

CeramTec 701 Cordierite

Category : Ceramic , Oxide , Aluminum Oxide , Magnesium Oxide , Silicon Oxide

Material Notes:

Cordierites have low coefficients of thermal expansion and excellent resistance to thermal shock. They offer a range of thermal expansion, mechanical strength, and porosity criteria. They excel as cost-effective extruded and dry-pressed forms. 701 offers very good thermal shock resistance, good flexural strength, and 0–1% porosity due to its vitrified properties. This cordierite can self-glaze. It is suitable for applications such as commercial heater supports.

Order this product through the following link:

http://www.lookpolymers.com/polymer_CeramTec-701-Cordierite.php

Physical Properties	Metric	English	Comments
Density	2.50 g/cc	0.0903 lb/in ³	DIN EN 623-2 / ASTM-C373 / ASTM-C20
Water Absorption	0.00 - 1.0 %	0.00 - 1.0 %	DIN EN 623-2 / ASTM-C373

Mechanical Properties	Metric	English	Comments
Vickers Microhardness	670	670	HV 0.5; DINV ENV 843-4
Tensile Strength at Break	27.5 MPa	3990 psi	ACMA Test #4 / DIN EN 843-1
Tensile Modulus	130 GPa	18900 ksi	Young's; DINV ENV 843-2 / ASTM-F417
Flexural Strength	103 MPa	14900 psi	20 x 40 mm
Compressive Strength	344 MPa	49900 psi	ASTM C-773-88 / DIN 51067T1
Poissons Ratio	0.30	0.30	DINV ENV 843-2
Shear Modulus	53.0 GPa	7690 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	2.40 $\mu\text{m}/\text{m}\cdot\text{C}$	1.33 $\mu\text{in}/\text{in}\cdot\text{F}$	
	@Temperature 20.0 - 200 °C	@Temperature 68.0 - 392 °F	
	3.30 $\mu\text{m}/\text{m}\cdot\text{C}$	1.83 $\mu\text{in}/\text{in}\cdot\text{F}$	ASTM-C373
	@Temperature 20.0 - 600 °C	@Temperature 68.0 - 1110 °F	
3.90 $\mu\text{m}/\text{m}\cdot\text{C}$	2.17 $\mu\text{in}/\text{in}\cdot\text{F}$		
@Temperature 20.0 - 1000 °C	@Temperature 68.0 - 1830 °F		
	0.700 J/g-°C	0.167 BTU/lb-°F	

Thermal Properties	Metric	English	Comments
Specific Heat Capacity	@ Temperature 100 - 200 °C	@ Temperature 212 - 392 °F	DIN EN 821-3
Thermal Conductivity	3.20 W/m-K	22.2 BTU-in/hr-ft ² -°F	DIN EN 821-2 / ASTM-C408
Maximum Service Temperature, Air	1100 °C	2010 °F	

Electrical Properties	Metric	English	Comments
Volume Resistivity	19000 ohm-cm	19000 ohm-cm	
	@Temperature 900 °C	@Temperature 1650 °F	
	770000 ohm-cm	770000 ohm-cm	
	@Temperature 500 °C	@Temperature 932 °F	
	2.50e+11 ohm-cm	2.50e+11 ohm-cm	IEC 672-1
	@Temperature 100 °C	@Temperature 212 °F	
	1.00e+14 ohm-cm	1.00e+14 ohm-cm	ASTM-D257
	@Temperature 25.0 °C	@Temperature 77.0 °F	
Dielectric Constant	5.3	5.3	IEC 672-1 / ASTM-C150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Dielectric Strength	7.874 kV/mm	200.0 kV/in	6.35 mm (1/4") IEC 672-1
Dielectric Loss Index	0.025	0.025	IEC 672-1 / ASTM-D149,150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	

Descriptive Properties	Value	Comments
Color	Light Gray	
Te Value (°C)	485	
Thermal Shock Resistance R1 (K)	600	Hasselmann (Experimental)

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