

SCProbond™ R

Reaction Bonded Silicon Carbide

(Typical Abbreviations: RBSC, RBSIC, SISIC)

Description:

SCProbond™ R is reaction bonded silicon carbide formulated for use in extreme conditions, including sliding abrasion, corrosive environments, and high service temperatures up to 1380°C. This material is characterized by high-temperature strength, a typically low porosity, good thermal shock resistance due to a low thermal expansion coefficient coupled with high thermal conductivity, and a greater resistance to sliding abrasion especially when used with heavy solid-containing slurries. SCProbond™ R is serviceable to temperatures approaching the melting point of silicon and is also capable of conducting electricity.

Physical Properties:

Property	Unit	Value
Density	g/cc	3.02—3.05
	lb/ft ³	188—190
Apparent porosity	%	<0.1
Abrasion loss (volumetric) C704 ASTM	cc	0.84—1.01
Modulus of Rupture – 3 Point Loading	psi	37,700—42,060
	MPa	260—290
Modulus of Elasticity	psi	4.36 x 10 ⁷ —4.77 x 10 ⁷
	GPa	301-329
Coefficient of Thermal Expansion (1200°C)	x 10 ⁻⁶ /°C	4.5—5.99
	x 10 ⁻⁶ /°F	2.50—3.33
Maximum safe operating temperature (Dependent upon atmosphere)	°C	1360—1380
	°F	2480—2516
Thermal Conductivity	W/m-K	45
	BTU in/hr ft ² °F	312



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Typical Applications

Liners

Chutes

Molten metal pump protective sleeves

Coal handling components

Coal preparation applications

Spigot liners

Spray guards

Venturi sections

Cyclones

Ash handling sweeps

Impellers

Centrifuge components

Throat liners

Spray Nozzles



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