

SiC CVD-SiC Characteristics table

○ Typical property value

Main items		(111) Oriented material	Isotropic material
Density	g/cm ³	3.21	3.21
Bending strength (at room temperature)	MPa	382	539
Tensile strength (at room temperature)	MPa	294	-
Young's modulus (at room temperature)	GPa	481	447
Hardness	Hk	3500	-
	Hv	2876	3048
Thermal expansion coefficient (at room temperature to 1,000°C)	1/K	4.4×10 ⁻⁶	4.4×10 ⁻⁶
Thermal conduction coefficient (in plate thickness direction)	W/m·K	-	264
Thermal conduction coefficient (in in-plane direction)	W/m·K	280	236
Specific heat	J/g·K	0.65	0.68
Specific resistance	Ω·cm	10 ⁴ ≤	≤10 ²

○ Impurity concentration GD-MS (ppm)

Na	Co	K	Cu	Zn	Mn	Fe	Cr
<0.01	<0.01	<0.05	<0.05	<0.05	<0.01	<0.05	<0.1

○ Impurity diffusion coefficient (cm² / sec, at : 1300°C)

Element	CVD-SiC	Si
Fe	6.5×10 ⁻¹⁴	1×10 ⁻⁵
Co	1.3×10 ⁻¹³	3×10 ⁻⁵
Cr	6.3×10 ⁻¹⁴	5×10 ⁻⁶
Au	8.6×10 ⁻¹⁴	3×10 ⁻⁵

○ Corrosion resistance

Atmosphere	Temperature	Immersion time(h)	Weight change
6N HCl	Boiling point (110°C)	1470	Not observed
9N HNO ₃	Boiling point (116°C)	1470	Not observed
19N H ₂ SO ₄	Boiling point (128°C)	1470	Not observed
Hydrofluoric acid (49%HF)	Room temperature	168	Not observed
Hydrofluoric-nitric acid (17%HF+83%HNO ₃)	Room temperature	532	Not observed
Phosphoric acid (85%H ₃ PO ₄)	160°C	168	Not observed
Aqua regia	80°C	186	Not observed
in the air	1500°C	146	Not observed
HCL gas	1200°C	25	Not observed

*Individual measured values are not guaranteed values. Please use them for reference purposes only.