Morgan Advanced Materials

DATA SHEET

PGS3

Silicon Carbide

Description

A fully dense graphite loaded silicon carbide material with exceptional wear resistance capability due to its low friction property which makes it ideal for wear and other friction-based applications.

Prime Features

- High thermal conductivity
- Low friction
- Low thermal expansion coefficient
- Outstanding thermal shock resistance
- Extreme hardness and wear resistance
- Exceptional corrosion resistance
- Good mechanical strength

Typical Applications

- Abrasive and aggressive fluid applications
- Radial and thrust bearings
- Gas seal rings
- Mechanical seals
- Centrifugal pumps
- Submersible pumps
- Gear pumps
- Sliding bearings

MTC Production Capabilities

- Manufacture of large and small complex
- Complex pressed and machined components
- Exceptional flatness ≤ 0.6μm (2 light bands); surface finish typically controlled to <0.4μm Ra
- Prototype, batch and volume production

Specifications

Quality Assurance to ISO 9002

Physical Properties

Colour	Grey-Black
Density (fired), g/cm^3	>3.02
Porosity (apparent), % nominal	<0.3
Vickers hardness, GPa @ HV 0.5kg	24
Fracture Toughness, MPa.m^{½}	3.3
Flexural Strength (3-point), MPa @ 20 °C	350
Weibull modulus, m	14
Grain Size, μm	---
Young's Modulus E, GPa @ 20 °C	370
Shear Modulus G, GPa @ 20 °C	---
Poisson's Ratio ν	---

Thermal Properties

Thermal Conductivity, W/m.K @ 20C	120
Thermal Expansion Coefficient 10^{-6} @ 0-800 ºC	5.2
Thermal Shock Resistance (R_1) ΔT/C	180
Thermal Shock Resistance (R_2) W/m	21600
Specific Heat J/kg.K	790

Electrical Properties

Permittivity, 20C 1MHz	---
Dielectric Loss @ 1MHz, tan δ 10^{-4}	---
Dielectric Strength, kV/mm	---
Volume Resistivity, ohm.cm @ 20°C	10^{1} - 10^{2}
@ 300°C	---
@ 600°C	---

Please note that all values quoted are based on test pieces and may vary according to component design. These values are not guaranteed in anyway whatsoever and should only be treated as indicative and for guidance only. 15.11.2012

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