

# GRAYSTAR<sup>★</sup>LLC

Ceramic Minerals and Specialty Materials

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## Technical Data Sheet

Product: Boron Carbide

Description: Boron Carbide is the hardest man made material produced in tonnage. Because of its high strength, low density, corrosion resistance, low thermal conductivity and high modulus of elasticity it is an ideal material for a wide variety of applications.

Applications: Boron carbide is used in wear parts such as blasting nozzles, various dies and ceramic body armor. As an abrasive it is ideal for lapping ceramics and ultrasonic cutting (machining). It is used as a neutron absorber in the nuclear industry and for reactor control rods. It is an anti-oxidant in carbon-bonded refractory mixes, and is used as a sintering aid in silicon carbide parts. Graystar has premium boron carbide for all above applications.

Typical Chemical Analysis:

Boron Carbide (B <sub>4</sub> C)	98.0%
Total Boron (B)	78.02%
Total Carbon (C)	20.48%
Iron Oxide (Fe <sub>2</sub> O <sub>3</sub> )	0.09%
Sol. B <sub>2</sub> O <sub>3</sub>	0.07%

Physical Characteristics:

Crystal Form:	Rhombohedral
True Density:	2.52 g/cm <sup>3</sup>
Hardness:	Knoop (100) 2800, Mohs 9.5+
Melting Point:	2445°C
Color:	Black

Test Methods:

Sizing:	FEPA Standard 42-GB-1984-R1993 Custom limits on laser analysis
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Packaging & Shipping:

Warehousing in Bluffton, SC and Niagara Falls, NY  
44 and 55 lb. bags and boxes  
225 lb. fiber drums  
Supersacks  
Iron drums for very fine powders

Products Available:

Grain Sizes FEPA 8 – 220 grit  
Powder Sizes FEPA 240 – 1200  
Hot Press Powder 10 micron and finer  
Sintering Aid Powder  
Custom Sizes

Certifications Available:

FEPA  
Nuclear requirements  
Customer specific

FEPA F Standard

Size	D3% Max.	D50%	D94% Min.
240	70	42.5-46.5	28
280	59	35.0-38.0	22
320	49	27.7-30.7	16.5
360	40	21.3-24.3	12.0
400	32	16.3-18.3	8
500	25	11.8-13.8	5
600	19	8.3-10.3	3
800	14	5.5-7.5	2
1000	10	3.7-5.3	1
1200	7	2.5-3.5	1(80%)

*Manufacturers and Distributors of Abrasive Materials*