# ADVANCED SILICON CARBIDE CERAMICS

# Sycarb 20

**Silicon carbide** probably has the best resistance to corrosion in acids and alkalis of all advanced ceramic materials. It also has extreme hardness and high thermal conductivity and outstanding mechanical properties up to 1400°C.

**Sycarb 20** is a high strength silicon reaction bonded silicon carbide (SiSiC). It is fully dense with excellent wear and corrosion resistance.

The table below lists typical mechanical, thermal and electrical property data for **Sycarb 20**.

| Property | Value | Units |
|---|---|---|
| Density | 3.10 | g/cc |
| Porosity | 0 | % |
| 3 point Modulus of Rupture 20°C (Specimen 3 x 3 x 50, span 19.05mm) | 420 | MPa |
| 3 point Modulus of Rupture 1000°C | 420 | MPa |
| Weibull Modulus | 15 | – |
| Compressive Strength | 2600 | MPa |
| Young's Modulus of Elasticity | 400 | GPa |
| Poisson's Ratio | 0.20 | – |
| RT Hardness (Vickers $Hv_{50}$) | 23.45 (2400) | GPa ($Kg/mm^2$) |
| Fracture Toughness $K^1C$ | 4.0 | $MPam^{½}$ |
| Thermal Expansion Coefficient (0-1200°C) | $4.3\times10^{-6}$ | $K^{-1}$ |
| RT Thermal Conductivity | 110 | W/(mK) |
| Thermal Shock Resistance | 400 | ΔT°C quenched in water |
| Maximum Use Temperature | 1400 | °C |
| Electrical Resistivity | $10^2$ | Ohm cm |

Typical physical property data obtained under test conditions. All properties have been measured by independent testing authorities. The values given only apply to the test bodies on which they were determined, and therefore can only be recommended values.

## Technical Support

The successful integration of ceramics into industrial and engineering systems requires close collaboration between you, the end-user, and us, the material suppliers. Our Technical Specialists are available to discuss your requirements in detail and assist in exploiting the significant advantages which **Sycarb 20** has to offer.

Certificate No. 930359

**International Syalons (Newcastle) Limited**
Stephenson Street, Willington Quay
Wallsend, Tyne & Wear NE28 6TT

Tel: +44(0)191 2951010
Fax: +44(0)191 2633847
Email: enquiries@syalons.com

www.syalons.com