CeramTec DC 25 Dispersion Ceramic, Al2O3-ZrO2

Category : Ceramic , Oxide , Aluminum Oxide

Material Notes:

DC 25 is a ZTA Alumina Zirconia Platelet Composite used in dental applications.

Order this product through the following link:
http://www.lookpolymers.com/polymer_CeramTec-DC-25-Dispersion-Ceramic-Al2O3-ZrO2.php

Physical Properties	Metric	English	Comments
Density	4.37 g/cc	0.158 lb/in³	DIN EN 623-2
Water Absorption	0.00 %	0.00 %	Open Porosity; DIN EN 623-2
Particle Size	0.54 µm	0.54 µm	Grain
Permeability	0.00	0.00	%, Gas
Weibull Modulus	14	14	DINV ENV 843-5

Mechanical Properties	Metric	English	Comments
Vickers Microhardness	1910	1910	HV1; DINV ENV 843-4
Tensile Modulus	357 GPa	51800 ksi	Young's; DINV ENV 843-2
Flexural Strength	1350 MPa	196000 psi	DIN EN 843-1
	1390 MPa	202000 psi	Bending Strength; 4-Point; DIN ENV 843-1
Compressive Strength	4700 MPa	682000 psi	DIN 51067T1
Poissons Ratio	0.24	0.24	DINV ENV 843-2
Fracture Toughness	6.40 MPa-m½	5.82 ksi-in½	K_{IC} (SEVNB); DIN CEN/TS 14425-1
Shear Modulus	144 GPa	20900 ksi	Calculated

Thermal Properties	Metric	English	Comments
CTE, linear	8.10 µm/m-°C @Temperature 20.0 - 400 °C	4.50 µin/in-°F @Temperature 68.0 - 752 °F	DIN EN 821-1
Specific Heat Capacity	0.700 J/g-°C	0.167 BTU/lb-°F	DINV ENV 821-3
Thermal Conductivity	17.0 W/m-K	118 BTU-in/hr-ft²-°F	DIN EN 821-2
Maximum Service Temperature, Air	1000 °C	1830 °F	

Thermal Properties	Metric	English	Comments
Maximum Service Temperature, Inert	1000 °C	1830 °F	

Component Elements Properties	Metric	English	Comments
Al2O3	74 %	74 %	DIN EN ISO 12677
Cr2O3	0.30 %	0.30 %	DIN EN ISO 12677
Y2O3	0.60 %	0.60 %	DIN EN ISO 12677
ZrO2	24 %	24 %	DIN EN ISO 12677

Electrical Properties	Metric	English	Comments
Volume Resistivity	2000 ohm-cm	2000 ohm-cm	IEC 672-1
Dielectric Strength	16.5 kV/mm	419 kV/in	IEC 672-1

Descriptive Properties	Value	Comments
Color	Magenta	
Monoclinic Content (%)	< 10	DIN EN ISO 12677
Other Oxides (%)	< 0.1	DIN EN ISO 12677
Ra = Arithmetic Mean Roughness Value (µm)	<0.06	
Radioactivity (Bq/kg)	< 25	
SrO (%)	0.8	DIN EN ISO 12677
Thermal Shock Resistance R1 (K)	355	calculated; R1 = [s? (1-µ)] / (a·E)

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