

## CeramTec 447 Cordierite, 2MgO·Al<sub>2</sub>O<sub>3</sub>·5SiO<sub>2</sub>

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. 447 offers excellent thermal shock resistance with high continuous porosity, suitable for applications such as welding tile.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_CeramTec-447-Cordierite-2MgOAl2O35SiO2.php](http://www.lookpolymers.com/polymer_CeramTec-447-Cordierite-2MgOAl2O35SiO2.php)

Physical Properties	Metric	English	Comments
Density	1.80 g/cc	0.0650 lb/in <sup>3</sup>	DIN EN 623-2 / ASTM-C373 / ASTM-C20
Water Absorption	14 - 17 %	14 - 17 %	DIN EN 623-2 / ASTM-C373

Mechanical Properties	Metric	English	Comments
Vickers Microhardness	280	280	HV 0.5; DINV ENV 843-4
Tensile Strength at Break	17.2 MPa	2490 psi	ACMA Test #4 / DIN EN 843-1
Tensile Modulus	125 GPa	18100 ksi	Young's; DINV ENV 843-2 / ASTM-F417
Flexural Strength	23.4 MPa	3390 psi	20 x 40 mm
Compressive Strength	123 MPa	17800 psi	ASTM C-773-88 / DIN 51067T1
Poissons Ratio	0.20	0.20	DINV ENV 843-2
Shear Modulus	50.0 GPa	7250 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	0.600 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	0.333 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 20.0 - 200 $^\circ\text{C}$	@Temperature 68.0 - 392 $^\circ\text{F}$	
	1.50 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	0.833 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	ASTM-C373
	@Temperature 20.0 - 600 $^\circ\text{C}$	@Temperature 68.0 - 1110 $^\circ\text{F}$	
	1.70 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	0.944 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 20.0 - 1000 $^\circ\text{C}$	@Temperature 68.0 - 1830 $^\circ\text{F}$	
Specific Heat Capacity	0.700 J/g- $^\circ\text{C}$	0.167 BTU/lb- $^\circ\text{F}$	DINV ENV 821-3

Thermal Properties	@Temperature 100 - 200 °C Metric	@Temperature 212 - 399 °F English	Comments
Thermal Conductivity	1.70 W/m-K	11.8 BTU-in/hr-ft <sup>2</sup> -°F	DIN EN 821-2 / ASTM-C408
Maximum Service Temperature, Air	1100 °C	2010 °F	

Electrical Properties	Metric	English	Comments
Volume Resistivity	700000 ohm-cm	700000 ohm-cm	
	@Temperature 900 °C	@Temperature 1650 °F	
	4.90e+7 ohm-cm	4.90e+7 ohm-cm	
	@Temperature 500 °C	@Temperature 932 °F	
	1.00e+13 ohm-cm	1.00e+13 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	4.1	4.1	IEC 672-1 / ASTM-C150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Dielectric Strength	2.362 kV/mm	59.99 kV/in	6.35 mm (1/4") IEC 672-1
Dissipation Factor	0.012	0.012	
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Dielectric Loss Index	0.048	0.048	IEC 672-1 / ASTM-D149,150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	

Descriptive Properties	Value	Comments
Color	Brown	
Te Value (°C)	850	
Thermal Shock Resistance R1 (K)	800	Hasselmann (Experimental)

## Contact Songhan Plastic Technology Co.,Ltd.

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