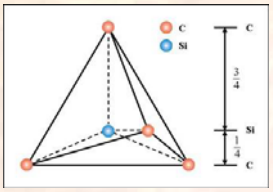
Minteq Pyrogenics Group

High Friction Silicon Carbide For Carbon Composites



Silicon carbide (SiC) is composed of tetrahedra of carbon and silicon atoms with strong bonds in the crystal lattice. This produces a very hard and strong material. Silicon carbide is not attacked by any acids or alkalis or molten salts up to 800°C. In air, SiC forms a protective silicon oxide coating at 1200°C and is able to be used up to 1600°C.

The high thermal conductivity coupled with low thermal expansion and high strength gives this material exceptional thermal shock resistance along with very high friction properties.

Key Properties

- ✓ Low density
- ✓ High strength
- ✓ Low thermal expansion
- ✓ High thermal conductivity
- ✓ High hardness
- ✓ High elastic modulus
- ✓ Excellent thermal shock resistance
- ✓ Superior chemical inertness

Carbon Composite SiC Product Applications

- Couplings
- Clutches
- Hoists
- Winches
- Brakes
- Transmissions
- Mechanical drives
- Torque transmitters/limiters

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Engineering Properties*

Mechanical	SI/Metric
Density (gm/cc)	3.1
Porosity (%)	0
Color	black
Flexural Strength (MPa)	550
Elastic Modulus (GPa)	410
Shear Modulus (GPa)	—
Bulk Modulus (GPa)	—
Poisson's Ratio	0.14
Compressive Strength (MPa)	3900
Hardness (Kg/mm^2)	2800
Fracture Toughness (K_{IC} MPa•m$^{1/2}$)	4.6
Maximum Use Temperature (°C)	1650
Thermal	
Thermal Conductivity (W/m•°K)	120
Coefficient of Thermal Expansion(10^{-6}/°C)	4.0
Specific Heat (J/Kg•°K)	750
Electrical	
Volume Resistivity ohm•cm	10^2–10^6

*All properties are room temperature values except as noted.
The data presented is typical of commercially available material and is offered for comparative purposes only. The information is not to be interpreted as absolute material properties nor does it constitute a representation or warranty. User shall determine suitability of the material for the intended use

For Details or Samples
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