



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

The values presented are mean and typical of those resulted from test samples. They are provided as an indication only to serve as guidance in the design of ceramic components and are not guaranteed in any way. The actual values can vary according to the shape and size of the envisaged component.