

Momentive Performance Materials BNC1 Boron Nitride (BN) Refractory Composite

Category : Ceramic , Nitride

Material Notes:

Boron Nitride is a unique engineering material. It is a soft, machinable ceramic which can be combined with other refractory ceramics including Aluminum Oxide, Silicon Nitride, Aluminum Nitride, Mullite and Titanium Diboride. This results in composites which are machinable, thermal shock resistant, and chemically compatible in a wide range of environments. In combination with Titanium Diboride, for example, BN can be used as a heating source for the aluminum metallization of films and papers. BN composites are also used as break-rings in the horizontal continuous castings of steel and nozzles in rapid solidification processes. Other composite applications include the following: High temperature refractory shapesGlass forming tools and refractoriesMolds, dies and refractories for metalformingFurnace vents, stacks and fixturesGrades BNC 1 & 2 offer excellent corrosion and wear resistance, have excellent thermal shock capability and low CTE, are non-wetting and are self lubricating.Information provided by Momentive Performance Materials, formerly GE Advanced Ceramics.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Momentive-Performance-Materials-BNC1-Boron-Nitride-BN-Refractory-Composite.php

Physical Properties	Metric	English	Comments
Density	2.24 g/cc	0.0809 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell A	71	71	No Scale Listed, Parallel
	82	82	No Scale Listed, Perpendicular
Modulus of Elasticity	10.3 GPa	1500 ksi	Parallel
	62.1 GPa	9000 ksi	Perpendicular
Flexural Strength	18.6 MPa	2700 psi	Parallel
	67.6 MPa	9800 psi	Perpendicular
	13.8 MPa @Temperature 1500 Å°C	2000 psi @Temperature 2730 Å°F	Parallel
	40.7 MPa @Temperature 1500 Å°C	5900 psi @Temperature 2730 Å°F	Perpendicular
Compressive Strength	92.4 MPa	13400 psi	Parallel
	112 MPa	16200 psi	Perpendicular
Coefficient of Friction, Dynamic	0.62	0.62	pin-on-disk at 450Å° C in argon, nickel static substrate, sliding

Mechanical Properties	Metric	English	velocity 0.5m/sec, 2N load, Parallel Comments
	0.62	0.62	pin-on-disk at 450 ^o C in argon, nickel static substrate, sliding velocity 0.5m/sec, 2N load, Perpendicular
Abrasion	0.023	0.023	mm³/N/m, Wear Rate, Parallel
	0.044	0.044	mm³/N/m, Wear Rate, Perpendicular

Thermal Properties	Metric	English	Comments
CTE, linear	5.20 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$ @Temperature 20.0 $^{\circ}\text{C}$	2.89 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$ @Temperature 68.0 $^{\circ}\text{F}$	Parallel
CTE, linear, Transverse to Flow	8.80 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$ @Temperature 23.0 $^{\circ}\text{C}$	4.89 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$ @Temperature 73.4 $^{\circ}\text{F}$	
Thermal Conductivity	14.1 W/m-K	97.9 BTU-in/hr-ft $^2\cdot^{\circ}\text{F}$	Parallel
	15.7 W/m-K	109 BTU-in/hr-ft $^2\cdot^{\circ}\text{F}$	Perpendicular
	5.00 W/m-K @Temperature 1500 $^{\circ}\text{C}$	34.7 BTU-in/hr-ft $^2\cdot^{\circ}\text{F}$ @Temperature 2730 $^{\circ}\text{F}$	Parallel
	5.60 W/m-K @Temperature 1500 $^{\circ}\text{C}$	38.9 BTU-in/hr-ft $^2\cdot^{\circ}\text{F}$ @Temperature 2730 $^{\circ}\text{F}$	Perpendicular
	9.70 W/m-K @Temperature 500 $^{\circ}\text{C}$	67.3 BTU-in/hr-ft $^2\cdot^{\circ}\text{F}$ @Temperature 932 $^{\circ}\text{F}$	Parallel
	11.4 W/m-K @Temperature 500 $^{\circ}\text{C}$	79.1 BTU-in/hr-ft $^2\cdot^{\circ}\text{F}$ @Temperature 932 $^{\circ}\text{F}$	Perpendicular
Maximum Service Temperature, Air	950 $^{\circ}\text{C}$	1740 $^{\circ}\text{F}$	Oxidizing
Maximum Service Temperature, Inert	1600 $^{\circ}\text{C}$	2910 $^{\circ}\text{F}$	Inert/Vacuum

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