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.

**Potential Applications**

Momentive PolarTherm BN powders’ unique combination of thermal, electrical, and mechanical properties make them excellent candidates to consider for use in a range of thermal management materials, including:

- Gap fillers and underfills
- Potting and molding compounds
- Silicone and other compliant pads
- Liquid encapsulants
- Printed circuit board pre-pregs and laminates

PT140, PT160, and PT180 are best considered for use in thin film or sheet applications due to their single-crystal nature and small particle size.

**Key Features & Typical Benefits**

- Thermal Conductor
- Electrical Insulator
- Low Dielectric Constant/Loss
- High Temperature Stability
- Lubricious
- Inert and Chemically Stable
- Non-Wetting

**Typical Trace Element Content**

<table>
<thead>
<tr>
<th>Element</th>
<th>Pt140</th>
<th>Pt160</th>
<th>Pt180</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ca, Si</td>
<td>&lt;500</td>
<td>&lt;500</td>
<td>&lt;500</td>
</tr>
<tr>
<td>Cu, Al, Mg, Fe, K</td>
<td>&lt;100</td>
<td>&lt;100</td>
<td>&lt;100</td>
</tr>
<tr>
<td>Cl, S</td>
<td>&lt;50</td>
<td>&lt;50</td>
<td>&lt;50</td>
</tr>
<tr>
<td>Na</td>
<td>&lt;20</td>
<td>&lt;20</td>
<td>&lt;20</td>
</tr>
<tr>
<td>Other Metals</td>
<td>&lt;10 ppm each</td>
<td>&lt;10 ppm each</td>
<td>&lt;10 ppm each</td>
</tr>
</tbody>
</table>

**Typical Physical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>PT140</th>
<th>PT160</th>
<th>PT180</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystal (Type)</td>
<td>Hexagonal (Graphitic)</td>
<td>Hexagonal (Graphitic)</td>
<td>Hexagonal (Graphitic)</td>
</tr>
<tr>
<td>Color</td>
<td>White</td>
<td>White</td>
<td>White</td>
</tr>
<tr>
<td>Mean Particle Size μm</td>
<td>9-12</td>
<td>7-10</td>
<td>6-9</td>
</tr>
<tr>
<td>Crystal Size μm</td>
<td>8</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Surface Area m²/g</td>
<td>7</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>Tap Density g/cm³</td>
<td>0.5</td>
<td>0.4</td>
<td>0.35</td>
</tr>
<tr>
<td>Oxygen %</td>
<td>0.4</td>
<td>0.4</td>
<td>0.5</td>
</tr>
<tr>
<td>Soluble Borates %</td>
<td>0.2</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Carbon %</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
</tr>
</tbody>
</table>

**Potential Applications**

Momentive PolarTherm boron nitride (BN) powders of grades PT140, PT160, and PT180 are single-crystal hexagonal platelets possessing very high purity. These powders possess mean particle sizes in the range of 6 to 13 μm and are >99% -325 mesh.

The high-temperature processing and single-crystal nature of these powder grades make them outstanding candidates for thermal conduction.

**PolarTherm Boron Nitride Powder, Grades PT140, PT160, and PT180**

**PT140**

PT140 is refined to achieve a lower surface area, which may improve blending results in many formulations.

**PT160**

Grade PT160 falls in the middle of the PT140-180 range in terms of mean particle size (7-10 μm) and surface area (13 m²/g), and is therefore maybe be considered for use as an additive in a range of materials.

**PT180**

PT180 is processed to achieve agglomerated particles, and has a higher specific surface area than similar grades. This results in a random crystal orientation when loaded in a polymer matrix, thus creating numerous thermal paths enhancing the overall thermal conductivity.
Customer Service Centers

North America
cs-na.ceramics@momentive.com
T +1 440 878 5700
F +1 440 878 5928

Europe
cs-eur.ceramics@momentive.com
T +49 4152 9380
F +49 4152 938 136

Pacific
cs-asia.ceramics@momentive.com
T +81 3 5114 3769
F +81 3 5114 3777

PATENT STATUS: Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

PRODUCT SAFETY, HANDLING AND STORAGE: Customers considering the use of this product should review the latest Material Safety Data Sheet and label for product safety information, handling instructions, personal protective equipment if necessary, and any special storage conditions required. Material Safety Data Sheets are available at www.momentive.com or, upon request, from any Momentive Performance Materials representative. Use of other materials in conjunction with Momentive Performance Materials products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

LIMITATIONS: Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

EMERGENCY SERVICE:

Momentive Performance Materials maintains an around-the-clock emergency service for its products.

LOCATION
EMERGENCY SERVICE PROVIDER
EMERGENCY CONTACT NUMBER
Mainland U.S., Puerto Rico
CHEMTREC
1.800.424.9300
Alaska, Hawaii
CHEMTREC
1.800.424.9300
Canada,
CHEMTREC
1.800.424.9300
Europe, Israel
NCEC
+44(0) 1235239670
Middle East
NCEC
+44(0) 1235239671
Asia/Pacific (except China)
NCEC
+44(0) 1235239670
China
NCEC
+86.10.5100.3039
Latin America (except Brazil)
NCEC
+44(0) 1235239670
Brazil
SOS Cotec
08000111767 or 08007071767
All other locations world wide
NCEC
+44(0) 1235239670
At sea
Radio U.S. Coast Guard in US waters
NCEC in International waters
+44(0) 1235239670

For Health related calls, contact Momentive Performance Materials at +1.518.233.2500 (English only).
DO NOT WAIT. Phone if in doubt. You will be referred to a specialist for advice.

DISCLAIMER: THE MATERIALS, PRODUCTS AND SERVICES OF MOMENTIVE PERFORMANCE MATERIALS INC., MOMENTIVE PERFORMANCE MATERIALS USA INC., MOMENTIVE PERFORMANCE MATERIALS ASIA PACIFIC PTE. LTD., MOMENTIVE PERFORMANCE MATERIALS WORLDWIDE INC., MOMENTIVE PERFORMANCE MATERIALS GmbH, THEIR SUBSIDIARIES AND AFFILIATES DOING BUSINESS IN LOCAL JURISDICTIONS (collectively “SUPPLIERS”), ARE SOLD BY THE RESPECTIVE LEGAL ENTITY OF THE SUPPLIER SUBJECT TO SUPPLIERS’ STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN THE APPLICABLE DISTRIBUTOR OR OTHER SALES AGREEMENT, PRINTED ON THE BACK OF ORDER ACKNOWLEDGMENTS AND INVOICES, AND AVAILABLE UPON REQUEST. ALTHOUGH ANY INFORMATION, RECOMMENDATIONS, OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, SUPPLIERS MAKE NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING SUPPLIERS’ PRODUCTS, MATERIALS, SERVICES, RECOMMENDATIONS OR ADVICE. AFOREMENTIONED EXCLUSIONS OR LIMITATION OF LIABILITY ARE NOT APPLICABLE TO THE EXTENT THAT THE END-USE CONDITIONS AND/OR INCORPORATION CONDITIONS CORRESPOND TO THE RECOMMENDED CONDITIONS OF USE AND/OR OF INCORPORATION AS DESCRIBED BY SUPPLIER IN ITS PRODUCT DATA SHEET AND/OR PRODUCT SPECIFICATIONS. EXCEPT AS PROVIDED IN SUPPLIERS’ STANDARD CONDITIONS OF SALE, SUPPLIERS AND THEIR REPRESENTATIVES SHALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS, PRODUCTS OR SERVICES DESCRIBED HEREIN. Each user bears full responsibility for making its own determination as to the suitability of Suppliers’ materials, services, recommendations, or advice for its own particular use. Each user must identify and perform all tests and analyses necessary to assure that its finished parts incorporating Suppliers’ products, materials, or services will be safe and suitable for use under end-use conditions. Nothing in this or any other document, nor any oral recommendation or advice, shall be deemed to alter, vary, supersede, or waive any provision of Suppliers’ Standard Conditions of Sale or this Disclaimer, unless any such modification is specifically agreed to in a writing signed by Suppliers. No statement contained herein concerning a possible or suggested use of any material, product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of Suppliers or any of its subsidiaries or affiliates covering such use or design, or as a recommendation for the use of such material, product, service or design in the infringement of any patent or other intellectual property right.

*PolarTherm is a trademark of Momentive Performance Materials Inc.

Momentive and the Momentive logo are trademarks of Momentive Performance Materials Inc.