Momentive Performance Materials BoralloyÂ® PBN Pyrolytic Boron Nitride

Category : Ceramic , Nitride

Material Notes:

BoralloyÂ® Pyrolytic Boron Nitride (PBN) is an anisotropic, high-temperature ceramic which exhibits a unique combination of high electrical resistance and good thermal conductivity. This non-toxic, non-porous compound is exceptionally pure by virtue of the synthesis process (high temperature/low pressure chemical vapor deposition). It can be deposited or easily machined into a limitless number of shapes, including: crucibles, tubes, machined plate products, boats, and bottles. PBN's directional thermal conductivity provides excellent "heat spreading" capability for improved temperature uniformity. The combination of high strength, good thermal conductivity, and a low coefficient of thermal expansion make the material extremely resistant to thermal shock. PBN has found wide acceptance in the semiconductor, electronics, metallurgical, thin film, and pharmaceutical industries.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-Boralloy-PBN-Pyrolytic-Boron-Nitride.php

Physical Properties	Metric	English	Comments
Density	1.95 - 2.22 g/cc	0.0704 - 0.0802 lb/inÂ³	Apparent Density

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	40.0 MPa @Temperature 23.0 Â°C	5800 psi @Temperature 73.4 Â°F	
	103 MPa @Temperature 2200 Â°C	14900 psi @Temperature 3990 Â°F	
Modulus of Elasticity	22.0 GPa	3190 ksi	Young's modulus
Flexural Strength	80.0 MPa	11600 psi	
Compressive Strength	234 MPa	33900 psi	
Poissons Ratio	0.25	0.25	
Shear Modulus	8.80 GPa	1280 ksi	Calculated

Thermal Properties	Metric	English	Comments
CTE, linear	-2.00 Âµm/m-Â°C @Temperature 0.000 - 250 Â°C	-1.11 Âµin/in-Â°F @Temperature 32.0 - 482 Â°F	average, in "a" direction
	2.00 Âµm/m-Â°C @Temperature 1000	1.11 Âµin/in-Â°F @Temperature 1830	"ab" direction

Thermal Properties	Metric	English	Comments
	40.0 Âµm/m-Â°C @Temperature 0.000 - 250 Â°C	22.2 Âµin/in-Â°F @Temperature 32.0 - 482 Â°F	average, in "c" direction
Thermal Conductivity	2.00 W/m-K	13.9 BTU-in/hr-ftÂ²-Â°F	in "c" direction
	60.0 W/m-K	416 BTU-in/hr-ftÂ²-Â°F	in "ab" direction
Maximum Service Temperature, Air	750 Â°C	1380 Â°F	indefinite exposure to oxygen
Maximum Service Temperature, Inert	2500 Â°C	4530 Â°F	

Optical Properties	Metric	English	Comments
Emissivity (0-1)	0.50 @Temperature 1300 Â°C	0.50 @Temperature 2370 Â°F	lower than graphite

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+15 ohm-cm	1.00e+15 ohm-cm	
Dielectric Constant	3.4	3.4	"c" direction
	5.2	5.2	"ab" direction
Dielectric Strength	200 kV/mm	5080 kV/in	D.C.
Dissipation Factor	0.0020 @Frequency 4.00e+9 Hz	0.0020 @Frequency 4.00e+9 Hz	

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