

Pyrolytic Boron Nitride (PBN)

PBN is a high purity (>99.995%) ceramic deposited into free-standing shapes (crucibles) and coatings on graphite using a Chemical Vapour Deposition (CVD) process. Crystal structure of this non-toxic ceramic is such that it exhibits a high degree of thermal anisotropy favourable for crystal growth and other applications.

Vital Materials specializes in the manufacture of high purity materials and compounds for semiconductor and other advanced industries. We provide different PBN products including PBN crucible (applicable to VGF, VB, MBE, LEC, etc), PBN sheet, PBN ring and PBN coating. Other PBN products are available on customers' request.

FEATURES

- High purity and chemical stability
- High dielectric strength
- Non-porous and low outgassing in UHV
- Excellent thermal shock resistance
- Non toxic
- Easily machined

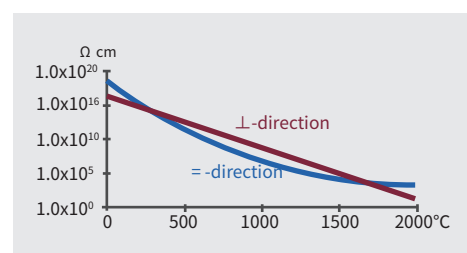
APPLICATION

- Crystal Growth: VGF, VB/HB, LEC Crucibles
- MBE: Crucibles and components
- Photovoltaic (CIGS): Evaporation Crucibles
- MOCVD (BH-LED): Heater components, Coatings
- OLED: Crucibles
- Electrical: high temperature isolation

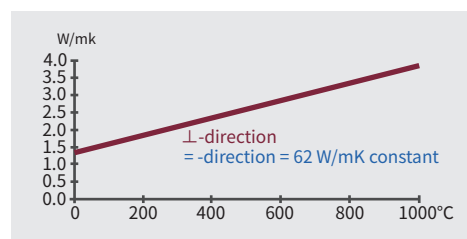
PHYSICAL PROPERTIES

Properties	Unit	Value
Density	g/cm ³	1.95-2.20
Flexural Strength	MPa	80
Tensile Strength	MPa	40
Compressive Strength	MPa "ab"	64
	MPa "c"	304
Thermal Conductivity	W/m°C	"ab" 60 "c" 2
Electrical Resistivity	Ω.cm	10 ¹⁵
Dielectric Strength	D.C. volts/mm	2x10 ¹⁵
Thermal Expansion	mm/mm/oC (500°C) "ab"	3x10 ⁻⁶
	mm/mm/oC (500°C) "c"	30x10 ⁻⁶

ELECTRICAL RESISTIVITY



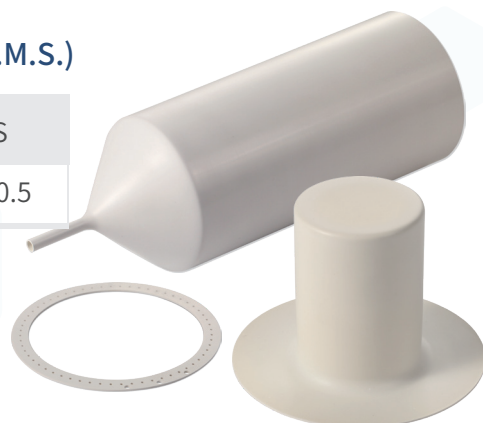
THERMAL CONDUCTIVITY



ANALYSIS BY GLOW DISCHARGE MASS SPECTROMETRY (G.D.M.S.)

Element	Li	F	Na	Si	Cl	S
ppm	<0.05	<1	<1	<10	<1	<0.5

Full analysis of elements available on request.



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