

COMBAT®

Boron Nitride Solids

Grade SiZBN

ZIRCONIA AND SIALON COMPOSITE FOR SUPERIOR HIGH TEMPERATURE STRENGTH AND CORROSION RESISTANCE IN MOLTEN METAL PROCESSING

COMBAT® hot-pressed composites of hexagonal Boron Nitride from Saint-Gobain Ceramic Materials exhibit a unique combination of chemical, electrical, mechanical and thermal properties, making it suitable for a wide range of high-performance industrial applications.

SiZBN combines the non-wetting properties of boron nitride and extreme refractory of zirconia with wear resistance and strength of SiAlON. This newest composite from Saint-Gobain is ideal for components requiring strength at high temperatures in variety of molten metals and steel contact applications.



Typical Properties		SiZBN
Crystalline phase		BN 50% ZrO ₂ 30%, SiAlON 20%
Binder Type		SiAlON glass
Color		Grey
Typical Applications	High strength and extreme wear resistance in steel and molten metal applications	
Measurement Directionality		Parallel to press
MOR @ RT	MPa	150
MOR @ 1400°C	MPa	75
Density	g/cm ³	2.7
Thermal Conductivity @ RT	W/mK	25
CTE @ RT-1200°C	10 ⁻⁶ ,k ⁻¹	3
Specific Heat @ 25°C	J/gK	0.8

PRODUCT DATA SHEET



Features/Benefits

- Excellent thermal shock resistance
- Strength and part integrity at high temperatures
- Superior thermal shock resistance
- Exceptional resistance to corrosion and wear from molten metals, slags and glass
- Easily machinable in complex shapes

Key Applications

- Side dams for twin-roll casting
- Continuous casting break rings
- Nozzles for powder metal atomization
- High temperature mechanical components such as bearings, valves, spacers
- Crucibles and molds for molten metal processing

Target Markets

- Molten metal processing
- Steel casting

Saint-Gobain Boron Nitride

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BORON NITRIDE


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