

CeramTec 848 Zirconia, ZrO₂•MgO

Category : Ceramic , Oxide , Zirconium Oxide

Material Notes:

Tetragonal zirconia exhibits high flexural strength and superior low temperature stability. It features higher impact strength and erosive wear resistance as compared to alumina. 848 TTZP (yellow) is recommended for applications where high fracture toughness is required, with higher elastic modulus.

Order this product through the following link:

http://www.lookpolymers.com/polymer_CeramTec-848-Zirconia-ZrO2MgO.php

Physical Properties	Metric	English	Comments
Density	6.00 g/cc	0.217 lb/in ³	DIN EN 623-2 / ASTM-C373 / ASTM-C20
Water Absorption	0.00 %	0.00 %	DIN EN 623-2 / ASTM-C373

Mechanical Properties	Metric	English	Comments
Vickers Microhardness	1150	1150	HV 0.5; DINV ENV 843-4
Tensile Strength at Break	551 MPa	79900 psi	ACMA Test #4 / DIN EN 843-1
Tensile Modulus	186 GPa	27000 ksi	Young's; DINV ENV 843-2 / ASTM-F417
Flexural Strength	750 MPa	109000 psi	20 x 40 mm
Compressive Strength	3000 MPa	435000 psi	ASTM C-773-88 / DIN 51067T1
Poissons Ratio	0.33	0.33	DINV ENV 843-2
Fracture Toughness	10.0 MPa-m ^{1/2}	9.10 ksi-in ^{1/2}	DIN 51109
Shear Modulus	80.0 GPa	11600 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	6.60 μm/m-°C	3.67 μin/in-°F	
	@Temperature 20.0 - 200 °C	@Temperature 68.0 - 392 °F	
	7.70 μm/m-°C	4.28 μin/in-°F	ASTM-C373
	@Temperature 20.0 - 600 °C	@Temperature 68.0 - 1110 °F	
	8.20 μm/m-°C	4.56 μin/in-°F	
	@Temperature 20.0 - 1000 °C	@Temperature 68.0 - 1830 °F	

Thermal Properties	Metric	English	Comments
Specific Heat Capacity	0.400 J/g-°C	0.0956 BTU/lb-°F	DIN EN 821-3
	@Temperature 100 - 200 °C	@Temperature 212 - 392 °F	
Thermal Conductivity	2.70 W/m-K	18.7 BTU-in/hr-ft ² -°F	DIN EN 821-2 / ASTM-C408
Maximum Service Temperature, Air	900 °C	1650 °F	

Electrical Properties	Metric	English	Comments
Volume Resistivity	5.00e+13 ohm-cm	5.00e+13 ohm-cm	
	@Temperature 500 °C	@Temperature 932 °F	
Dielectric Constant	28	28	IEC 672-1 / ASTM-C150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	

Descriptive Properties	Value	Comments
Color	Yellow	
Thermal Shock Resistance R1 (K)	304	Hasselmann (Experimental)

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