

High Density Silicon Carbide Materials Data Sheet

Property	Units	SiSiC	SSiC
Description			
Nominal Composition		Si infiltrated SiC with 8—12% free Si	> 98.5% SiC
Microstructure			
Bulk Density	[g/cm ³]	3.0 ~ 3.1	3.1
Water Absorption	[%]	0	0
Apparent Porosity	[vol%]	0	0
Colour		Dark Grey	Dark Grey
Mechanical Properties			
Compressive Strength	[MPa]	> 1000	-
Flexural (Bending) Strength	[MPa]	> 250	> 400
Young's Modulus E	[GPa]	300	395
Fracture Toughness	[MPa.m ^{1/2}]	3—4	3
Vickers Hardness	[kg/mm ²]	2000	2500
Poisson's Ratio		0.2	-
Thermal Properties			
Max Working Temperature	[°C]	1400	1650
Thermal Conductivity @ RT	[W/mK]	130	100
Thermal Conductivity @ 1200°C	[W/mK]	-	-
Thermal Expansion Coefficient	[x10 ⁻⁶ /K]	4.4	-
Thermal Expansion Coefficient @ 1500°C	[x 10 ⁻⁶ /K]	-	-
Thermal Shock Resistance (ΔT _C)	[°C]	400	300
Electrical Properties			
Specific Resistance @ RT	[Ωcm]	0.2	<10 ³

Note: The above data represent typical values of Rojan Silicon Carbide.