DuPont™ Tuff-R™ and Super Tuff-R™ Polyisocyanurate Insulation
High-Performance Polyiso Foam with Dual Reflective Foil Facers

FEATURES/BENEFITS

Description
DuPont™ Tuff-R™ and Super Tuff-R™ Polyisocyanurate Insulation products consist of high-performance, high R-value, closed-cell polyisocyanurate foam core boards sandwiched between a choice of durable exterior foil facers. The polyiso-cyanurate insulation is created by an exclusive free-rise manufacturing process, which produces a uniform, closed-cell foam for better insulation performance.

On Tuff-R™ Insulation, one facer is a continuous sheet of aluminum foil; the other is a Tri-Plex facer consisting of a three-ply laminate of durable kraft with aluminum foil on both sides. When additional durability is required, Super Tuff-R™ is the preferred product. One side blue, the other side reflective foil, its Super Tri-Plex facers feature three-ply laminates of durable polyester, kraft and reinforced aluminum foil.

Tuff-R™ and Super Tuff-R™ help reduce air infiltration through the wall by covering cracks between the framing members and sealing tightly against the studs.

Ease of Installation
Install Tuff-R™ and Super Tuff-R™ products in residential construction where they will be covered with a minimum of 1/2” gypsum board, or equivalent, thermal barrier. Applications include:
• New frame wall construction behind masonry, siding, exterior stucco or other compatible finishes
• Interior retrofit of existing walls under a new interior finish of 1/2” (minimum) gypsum board
• Exterior retrofit of existing walls under new exterior sidings
• Over roof decks and in cathedral ceilings

Tuff-R™ and Super Tuff-R™ Insulation Boards are:
• Lightweight – easy to handle and install with a utility knife or any sharp blade
• Adaptable – come with a choice of durable facers depending on design requirements that can be nailed, stapled or glued
• Durable – Tri-Plex facers on Super Tuff-R™ improve shipping, storage and job-site durability; less damage and job-site waste
• Versatile – compatible with most exterior siding treatments; ideal for brick, stone, aluminum, vinyl, wood, composite, fiber cement and stucco
• Effective – high R-value provides enhanced thermal efficiency; facers help reduce air penetration and water vapor intrusion allowing products to be detailed as a weather-resistive barrier

Available Sizes
Tuff-R™ and Super Tuff-R™ Insulation Boards are available in the following sizes:
• Width and length: 4’ x 8’, 4’ x 9’, 4’ x 10’
• Edge treatment: Square edge

Sustainable Solutions
As with all DuPont polyisocyanurate insulations, Tuff-R™ and Super Tuff-R™ insulation products are manufactured with hydrocarbon blowing agents, which have no ozone depletion potential.

*R means resistance to heat flow. The higher the R-value, the greater the insulating power.
2 Siding manufacturers may restrict warranties as applied to sheathing underlayment.
**PROPERTIES**

**DuPont™ Tuff-R™ and Super Tuff-R™ Polysocyanurate Insulation** products exhibit physical properties as indicated in Tables 1 and 2 when tested as represented. 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: Typical Physical Properties of Tuff-R™ of and Super Tuff-R™ Polyisocyanurate Insulation**

<table>
<thead>
<tr>
<th>Property and Test Method</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressive Strength(1), ASTM D1621, psi, min.</td>
<td>25</td>
</tr>
<tr>
<td>Flexural Strength, ASTM C203, psi, min.</td>
<td>40</td>
</tr>
<tr>
<td>Water Absorption, ASTM C209, % by volume, max</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>Water Vapor Permeance(2), ASTM E96 (dessicant method), perms.</td>
<td>&lt;0.03</td>
</tr>
<tr>
<td>Nominal Density, ASTM D1622, pcf</td>
<td>2</td>
</tr>
<tr>
<td>Operation Temperature Range, °F</td>
<td>-50 to +190</td>
</tr>
</tbody>
</table>

1 Vertical compressive strength is measured at 10 percent deformation or at yield, whichever occurs first.
2 Based on 1" thickness.

**TABLE 2: R-Values of Tuff-R™ and Super Tuff-R™ Polysocyanurate Insulation**

<table>
<thead>
<tr>
<th>Nominal Foam Thickness, in.</th>
<th>Product R-Value(1)(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8</td>
<td>2.0</td>
</tr>
<tr>
<td>1/2</td>
<td>3.3</td>
</tr>
<tr>
<td>5/8</td>
<td>4.1</td>
</tr>
<tr>
<td>3/4</td>
<td>5.0</td>
</tr>
<tr>
<td>1</td>
<td>6.5</td>
</tr>
<tr>
<td>1.5</td>
<td>9.8</td>
</tr>
<tr>
<td>2.0</td>
<td>13.0</td>
</tr>
</tbody>
</table>

1 Product R-values @ 72°F mean temperature determined in accordance with ASTM C1289 and ASTM C236/C518 on full-sized product.
2 An additional R-2.77 (2.8) may be added to the system R-value when a minimum 3/4" ideal airspace and horizontal heat flow are present in accordance with the ASHRAE Fundamentals Handbook and FTC, 16 CFR part 460.
TESTING

Applicable Standards
DuPont™ Tuff-R™ and Super Tuff-R™ Polyisocyanurate Insulation products comply with the following codes and standards:
• International Residential Code (IRC) and International Building Code (IBC); see ICC-ES ESR-3089
• ASTM C1289 Type I
• Calif. Std. Reg. # CA-T383

Contact your DuPont sales representative or local authorities for state and local building code requirements and related acceptances.

Warranty
Fifteen year limited Thermal warranty available as described at building.dupont.com/warranties.

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
• CAUTION: This product is combustible and shall only be used as specified by the local building code with respect to flame spread classification and to the use of a suitable thermal barrier.
• 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.

Disposal
Dispose of any residual product, coated debris, or solvent in accordance with applicable federal, state, and local government regulations.
NOTICE: No freedom from any patent owned by DuPont or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where DuPont is represented. The claims made may not have been approved for use in all countries or regions. DuPont assumes no obligation or liability for the information in this document. References to “DuPont” or the “Company” mean the DuPont legal entity selling the products to Customer unless otherwise expressly noted. NO EXPRESS WARRANTIES ARE GIVEN EXCEPT FOR ANY APPLICABLE WRITTEN WARRANTIES SPECIFICALLY PROVIDED BY DUPONT. ALL IMPLIED WARRANTIES INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED. The buyer assumes all risks as to the use of the material. Buyer's exclusive remedy or any claim (including without limitations, negligence, strict liability, or tort) shall be limited to the refund of the purchase price of the material. Failure to strictly adhere to any recommended procedures shall release DuPont Specialty Products USA, LLC or its affiliates, of all liability with respect to the materials or the use thereof. The information herein is not intended for use by non-professional designers, applicators or other persons who do not purchase or utilize this product in the normal course of their business.

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 (MSDS), 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.