

General Properties

PBN is an extremely pure boron nitride solid grown using a CVD process. PBN is suitable for the most demanding applications requiring high-temperature and high-purity.

Applications

- MBE crucibles.
- MBE furniture.
- Electrical insulators.
- Vacuum furnace insulation.
- LEC, VGF, and bridgman crucibles.
- Crystal growth, including GaAs and InP.
- SUMO crucibles.
- Heating elements.
- Auxiliary effusion cell hardware.

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Physical Properties

Property	Unit	PBN
Maximum Use Temperature	°C	1900
Density	g/cm ³	1,95–2,19
Gas Permeability (helium)	cm ² /s	2x10 ⁻¹¹
Compressive Strength	at 25 °C	37000 'a' direction 48000 'c' direction
	at 1200 °C	35000 'a' direction 54000 'c' direction
Tensile Strength (25 °C)	psi	21000 'a' direction
Flexural Strength	at 25 °C	28000
	at 1200 °C	27000
Young's Modulus (25 °C)	—	3,4x10 ⁶ 'a' direction
Poisson's Ratio (25 °C)	—	0,086 'a' direction
Flexural Modulus	at 25 °C	3,2x10 ⁶
	at 1200 °C	3,2x10 ⁶
Thermal Conductivity	at 25 °C	0,25 'a' direction 0,004 'c' direction
	at 500 °C	0,17 'a' direction 0,005 'c' direction
	at 1000 °C	0,15 'a' direction 0,006 'c' direction
Thermal Expansion	at 500 °C	0,001 'a' direction 0,013 'c' direction
	at 1000 °C	0,0025 'a' direction 0,027 'c' direction
CTE	at 500 °C	30x10 ⁻⁶ 'c' direction
	>500 °C	3x10 ⁻⁶ 'a' direction
Specific Heat	at 20 °C	0,2
	at 500 °C	0,4
	at 1000 °C	0,47
Resistivity	at 25 °C	1x10 ¹⁵ 'a' direction 1x10 ¹⁵ 'c' direction
	at 1000 °C	3x10 ⁷ 'a' direction 5x10 ⁹ 'c' direction
	at 1500 °C	1x10 ⁴ 'a' direction 3x10 ⁵ 'c' direction

NOTE: This data shows typical values and does not represent a specification.

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