

## CeramTec SL 200 ST Silicon Nitride, Si3N4-Y2O3

Category : Ceramic , Nitride

### Material Notes:

SL 200 ST is a silicon nitride ceramic especially suitable for components exposed to mechanical stress and engine-specific applications even at elevated temperatures. It is recognized for its high strength and crack resistance, as well as its resistance to sudden changes in temperature. In contrast to the other silicon nitride materials, this is a gas-pressure sintered Si3N4 and hence possesses much better mechanical properties such as greater flexural strength, fracture toughness, and a higher Weibull modulus.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_CeramTec-SL-200-ST-Silicon-Nitride-Si3N4-Y2O3.php](http://www.lookpolymers.com/polymer_CeramTec-SL-200-ST-Silicon-Nitride-Si3N4-Y2O3.php)

Physical Properties	Metric	English	Comments
Density	3.21 g/cc	0.116 lb/in <sup>3</sup>	DIN EN 623-2 / ASTM-C373 / ASTM-C20
Water Absorption	0.00 %	0.00 %	DIN EN 623-2 / ASTM-C373
Permeability	0.00	0.00	Gas
Weibull Modulus	15	15	DINV ENV 843-5

Mechanical Properties	Metric	English	Comments
Vickers Microhardness	1500	1500	HV 0.5; DINV ENV 843-4
Tensile Strength at Break	750 MPa	109000 psi	ACMA Test #4 / DIN EN 843-1
Tensile Modulus	305 GPa	44200 ksi	Young's; DINV ENV 843-2 / ASTM-F417
Flexural Strength	900 MPa	131000 psi	DIN EN 843-1
Compressive Strength	3000 MPa	435000 psi	ASTM C-773-88 / DIN 51067T1
Poissons Ratio	0.26	0.26	DINV ENV 843-2
Fracture Toughness	7.00 MPa-m <sup>1/2</sup>	6.37 ksi-in <sup>1/2</sup>	DIN 51109
Shear Modulus	121 GPa	17500 ksi	Calculated

Thermal Properties	Metric	English	Comments
CTE, linear	3.20 µm/m-°C	1.78 µin/in-°F	DIN EN 821-1
	@Temperature 20.0 - 200 °C	@Temperature 68.0 - 392 °F	
	4.30 µm/m-°C	2.39 µin/in-°F	DIN EN 821-1
	@Temperature 20.0 - 1000 °C	@Temperature 68.0 - 1830 °F	

Thermal Properties	Metric $J/g \cdot ^\circ C$	English $TU/lb \cdot ^\circ F$	Comments
Specific Heat Capacity	@Temperature 100 - 200 $^\circ C$	@Temperature 212 - 392 $^\circ F$	DINV ENV 821-3
Thermal Conductivity	21.0 W/m-K @Temperature 20.0 - 100 $^\circ C$	146 BTU-in/hr-ft <sup>2</sup> - $^\circ F$ @Temperature 68.0 - 212 $^\circ F$	DIN EN 821-2 / ASTM-C408
Maximum Service Temperature, Air	1300 $^\circ C$	2370 $^\circ F$	
Maximum Service Temperature, Inert	1600 $^\circ C$	2910 $^\circ F$	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+14 ohm-cm	1.00e+14 ohm-cm	ASTM-D257
Dielectric Constant	8.0 @Frequency 1.00e+6 Hz	8.0 @Frequency 1.00e+6 Hz	IEC 672-1 / ASTM-C150
Dielectric Loss Index	0.00010 @Frequency 1.00e+9 Hz	0.00010 @Frequency 1.00e+9 Hz	IEC 672-1 / ASTM-D149,150

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