Rigid Felt Board Insulation

RFB provides a cost effective solution for most conventional heat treating furnaces and is well suited to the solar industry. RFB can be used in high temperature applications operating up to 2,800°C (5,072°F) in an inert or vacuum environment.

CONSTRUCTION: RFB is produced by laminating multiple layers of soft felt with a resin and firing it to a high temperature. Optionally, graphite foil may be bonded to one or both faces to lower the emissivity and minimize process gas infiltration.

STANDARD SIZES: In addition to these standard sizes, boards can be manufactured to customer specification, eliminating the need for most joints. Panels are available in sizes up to 90" long x 55" wide x 8" thick (2290 x 1400 x 200mm).

MATERIAL ATTRIBUTES:

- Machinability: RFB is readily machinable with conventional methods such as cutting, drilling, sawing, and milling. Panels may be supplied with pre-machined shiplap joints to facilitate rapid furnace rebuilds.

- Dimensional Stability: RFB will not bow, warp, or crack as a result of thermal shock or cycling.

- Low Specific Heat: Allows for rapid furnace cycling and improved throughput.

- Purity: Halogen and Vacuum purification is available for Semiconductor and other specialty applications.

<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Thickness</th>
<th>Thickness Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000mm</td>
<td>1500mm</td>
<td>20, 30, 40, 50</td>
<td>± 2mm</td>
</tr>
<tr>
<td>1000mm</td>
<td>1000mm</td>
<td>20, 30, 40, 50</td>
<td>± 2mm</td>
</tr>
<tr>
<td>24&quot;</td>
<td>42&quot;</td>
<td>1&quot;, 1.5&quot;, 2&quot;</td>
<td>± 0.08&quot;</td>
</tr>
<tr>
<td>24&quot;</td>
<td>48&quot;</td>
<td>1&quot;, 1.5&quot;, 2&quot;</td>
<td>± 0.08&quot;</td>
</tr>
<tr>
<td>24&quot;</td>
<td>52&quot;</td>
<td>1&quot;, 1.5&quot;, 2&quot;</td>
<td>± 0.08&quot;</td>
</tr>
<tr>
<td>48&quot;</td>
<td>60&quot;</td>
<td>1&quot;, 1.5&quot;, 2&quot;</td>
<td>± 0.08&quot;</td>
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</tbody>
</table>

Typical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>SI Units</th>
<th>English Units</th>
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</thead>
<tbody>
<tr>
<td>Density</td>
<td>0.18 g/cm³</td>
<td>11.2 lb/ft³</td>
</tr>
<tr>
<td>Thermal Conductivity (Argon)</td>
<td>0.47 W/mK</td>
<td>3.26 BTU in/hr ft²</td>
</tr>
<tr>
<td>1,000°C (1,832°F) (⊥)</td>
<td>1.05</td>
<td>7.29 BTU in/hr ft²</td>
</tr>
<tr>
<td>2,000°C (3,632°F) (⊥)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal Conductivity (Vacuum)</td>
<td>0.33 W/mK</td>
<td>2.29 BTU in/hr ft²</td>
</tr>
<tr>
<td>1,000°C (1,832°F) (⊥)</td>
<td>0.92</td>
<td>6.39 BTU in/hr ft²</td>
</tr>
<tr>
<td>2,000°C (3,632°F) (⊥)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTE: 20 – 1,000°C (//) (68 – 1,832°F) (//)</td>
<td>2.5 x 10⁻⁶</td>
<td>1.4 x 10⁻⁶ 1/°F</td>
</tr>
<tr>
<td>Flexural Strength (⊥)</td>
<td>2.0 MPa</td>
<td>300 psi</td>
</tr>
<tr>
<td>Compressive Strength (⊥)</td>
<td>0.25 MPa</td>
<td>40 psi</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material Grade</th>
<th>Total Ash</th>
<th>Sulfur Content</th>
<th>Total Elemental Impurities</th>
<th>Processing Temp</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFB-210</td>
<td>≤ 0.1%</td>
<td>300 ppm</td>
<td>500 - 1,000 ppm</td>
<td>1,900°C</td>
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<tr>
<td>RFB-210H</td>
<td>≤ 0.01%</td>
<td>25 ppm</td>
<td>≤ 150 ppm</td>
<td>1,900°C</td>
</tr>
<tr>
<td>RFB-210HP</td>
<td>N/A</td>
<td>5 ppm</td>
<td>≤ 20 ppm</td>
<td>2,100°C w/ Halogen</td>
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