Momentive Performance Materials’ boron nitride (BN) composites incorporate proprietary compositions with other refractory materials and are excellent candidates to consider for harsh environments such as non-ferrous molten metal applications.

**Potential Applications**

**AC6043**

Grade AC6043 is an electrically conductive titanium diboride/boron nitride composite that is machinable and typically exhibits better oxidation resistance and improved strength compared to common furnacing materials such as graphite.

**BIN77**

Grade BIN77 is an electrically insulating Aluminum Nitride/Boron Nitride composite that is durable and typically offers long life in abrasive environments. The calcium-stabilized binder system typically provides resistance to moisture pick up, spalling and cracking.

**Machining**

AC6043, BIN77 can be machined using standard practices for hard ceramic materials, including diamond tooling with high cutting or grinding speeds and normal feed rates.

Momentive Performance Materials produces over 70 standard and custom grades of BN powders to meet a wide range of application requirements, and has over 50 years of expertise in the synthesis and refinement of boron nitride powders.

### Typical Physical Properties

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>AC6043</th>
<th>BIN77</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binder</td>
<td>N/A</td>
<td>Calcium Borate</td>
</tr>
<tr>
<td>Pressing Direction</td>
<td>II</td>
<td>II</td>
</tr>
<tr>
<td>Density, g/cm³</td>
<td>2.78</td>
<td>2.43</td>
</tr>
<tr>
<td>Max. Operating Temp., °C</td>
<td>950 Oxidizing</td>
<td>950 Oxidizing</td>
</tr>
<tr>
<td></td>
<td>1600 Inert/Vacuum</td>
<td>1600 Inert/Vacuum</td>
</tr>
<tr>
<td>CTE (25-1500°C), ppm/°C</td>
<td>7</td>
<td>5.4</td>
</tr>
<tr>
<td></td>
<td>5.6</td>
<td>5.6</td>
</tr>
<tr>
<td>Modulus of Elasticity, GPa (psi x 10⁶)</td>
<td>107 (15.5)</td>
<td>41 (6)</td>
</tr>
<tr>
<td></td>
<td>62 (9)</td>
<td></td>
</tr>
<tr>
<td>Flexural Strength, MPa (psi x 10⁶) @ 25°C</td>
<td>89.6 (13.0)</td>
<td>78.6 (11.4)</td>
</tr>
<tr>
<td></td>
<td>16.5 (2.4)</td>
<td>24.8 (3.8)</td>
</tr>
<tr>
<td></td>
<td>32.4 (4.7)</td>
<td></td>
</tr>
<tr>
<td>@ 500°C</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>@ 1500°C</td>
<td>43</td>
<td>43</td>
</tr>
<tr>
<td>Rockwell Hardness (H)</td>
<td>123</td>
<td></td>
</tr>
<tr>
<td>Dielectric Strength (V/mm x 10³)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>@ 1GHz</td>
<td>6.2</td>
<td></td>
</tr>
<tr>
<td>@ 9.3 GHz</td>
<td>5.9</td>
<td></td>
</tr>
<tr>
<td>@ 1 MHz</td>
<td>6.4</td>
<td></td>
</tr>
<tr>
<td>Volume Resistivity @ 25°C (ohm-cm)</td>
<td>&lt;1000 x 10⁴</td>
<td>&gt;10¹⁵</td>
</tr>
<tr>
<td>@ 700°C (ohm-cm)</td>
<td></td>
<td>7.4 x 10⁴</td>
</tr>
</tbody>
</table>

1 Typical data are average and actual results may vary. Typical data shall not be used as product specifications.
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