### Packaging & OEM Tech Data

#### TECH DATA

**Nominal Density, lb/ft³ (kg/m³)**

<table>
<thead>
<tr>
<th>Density, min, lb/ft³ (kg/m³)</th>
<th>75</th>
<th>100</th>
<th>125</th>
<th>150</th>
<th>200</th>
<th>250</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.75 (12)</td>
<td>0.70 (12)</td>
<td>0.90 (15)</td>
<td>1.15 (18)</td>
<td>1.35 (22)</td>
<td>1.80 (29)</td>
<td>2.40 (38)</td>
<td>3.00 (48)</td>
</tr>
</tbody>
</table>

**R-value, Thermal Resistance per 1.0 in. Thickness°F·ft²·h/Blu (*K·m²/W)**

| 75° | 3.2 (0.57) | 3.9 (0.68) | 3.9 (0.69) | 4.2 (0.73) | 4.4 (0.77) | 4.4 (0.77) | 4.5 (0.78) |
| 40° | 3.4 (0.60) | 4.2 (0.73) | 4.3 (0.75) | 4.6 (0.80) | 4.8 (0.84) | 4.8 (0.84) | 4.9 (0.86) |

**k-value, Thermal Conductivity Btu-in°F·ft²·h (W/°K·m)**

| 75° | 0.31 (0.045) | 0.26 (0.037) | 0.26 (0.037) | 0.24 (0.035) | 0.23 (0.033) | 0.23 (0.033) | 0.22 (0.032) |
| 40° | 0.29 (0.042) | 0.24 (0.035) | 0.24 (0.034) | 0.22 (0.032) | 0.21 (0.030) | 0.21 (0.030) | 0.21 (0.030) |

**Compressive Resistance, psi (kPa)**

<table>
<thead>
<tr>
<th>@ 1%</th>
<th>2.2 (15)</th>
<th>3.6 (25)</th>
<th>5.8 (40)</th>
<th>7.3 (50)</th>
<th>10.9 (75)</th>
<th>15.0 (103)</th>
<th>18.6 (128)</th>
</tr>
</thead>
<tbody>
<tr>
<td>@ 10%</td>
<td>5.0 (35)</td>
<td>10.0 (69)</td>
<td>13.0 (90)</td>
<td>15.0 (104)</td>
<td>25.0 (173)</td>
<td>40.0 (276)</td>
<td>60.0 (414)</td>
</tr>
</tbody>
</table>

**Elastic Modulus, psi (kPa)**

| 220 (1500) | 360 (2500) | 580 (4000) | 730 (5000) | 1090 (7500) | 1500 (10300) | 1860 (12800) |

**Tensile Strength, psi (kPa)**

| 10 (69) | 20 (138) | 25 (173) | 30 (208) | 40 (276) | 50 (345) | 60 (414) | 75 (517) |

**Flexural Strength, psi (kPa)**

| 10 (69) | 25 (173) | 30 (208) | 35 (242) | 50 (345) | 60 (414) | 75 (517) |

**Shear Strength, psi (kPa)**

| 7 (48) | 12 (83) | 15.5 (107) | 18 (124) | 24 (166) | 30 (208) | 35 (242) |

**Water Vapor Permeance per 1.0 in. Thickness, perm**

| 5.0 | 5.0 | 3.5 | 3.5 | 2.5 | 2.5 | 2.5 |

**Water Absorption, volume %**

| 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |

**Maximum Long-Term Exposure to Temperature, °F (°C)**

| 165 (74) | 165 (74) | 165 (74) | 165 (74) | 165 (74) | 165 (74) | 165 (74) |

**Coefficient of Thermal Expansion, x10⁻⁶/°F (x10⁻⁶/°C)**

| 35 (63) | 35 (63) | 35 (63) | 35 (63) | 35 (63) | 35 (63) | 35 (63) |

**ASTM C578 Material Type**

| Type XI | Type I | Type VIII | Type II | Type IX | Type XIV | Type XV |

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¹See ASTM C578 Standard for test methods and requirements for density, thermal resistance, compressive resistance, flexural strength, and water vapor permeance.

²Value obtained from short duration testing. Appropriate factor of safety required when designing for sustained loads.

³No clearly defined compressive strength. Compressive resistance reported at various % strain.

⁴ASTM C272 24 hour immersion followed by 24 hour storage in 75°F/50%RH air.

⁵Compressive Resistance at 1% and Elastic Modulus properties are without recycled content.

Caution: DuraTherm® should be considered combustible and not exposed to sources of ignition.

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See reverse side for additional details.
1. Product Name
DuraTherm® Expanded polystyrene (EPS) for Packaging & OEM.

2. Manufacturer
ACH Foam Technologies, Inc.
8700 Turnpike Drive, Suite 400
Westminster, CO 80031
(855) 597-4427
(303) 645-4161
Fax: (303) 428-2595
E-mail: info@achfoam.com
www.achfoam.com

3. Product Description
DuraTherm® is an amazingly strong and versatile material. Consisting of over 90% air, DuraTherm® is designed to cushion, protect, absorb shocks and insulate product during shipping, handling and storage.

4. Benefits
- Thermal Performance - preserves foods, medical supplies and other temperature-sensitive materials for long-distance shipping.
- 50-Year Thermal Warranty.
- Moisture Resistant - Low rate of permeability.
- Environmentally Friendly - Contains no ozone depleting agents. Most grades of DuraTherm® are available with recycled content.
- Reduces both shipping cost and damage.
- Casting patterns produce more precise metal engine blocks, reducing cost and speeding production time.

5. Design Options
Cost effective designs are among the highest priorities for packaging and OEM applications. DuraTherm® products are available in a variety of densities to provide the necessary structural integrity, thermal resistance, and cost effectiveness.

6. Thermal Performance
The R-Value of DuraTherm® EPS remains constant and does not suffer from R-Value loss. The closed cell structure of DuraTherm® EPS contains air and not blowing agents which deplete over time.

7. Exposure to Water & Vapor
The mechanical properties of DuraTherm® EPS are unaffected by moisture. Exposure to water or water vapor does not cause swelling.

8. Temperature Exposure/Flame Retardants
DuraTherm® EPS is able of withstand the rigors of temperature cycling which assures long-term performance. Although flame retardants used in the manufacture of DuraTherm® EPS provide an important margin of safety, all DuraTherm® EPS products must be considered combustible. The maximum recommended long-term exposure for EPS is 165° F (74°C).

9. Adhesives, Coatings, & Chemicals
Solvents which attack DuraTherm® EPS include esters, ketones, ethers, aromatic, and aliphatic hydrocarbons and their emulsions, among others. If DuraTherm® EPS is to be placed in contact with materials (of their vapors) of unknown composition, pretest for compatibility at maximum exposure temperature. Do not install or use EPS with coal tar pitch, highly solvent extended mastics, or solvent-based adhesives without adequate separation.

10. Quality Assurance
DuraTherm® EPS meets or exceeds the requirements of ASTM C578, “Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.” DuraTherm® EPS is monitored for Quality Control and Listed by Underwriters Laboratories Inc.

11. Mold, Mildew, & Environmental
DuraTherm® EPS will not decompose and does not provide nutrient value to plants or animals. Does not contain CFCs, HCFCs, HFCs, or formaldehyde. Most grades of DuraTherm® are available with recycled content.

12. Warranty
ACH Foam Technologies offers a product warranty ensuring thermal performance.