CeramTec SL 303 Silicon Nitride, SiAlON+SiC

Category : Ceramic , Nitride

Material Notes:

SL 303 is a silicon nitride ceramic. Silicon nitrides are ideal for components working under mechanical loads and engine parts, even and especially at elevated temperatures. Their property profile includes: extremely high strength, good crack resistance, outstanding wear resistance, good heat conductivity, very low heat expansion, and good resistance to sudden changes in temperature. Due to these properties and its low weight, silicon nitride is a material for the highest demands.

Order this product through the following link:
http://www.lookpolymers.com/polymer_CeramTec-SL-303-Silicon-Nitride-SiAlONSiC.php

Physical Properties	Metric	English	Comments
Density	3.25 g/cc	0.117 lb/in³	DIN EN 623-2
Water Absorption	0.00 %	0.00 %	Open Porosity; DIN EN 623-2
Permeability	0.00	0.00	%, Gas
Weibull Modulus	12	12	DINV ENV 843-5

Mechanical Properties	Metric	English	Comments
Vickers Microhardness	1730	1730	HV1; DINV ENV 843-4
Tensile Modulus	345 GPa	50000 ksi	Young's; DINV ENV 843-2
Flexural Strength	750 MPa	109000 psi	DIN EN 843-1
Compressive Strength	3000 MPa	435000 psi	DIN 51067T1
Poissons Ratio	0.25	0.25	DINV ENV 843-2
Fracture Toughness	5.50 MPa-m½	5.01 ksi-in½	K_{IC} (SEVNB); DIN CEN/TS 14425-1
Shear Modulus	138 GPa	20000 ksi	Calculated

Thermal Properties	Metric	English	Comments
CTE, linear	2.00 µm/m-°C @Temperature 20.0 - 100 °C	1.11 µin/in-°F @Temperature 68.0 - 212 °F	DIN EN 821-1
	3.50 µm/m-°C @Temperature 20.0 - 400 °C	1.94 µin/in-°F @Temperature 68.0 - 752 °F	DIN EN 821-1
	3.60 µm/m-°C	2.00 µin/in-°F	DIN EN 821-1

Thermal Properties	Metric	English	Comments
	@Temperature 20.0 - 800 °C	@Temperature 68.0 - 1470 °F	
Specific Heat Capacity	0.700 J/g-°C	0.167 BTU/lb-°F	DINV ENV 821-3
Thermal Conductivity	19.0 W/m-K	132 BTU-in/hr-ft²-°F	DIN EN 821-2
Maximum Service Temperature, Air	800 °C	1470 °F	
Maximum Service Temperature, Inert	1600 °C	2910 °F	

Electrical Properties	Metric	English	Comments
Volume Resistivity	2.00e+8 ohm-cm @Temperature 400 °C	2.00e+8 ohm-cm @Temperature 752 °F	IEC 672-1
	1.00e+10 ohm-cm @Temperature 20.0 °C	1.00e+10 ohm-cm @Temperature 68.0 °F	IEC 672-1
Dielectric Strength	2.80 kV/mm	71.1 kV/in	IEC 672-1

Descriptive Properties	Value	Comments
Ra = Arithmetic Mean Roughness Value (µm)	<0.1	
Thermal Shock Resistance R1 (K)	466	calculated; R1 = [s? (1-µ)] / (a·E)

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