

## BORON CARBIDE POWDERS (B<sub>4</sub>C)

### Sizing

Boron Carbide is offered according to FEPA F Standards. Available micro grit sizes are: F240, F280, F320, F360, F400, F500, F600, F800, F1000, F1200

Standard macro grit and custom sizes such as: - 200F and -325 F as well as 12, 25 & 45 micron available upon request.

### TYPICAL ANALYSIS

B <sub>4</sub> C	96.17% min.
B <sub>2</sub> O <sub>3</sub>	0.50%
Total Boron	76.55% min.
Total Carbon	19.5% min
Free Boron	0.24%
Free Carbon	1.27%
Si	0.15% max
Al	0.05%
Fe	0.20% max
pH	7.0
Specific Gravity	2.50
Crystal Structure	Rhombohedral
Melting Point	2450 ° C
Hardness	9.25 mohs scale
Packaging	Steel or fiber drums, plastic pails Each lot is certified by a quality lab reports.

### TYPICAL APPLICATIONS

Reaction Bonded Parts	Body and Vehicle Armor	Lapping
Hot-Pressed Parts	Nuclear Shielding	Refractory
Sintered Parts	Wear Parts	
Technical Ceramics	Abrasives	



### TYPICAL PROPERTIES

High Hardness

Abrasion / Wear-Resistance

Abrasives

Fracture Toughness

Chemical Inertness

High Neutron Absorbing Cross Section

## BORON CARBIDE TECHNICAL DATA

PROPERTIES	UNITS	VALUE
<b>Physical</b>		
Chemical Formula	-	B <sub>4</sub> C
Density, ρ	g/cm <sup>3</sup>	2.51
Color	-	black or dark gray
Crystal Structure	-	hexagonal
Water Absorption	% @R.T.	ng
Hardness	Mohs	36
Hardness	knoop (kg/mm <sup>2</sup> )	ng
<b>Mechanical</b>		
Compressive Strength	MPa @ R.T.	2.9
Tensile Strength	MPa @ R.T.	155
Modulus of Elasticity (Young's Modulus)	GPa	445
Flexural Strength (MOR)	MPa @ R.T.	375
Poisson's Ratio, ν		0.19
Fracture Toughness, K <sub>IC</sub>	MPa x m <sup>1/2</sup>	ng
<b>Thermal</b>		
Max. Use Temperature (* denotes inert atm.)	°C	2450
Thermal Shock Resistance	ΔT (°C)	ng
Thermal Conductivity	W/m-K @ R.T.	28
Coefficient of Linear Thermal Expansion, α <sub>l</sub>	μm/m-°C (~-25°C through ±1000°C)	5.54
Specific Heat, c <sub>p</sub>	cal/g-°C @ R.T.	945
<b>Electrical</b>		
Dielectric Constant	1MHz @ R.T.	ng
Dielectric Strength	kV/mm	ng
Electrical Resistivity	Ωcm @ R.T.	ng

