

## R

### Reaction Bonded Silicon Carbide

(Typical Abbreviations: RBSC, RBSIC, SISIC)

SCProbond™ R is reaction bonded silicon carbide formulated for use in extreme conditions, including sliding abrasion, corrosive environments, and high service temperatures up to 1450°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	Value
Density	3.02 – 3.04 g/cc (188.53 – 190.0 lb/)
Apparent porosity	< 0.1 %
Abrasion loss (volumetric) C704 ASTM	0.84 – 1.01 cc (0.05 – 0.06 )
Modulus of rupture – 3 Point Loading	260 – 280 MPa (37,700 – 40,600 psi)
Coefficient of Thermal Expansion (1200°C)	$5.26 \times 10^{-6}$ – $5.99 \times 10^{-6}/^{\circ}\text{C}$ $(2.50 \times 10^{-6}$ – $3.33 \times 10^{-6}/^{\circ}\text{F})$
Maximum safe operating temperature (Dependent upon atmosphere)	1350°C (2462°F)
Thermal Conductivity	45 W/m-K (312 BTU in/hr ft <sup>2</sup> °F)

#### Typical Applications:

- Ash handling sweeps
- Impellers
- Centrifuge components
- Liners
- Chutes
- Molten metal pump protective sleeves
- Coal handling components
- Pump components
- Coal preparation applications
- Spigot liners
- Spray guards
- Spray nozzles
- Throat liners
- Venturi sections
- Cyclones