

# GRAYSTAR LLC

A Manufacturer and Distributor of  
Abrasive Materials and Specialty Products

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## Technical Data Sheet

**Product:** Boron Carbide (Macrogrits & Microgrits)

**Description:** Boron Carbide is the hardest man made material produced in tonnage. Because of its high strength, low density, corrosion resistance, low 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 the 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

**Sizing Test Methods:**

FEPA Standard 42-2: 2006 (Microgrits)  
ANSI Standard B74.12 (Macrogrits)  
Micron sizes based on Coulter Multisizer or Laser Analyzer

**Packaging & Shipping:**

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

**Products Available:**

Macrogrit Sizes: FEPA 8 – 220 grit  
Microgrit Sizes: FEPA 240 - 1200  
Hot Press Powder: 10 micron and finer  
Sintering Aid Powder

**Certifications Available:**

FEPA  
ANSI  
Nuclear Requirements  
Agency and Mil-specs

**FEPA F Standard - Powders**

Size	D3%		D94%
	Max.	D50%	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
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%)