



INTERNATIONAL CERAMIC ENGINEERING

235 Brooks Street, Worcester, MA 01606
 phone: (508) 853-4700 fax: (508) 852-4101 email: sales@intlceramics.com
Engineering Answers in Advanced Ceramics

Boron Nitride (BN) Property Data Sheet

<i>Material Properties</i>	<i>Units of Measure</i>	<i>HBN</i>	<i>HBR</i>	<i>HBC</i>	<i>HBT</i>
Boron	%	>95	>94	>99	>99
Binder		Boric Acid	Calcium Borate	None	None
Binder Melting Point	°C	550	1150	---	---
Max Operating Temperature	Oxidizing Atmos. °C Vacuum Atmos. °C	550-580 1150-1600	850 1150-1600	850 2000-3000	850 2000-3000
Density Min/typical	g/cc	2.00/2.10	1.90/2.00	1.90/1.95	1.70/1.75
Porosity	%	7	11	13	22
Hardness	Knoops (KHN, 100g)	19	26	16	11
Thermal Shock Resistance	T	>1500°C	>1500°C	>1500°C	>1500°C
Specific Heat @ 25°C @ 700°C	J/Kg °K (Cal/g °C)	(808/.193) 1846 (.411)	(808/.193) 1846 (.411)	(808/.193) 1846 (.411)	808 (.193) 1846 (.411)
Dielectric Strength	V/mm x 10 ³	53	53	54	34
Dielectric Constant	@ 1GHz @ 9.3 GHz @ 1 MHz	4.3 4.4 4.2	4.2 4.3 4.1	4.1 4.3 4.1	3.9 3.9 3.8
Loss Tangent	@ 1 GHz @ 9.3 GHz @ 1 MHz	.0003 .0002 <.0002	.0003 .0002 <.0002	.0004 <.0002 <.0002	.0003 <.0002 <.0002
Volume Resistivity	@ 25 °C @ 700 °C	>10 ¹⁵ 10 ⁸	>10 ¹⁵ 10 ⁸	>10 ¹⁵ 10 ¹⁰	>10 ¹⁵ 10 ¹⁰
Thermal Conductivity	W/m °K @ 25°C W/m °K @ 700 °C	33 25	33 25	23 0.8	19 0.1
Coefficient. Thermal Expansion	in per in/°C x 10 ⁻⁶ (25 °C to 1500 °C)	6	3	0.8	0.1
Flexural Strength	Mpa (psi x 10 ³) @25°C Mpa (psi x 10 ³) @1500 °C	75.8 11	41.3 6	17.2 2.5	17.2 2.5
Modulus of Elasticity	Gpa psi x 10 ⁶	62.7	48.2	20.6	20.6
Compressive Strength	Mpa psi x 10 ³	124.1	62.0	51.7	38.6

*The information set forth herein is offered by comparison only, and is not to be construed as absolute engineering data or constituting a warranty or representation for which we assume legal responsibility.

800-779-3321

Please visit our website at: www.intlceramics.com

