dioxide (CO₂)</td>
<td>Good</td>
</tr>
<tr>
<td>Gases, carbon hydroxide (CH₂)</td>
<td>Good</td>
</tr>
<tr>
<td>Gases, chlorofluorocarbons</td>
<td>Good</td>
</tr>
<tr>
<td>Gases, dioxide (O₂)</td>
<td>Good</td>
</tr>
<tr>
<td>Gases, nitrous hydroxide (NH₂)</td>
<td>Good</td>
</tr>
<tr>
<td>Gases, sulfur dioxide (SO₂)</td>
<td>Good</td>
</tr>
<tr>
<td>Mineral oil USP</td>
<td>Excellent</td>
</tr>
<tr>
<td>Paints, alcohol-based</td>
<td>Good</td>
</tr>
<tr>
<td>Paints, water-based</td>
<td>Good</td>
</tr>
<tr>
<td>Water</td>
<td>Good</td>
</tr>
</tbody>
</table>

Code Compliance
STYROFOAM™ DECKMATE™ Plus Tapered Insulation complies with the following codes:
- ICBO-ES ER 2257
- ICBO-ES ER 5155
- BOCA-ES RR 21-02
- SBCCI PST & ESI, ER 9576D
- Underwriters Laboratory, Inc. (UL) Classified, see Classification Certificate D369

Physical/Chemical Properties
STYROFOAM™ DECKMATE™ Plus Tapered extruded polystyrene insulation exhibits the properties and characteristics indicated in Table 1 and 2 when tested as represented. Exposure to ultraviolet radiation in sunlight for several weeks will cause the surface of STYROFOAM™ extruded polystyrene insulation to become yellow and dusty. A light-colored, opaque protective covering should be used if excessive solar exposure is expected. 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. Since the dust would impair the performance of adhesives and finishes, the dusty surface should be brushed off before these products are applied.

For chemical resistance properties of STYROFOAM™ extruded polystyrene insulation, see Table 3.

Environmental Data
STYROFOAM™ extruded polystyrene insulation products are chlorofluorocarbon (CFC) free. STYROFOAM™ extruded polystyrene insulation products are manufactured with HCFC blowing agents, which have ozone depletion potentials 94 percent less than standard CFC blowing agents. STYROFOAM™ extruded polystyrene insulation products are reusable in many applications and are recyclable.

Fire Protection
All roof systems incorporating STYROFOAM™ extruded polystyrene insulation should provide adequate fire protection. Coverings such as 15-minute thermal barriers or other codeapproved tests or assemblies such as UL260 and UL1440 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. For proper protection of plastic foam in storage, consult an insurer, local fire department or other authority having jurisdiction.

5. INSTALLATION
STYROFOAM™ DECKMATE™ Plus Tapered insulation can be used over any substrate in new construction or for thermal upgrading of existing roofs 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. The roof system must be designed to meet all applicable building codes.

In the U.S.
The Dow Chemical Company
Dow Building Solutions
200 Larkin Center, 1605 Joseph Drive
Midland, MI 48674

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

www.insulateyourhome.com

In Canada
Dow Chemical Canada Inc.
Dow Building Solutions
1086 Modeland Rd.
Sarnia, ON N7T 7K7

Technical Information
1-800-268-4840 (English)
1-800-363-6210 (French)
Sales Information
1-800-232-2436 (English)
1-800-565-1255 (French)

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COMBUSTIBLE: Protect from high heat sources. For more information, consult MSDS and/or call Dow.

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

6. AVAILABILITY
An established network of Dow-approved fabricators is available to provide design assistance, customer layouts, shop drawings and quotations for each application. Equally important, fabricators are geographically located assuring immediate service and aspromised delivery. When delivered, the tapered panels arrive on-site securely packaged and clearly identified.

7. WARRANTY
Limited Thermal Warranty – U.S. Only
A limited warranty is available that covers thermal resistance retention of STYROFOAM™ DECKMATE™ Plus Tapered insulation when used below sheet membranes. Refer to the Dow warranty certificate for complete details.

8. MAINTENANCE
Not applicable.

9. TECHNICAL SERVICES
Dow can provide technical information to help address questions when using STYROFOAM™ extruded polystyrene insulation. For technical assistance, call:
U.S.: 1-866-583-BLUE (2583)
Canada: 1-800-268-4840 (English)
1-800-363-6210 (French)

10. FILING SYSTEMS
- U.S.
  www.dowbuildingmaterials.com/architect
- Canada:
  www.dowbuildingmaterials.ca/4architects
  www.CMDFirstSource.com
  www.specSource.com

Flutespanability – maximum flute spanability is 1-3/4” for 1”-thick product, 3” for 1-1/2”-thick product, 4-3/8” for 2"-thick product or greater.
Boards of STYROFOAM™ extruded polystyrene insulation are easy to handle, cut and install. Contact a local Dow representative or access the literature library at www.dowbuildingmaterials.com for more specific instructions.