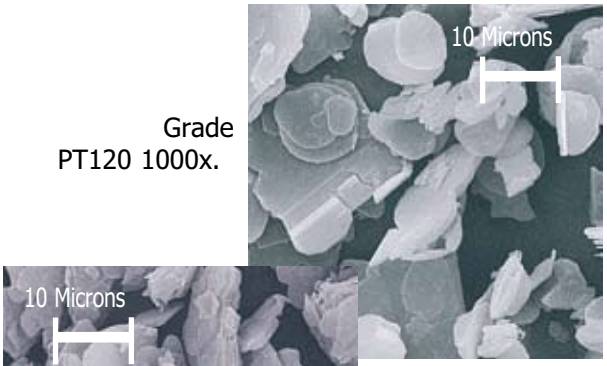
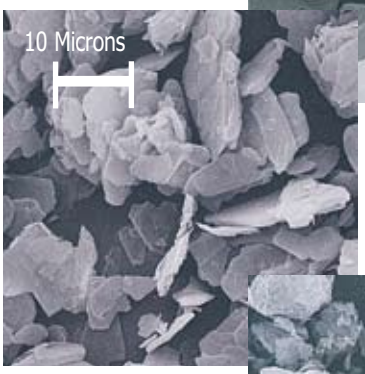
MOMENTIVE
performance materials

PolarTherm®
Boron Nitride Powder Grades PT120, PT140, PT160, and PT180



Grade
PT120 1000x.



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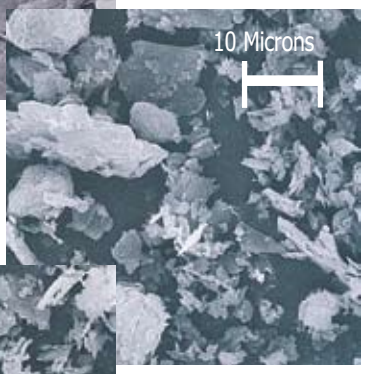

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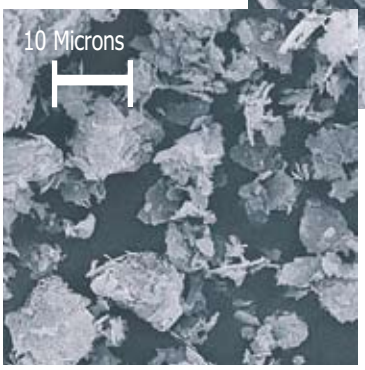


Grade
PT180-1000x.

Momentive Performance Materials PolarTherm boron nitride (BN) powders of grades PT120, PT140, PT160, and PT180 are primarily single-crystal hexagonal platelets possessing very high purity. These powders possess mean particle sizes inthe 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 thermal conductors.

PT120
PT120 has a hexagonal platelet structure with a slightly larger particle size (12-13 µm) than PT140, PT160, and PT180, as well as a lower surface area. It also has a more uniform particle size distribution.

PT140
PT140 is refined to achieve a lower surface area. This gives improved blending results in many formulations.

PT160
Grade PT160 falls in the middle of the PT120-180 range in terms of mean particle size (7-10 µm) and surface area (13 m^2/g), and, as such, is suitable as an additive in abroad range of materials.

PT180
PT180 is processed to achieve agglomerated particles, and therefore 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.

Applications:
Momentive PolarTherm BN powders' unique combination of thermal, electrical, and mechanical properties make them ideal 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
- Compounded thermoplastics

PT120, PT140, PT160, and PT180 are best suited for use in thin film or sheet applications due to their single-crystal nature and small particle size.

Momentive Performance Materials produces over 75 standard and custom grades of BN powders to meet a wide range of application requirements, and has over 40 years of expertise in the synthesis and refinement of boron nitride powders.

PolarTherm® Boron Nitride Powder Grades PT120, PT140, PT160, and PT180

General Characteristics of Boron Nitride

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

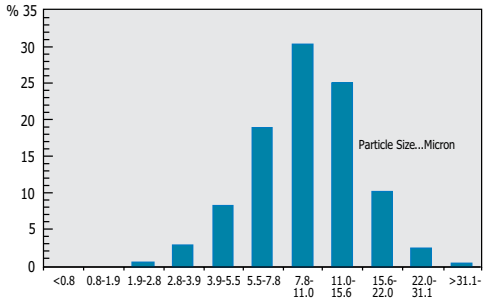
Typical Properties	Grade PT120	Grade PT140	Grade PT160	Grade PT180
Crystal (type)	Hexagonal (Graphitic)	Hexagonal (Graphitic)	Hexagonal (Graphitic)	Hexagonal (Graphitic)
Color	White	White	White	White
Mean Particle Size, µm	12 – 13	9 – 12	7 – 10	6 – 9
Crystal Size, µm	>10	8	4	3
Surface Area, m^2/g	2	7	13	17
Tap Density, g/cc	0.55	0.5	0.4	0.35
Oxygen, %	0.3	0.4	0.4	0.5
Sol. Borate, %	0.15	0.2	0.2	0.2
Carbon, %	0.02	0.03	0.03	0.03

Elemental

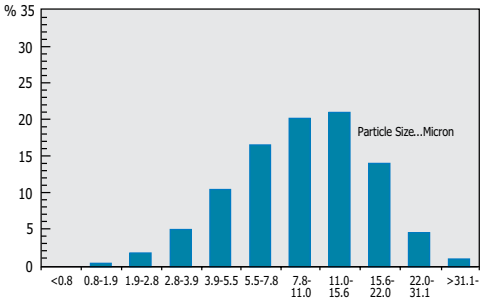
Ca, Si.....<500 ppm (per element)
Cu, Al, Mg, Fe, K.....<100 ppm (per element)
Cl, S.....<50 ppm (per element)
Na.....<20 ppm
Other Metals.....<10 ppm each

See Momentive Performance Materials' Publication 81501 (PolarTherm) for more details on the full range of Momentive PolarTherm products.

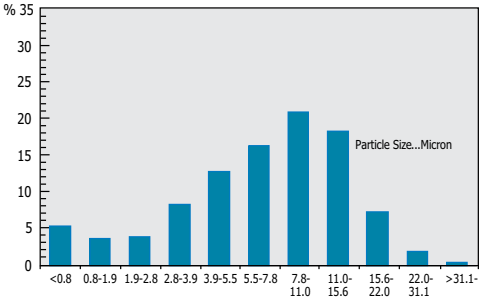
PT120 Boron Nitride Powder



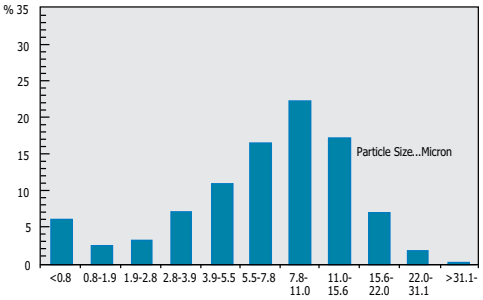
PT140 Boron Nitride Powder



PT160 Boron Nitride Powder



PT180 Boron Nitride Powder



www.momentive.com

SALES OFFICES	USA	GERMANY	JAPAN	CHINA
	T: 440.878.5700	T: 49.4152.938.300	T: 81.3.5114.3774	T: 86.21.3860.4500
	F: 440.878.5928	F: 49.4152.938.303	F: 81.3.5114.3779	F: 86.21.5079.3736
	E: cs-na.ceramics@momentive.com	E: cs-eur.ceramics@momentive.com	E: cs-jp.ceramics@momentive.com	E: cs-asia.ceramics@momentive.com

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