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Advanced Technical Ceramic Solutions

Boron Nitride (BN) Grade A

Boron Nitride is an advanced synthetic ceramic material available in powder, solid 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 B_2O_3 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

Grade A is the oldest boron nitride on the market. It is used in many legacy applications such as first-gen semicon equipment. The B_2O_3 binder is hygroscopic and so extreme care should be taken in its machining, storage and application.

Typical Properties	
Binder	Boric Acid
Maximum Use Temperature	
Oxidizing vs. Inert	750°C
Specific Heat @ 700°C (J/g°C):	1.610
Dielectric Strength (KV/mm):	>40
Hardness-Knoop (kg/mm ²)	20
Pressing Direction (Para Perp)	
Resistivity Ohm-cm RT:	>10 ¹⁴ (>10 ¹⁵)
Loss Tangent @ 8.8 GHz:	.0017 (.0005)
Dielectric Constant @ RT	4.5
Thermal Conductivity	
(W/m/K) @ 25°C:	30
Thermal Expansion Coefficient	
(RT to 1000°C) (in/in°C x 10 ⁻⁶)	2
Flexural Strength (psi)*	
@25°C:	8 MPa
Compressive Strength	
@25°C:	150 MPa
Density (g/cc minimum)	2.00
Oxygen - max:	4.0%
B_2O_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