



PolarTherm® Boron Nitride Powder PT350, PT360, and PT370

Momentive Performance Materials PolarTherm boron nitride (BN) powders of grades PT350, PT360, and PT370 are medium-density agglomerates of hexagonal platelets, with crystal sizes of 10-15 μm . These powders possess mean particle sizes in the range of 125 to 250 μm .

Like all PolarTherm BN powders, these grades are outstanding thermal conductors. The agglomerated nature of these powder grades gives the ability to use high loadings in polymer matrices while maintaining a workable viscosity and not significantly increasing the weight of BN in the composite. Care must be taken during compounding not to break apart the agglomerates.

PT350, PT360, and PT370 are best suited for use in filling applications where numerous thermal paths are required and maintaining a workable viscosity is critical.

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.

PT350

PT350 is the smallest of the medium-density agglomerate PolarTherm grades, with an average particle size between 125 and 150 μm .

PT360

PT360 has a larger average particle size of $\sim 250 \mu\text{m}$, and a higher surface area of $\sim 6.5 \text{ m}^2/\text{g}$.

PT370

Grade 370 is processed to achieve a lower surface area ($\sim 2.5 \text{ m}^2/\text{g}$) than PT360; this gives improved blending results in many formulations.

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

polarTherm® Boron nitride powder
Grades pT350, pT360, and pT370**General Characteristics of Boron Nitride**

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

Screen Sizing Analysis

Screen	Grade PT350	Grade PT360	Grade PT370
-325	5.3	3.6	9.3
-200/+325	3.1	1.9	1.4
-150/+200	11.6	6.2	3.0
-100/+150	50.4	11.8	5.8
-80/+100	29.3	7.3	6.4
-40/+80	0.3	69.2	73.8
+40	0	0	0.3

Typical Properties

	Grade PT350	Grade PT360	Grade PT370
Crystal (type)	Hexagonal (Graphitic)	Hexagonal (Graphitic)	Hexagonal (Graphitic)
Color	White	White	White
Mean Particle Size, μm	125-150	250	250
Crystal Size, μm	10	9	10-15
Surface Area, m^2/g	3.3	6.5	2.6
Tap Density, g/cc	0.7	0.5	2.6
Oxygen, %	0.3	0.3	0.2
Sol. Borate, %	0.1	0.1	0.3
Carbon, %	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

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

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