



Boron Nitride (BN) Grade A

Boron Nitride is an advanced synthetic ceramic material available in powder, solid, liquid and aerosol spray forms. Its unique properties - from high heat capacity and outstanding thermal conductivity to easy machinability and superior dielectric strength - make boron nitride a truly outstanding material.

Solid Boron Nitride Grade A is a high performance material possessing a glassy B₂O₃ binder that creates a hard and dense yet fully machinable product. It is therefore an excellent choice for all but the most severe refractory applications.

Applications

- High temperature electrical insulators and vacuum furnace supports which require electrical resistivity, high temperature strength, thermal shock resistance and low chemical reactivity
- Crucibles and containers for high purity molten metals
- Insulators and source fixtures for ion implantation systems which require high temperature purity and electrical insulation
- Radar components and antenna windows which require exacting electrical and thermal properties
- Setterplates for the processing of other advanced materials which require stable, inert surfaces
- Nozzles for powdered metal spraying

Typical Properties	
Binder	Boric Acid
Binder Melting Point	550°C
Maximum Use Temperature	
Oxidizing vs. Inert	850°C (1800°C)
Specific Heat @ 700°C (J/g°C):	1.610
Dielectric Strength (V/mil):	2400
Hardness-Knoop (kg/mm ²)	15.51 - 24.19
Pressing Direction (Para Perp)	
Resistivity Ohm-cm RT:	>10 ¹⁴ (>10 ¹⁵)
Loss Tangent @ 8.8 GHz:	.0017 (.0005)
Dielectric Constant @ RT	4.58 (4.15)
Thermal Conductivity	
(W/m/K) @ 25°C:	30.13 (33.71)
Thermal Expansion Coefficient	
(RT to 1500°C) (in/in°C x 10 ⁻⁶)	11.85 (3.12)
Flexural Strength (psi)*	
@25°C:	11000 (16400)
@1500°C:	900 (1380)
Compressive Strength	
@25°C:	20780 (27060)
Density (g/cc minimum)	2.00
% Open Porosity	2.84%
Oxygen - max:	4.0%
B ₂ O ₃ - max:	4.5%
Calcium - max:	0.1%
Other Impurities - max:	0.2%

*Based on 4pt bend test-Sample size = 51mm x 4mm x 3mm

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