

CeramTec 614/698 Alumina, 96%

Category : Ceramic , Oxide , Aluminum Oxide

Material Notes:

614/698 (96%) is a high-strength alumina with good mechanical properties, as well as good wear and chemical resistance. It also features excellent electrical properties. 614 is white; 698 is pink.

Order this product through the following link:

http://www.lookpolymers.com/polymer_CeramTec-614698-Alumina-96.php

Physical Properties	Metric	English	Comments
Density	3.70 g/cc	0.134 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	1200	1200	HV 0.5; DINV ENV 843-4
Tensile Strength at Break	172 MPa	24900 psi	ACMA Test #4 / DIN EN 843-1
Tensile Modulus	276 GPa	40000 ksi	Young's; DINV ENV 843-2 / ASTM-F417
Flexural Strength	276 MPa	40000 psi	20 x 40 mm
Compressive Strength	2414 MPa	350100 psi	ASTM C-773-88 / DIN 51067T1
Poissons Ratio	0.24	0.24	DINV ENV 843-2
Fracture Toughness	2.70 MPa-m ^{1/2}	2.46 ksi-in ^{1/2}	DIN 51109
Shear Modulus	128 GPa	18600 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	7.90 µm/m-°C	4.39 µin/in-°F	DIN EN 821-1
	6.40 µm/m-°C	3.56 µin/in-°F	
	@Temperature 20.0 - 200 °C	@Temperature 68.0 - 392 °F	
	7.50 µm/m-°C	4.17 µin/in-°F	
	@Temperature 20.0 - 600 °C	@Temperature 68.0 - 1110 °F	ASTM-C373
	8.00 µm/m-°C	4.44 µin/in-°F	
	@Temperature 20.0 - 1000 °C	@Temperature 68.0 - 1830 °F	

Thermal Properties	Metric	English	Comments
Specific Heat Capacity	0.900 J/g-°C @Temperature 100 - 200 °C	0.215 BTU/lb-°F @Temperature 212 - 392 °F	DIN EN 821-3
Thermal Conductivity	35.2 W/m-K	244 BTU-in/hr-ft²-°F	DIN EN 821-2 / ASTM-C408
Maximum Service Temperature, Air	1500 °C	2730 °F	

Component Elements Properties	Metric	English	Comments
Al2O3	96 %	96 %	

Electrical Properties	Metric	English	Comments
Volume Resistivity	680000 ohm-cm	680000 ohm-cm	
	@Temperature 900 °C	@Temperature 1650 °F	
	7.30e+7 ohm-cm	7.30e+7 ohm-cm	
	@Temperature 500 °C	@Temperature 932 °F	
	2.00e+13 ohm-cm	2.00e+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	9.3	9.3	
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	IEC 672-1 / ASTM-C150
Dielectric Strength	8.268 kV/mm	210.0 kV/in	6.35 mm (1/4") IEC 672-1
Dissipation Factor	0.00030	0.00030	
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	0.00090	0.00090	
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	
	0.00090	0.00090	
	@Frequency 2.50e+10 Hz	@Frequency 2.50e+10 Hz	
Dielectric Loss Index	0.0028	0.0028	
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	IEC 672-1 / ASTM-D149,150

Descriptive Properties	Value	Comments
Color	White/Pink	
Te Value (°C)	840	
Thermal Shock Resistance R1 (K)	200	Hasselman (Experimental)

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