

CeramTec MZ 429 Zirconia, ZrO₂-Y₂O₃

Category : Ceramic , Oxide , Zirconium Oxide

Material Notes:

MZ 429 is a yttria-stabilized zirconia ceramic.

Order this product through the following link:

[http://www.lookpolymers.com/polymer_CeramTec-MZ-429-Zirconia-ZrO₂-Y₂O₃.php](http://www.lookpolymers.com/polymer_CeramTec-MZ-429-Zirconia-ZrO2-Y2O3.php)

Physical Properties	Metric	English	Comments
Density	6.05 g/cc	0.219 lb/in ³	DIN EN 623-2
Water Absorption	0.00 %	0.00 %	Open Porosity; DIN EN 623-2
Permeability	0.00	0.00	%, Gas
Weibull Modulus	>= 10	>= 10	DINV ENV 843-5

Mechanical Properties	Metric	English	Comments
Vickers Microhardness	1250	1250	HV1; DINV ENV 843-4
Tensile Modulus	210 GPa	30500 ksi	Young's; DINV ENV 843-2
Flexural Strength	1050 MPa	152000 psi	DIN EN 843-1
Compressive Strength	2200 MPa	319000 psi	DIN 51067T1
Poissons Ratio	0.30	0.30	DINV ENV 843-2
Fracture Toughness	6.50 MPa·m ^{1/2}	5.92 ksi·in ^{1/2}	K _{IC} (SEVNB); DIN CEN/TS 14425-1
Shear Modulus	80.8 GPa	11700 ksi	Calculated

Thermal Properties	Metric	English	Comments
CTE, linear	11.1 µm/m·°C	6.17 µin/in·°F	DIN EN 821-1
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
	11.2 µm/m·°C	6.22 µin/in·°F	DIN EN 821-1
	@Temperature 20.0 - 400 °C	@Temperature 68.0 - 752 °F	
11.6 µm/m·°C	@Temperature 20.0 - 600 °C	6.44 µin/in·°F	DIN EN 821-1
		@Temperature 68.0 - 1110 °F	
11.7 µm/m·°C		6.50 µin/in·°F	DIN EN 821-1

Thermal Properties	@Temperature 20.0 - Metric 1000 °C	@Temperature 68.0 - English 1800 °F	Comments
Specific Heat Capacity	0.400 J/g-°C	0.0956 BTU/lb-°F	DINV ENV 821-3
Thermal Conductivity	2.50 W/m-K	17.4 BTU-in/hr-ft ² -°F	DIN EN 821-2
Maximum Service Temperature, Air	1000 °C	1830 °F	
Maximum Service Temperature, Inert	1000 °C	1830 °F	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+12 ohm-cm	1.00e+12 ohm-cm	IEC 672-1
Dielectric Constant	29	29	IEC 672-1
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Dielectric Strength	17.0 kV/mm	432 kV/in	IEC 672-1
Dielectric Loss Index	0.0020	0.0020	IEC 672-1
	@Frequency 1.00e+9 Hz	@Frequency 1.00e+9 Hz	

Descriptive Properties	Value	Comments
Ra = Arithmetic Mean Roughness Value (µm)	<0.06	
Thermal Shock Resistance R1 (K)	321	calculated; R1 = [s? (1-µ)] / (a·E)

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