SUNTEK
Advanced Materials

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Silicon Nitride Ceramic

SUNTEK Silicon Nitride Ceramic has very good synthetical properties, such as extremely high strength, outstanding crack resistance, excellent wear and chemical resistance, good heat conductivity, very low heat expansion, excellent thermal shock capability, not wetted by many metal and alloys, and electrically insulating. Due to these properties and its low weight, silicon nitride ceramic is an ideal material for the highest demands.



Typical Applications include:

Molten metal handling (including crucible / wear plates)
Induction heating coil supports
Welding nozzles, fixtures and weld location pins
Dental heat treatment supports
Thermocouple sheaths
Bearings and rollers
Glow plugs
Cutting tools






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Properties of Silicon Nitride Ceramic

Density	g/cm^3	3.23
Water Absorption	%	0
Coefficient of Linear Thermal Expansion	$10^{-6}/k$	3.2
Modulus of Elasticity (Young's Mod.)	GPa	300
Poisson's Ratio	/	0.26
Hardness (Hv)	MPa	1500
Flexural Strength (@ R.T.)	MPa	720
Flexural Strength (700oC)	MPa	450
Compressive Strength (@ R.T.)	MPa	2300
Fracture Toughness, K_{Ic}	$MPam^{1/2}$	6.2
Thermal Conductivity (@ R.T.)	W/m*k	25
Electrical Resistivity (@ R.T.)	$\Omega mm^2/m$	$>10^{13}$
Max. Use Temperature (no loading)	^oC	1050
Corrision Resistance	/	Excellent

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