



EKasic® F SILICON CARBIDE TECHNICAL DATA

			Silicon Carbide
Material properties	Standard	Symbol/Unit	EKasic® F
Density	DIN EN 623-2	ρ [g/cm ³]	> 3.10
Porosity	DIN EN 623-2	P [%]	< 3.0
Mean grain size		[μ m]	< 5
Grain size distribution		[μ m]	
Phase composition			α -SiC
Vickers hardness	DIN EN 843-4	HV 1 [GPa]	24.5
Knoop hardness	DIN EN 843-4	HK 0.1 [GPa]	24.5
Young's modulus	DIN EN 843-2	E [GPa]	430
Weibull modulus	DIN EN 843-5	m	10
Flexural strength, 4-pt bending	DIN EN 843-1	σ_b [MPa]	400
Compressive strength	DIN 51104	σ_c [MPa]	> 2500
Poisson ratio	DIN EN 843-2	ν	0.17
Fracture toughness (SENB)		K_{Ic} [MPa·m ^{0.5}]	4
Coefficient of thermal expansion	DIN EN 821-1		
25 °C - 500 °C		α [10 ⁻⁶ /K]	3.8
500 °C - 1000 °C		α [10 ⁻⁶ /K]	5.1
Specific heat at 25 °C	DIN EN 821-3	c_p [J/g K]	0.69
Thermal conductivity at 25 °C	DIN EN 821-2	λ [W/m K]	130
Thermal stress parameters	calculated		
$R_1 = \sigma_b \cdot (1 - \nu) / (\alpha \cdot E)$		R1 [K]	203
$R_2 = R_1 \cdot \lambda$		R2 [W/mm]	26
Specific electrical resistance at 25 °C	DIN EN 50359	ρ [Ω cm]	> 10 ⁶

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The management system has been certified according to DIN EN ISO 9001, DIN EN ISO 14001. EKasic® is a registered trademark of ESK Ceramics GmbH Co. KG.

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