

CeramTec Rubalit® A 1999.5 Alumina, 99.7%

Category : Ceramic , Oxide , Aluminum Oxide

Material Notes:

Rubalit® A 1999.5 (99.7%) is mechanically stronger, features a higher heat conductivity, and is more corrosion resistant than other aluminas. This high-purity aluminum oxide ceramic with carbon materials is especially suitable for plain bearings and seal rings.

Order this product through the following link:

http://www.lookpolymers.com/polymer_CeramTec-Rubalit-A-19995-Alumina-997.php

Physical Properties	Metric	English	Comments
Density	3.88 g/cc	0.140 lb/in ³	DIN EN 623-2 / ASTM-C373 / ASTM-C20
Water Absorption	0.00 %	0.00 %	DIN EN 623-2 / ASTM-C373
Permeability	0.00	0.00	Gas
Weibull Modulus	>= 13	>= 13	DINV ENV 843-5

Mechanical Properties	Metric	English	Comments
Vickers Microhardness	1600	1600	HV 0.5; DINV ENV 843-4
Tensile Strength at Break	380 MPa	55100 psi	ACMA Test #4 / DIN EN 843-1
Tensile Modulus	350 GPa	50800 ksi	Young's; DINV ENV 843-2 / ASTM-F417
Flexural Strength	380 MPa	55100 psi	DIN EN 843-1
	400 MPa	58000 psi	Bending Strength; 4-Point Method (40x4x3 mm ³); ASTM-F417
Compressive Strength	4000 MPa	580000 psi	ASTM C-773-88 / DIN 51067T1
Poissons Ratio	0.23	0.23	DINV ENV 843-2
Fracture Toughness	4.00 MPa-m ^{1/2}	3.64 ksi-in ^{1/2}	DIN 51109
Shear Modulus	142 GPa	20600 ksi	Calculated

Thermal Properties	Metric	English	Comments
CTE, linear	7.50 µm/m-°C	4.17 µin/in-°F	DIN EN 821-1
	@Temperature 20.0 - 200 °C	@Temperature 68.0 - 392 °F	
	7.50 µm/m-°C	4.17 µin/in-°F	DIN EN 821-1
	@Temperature 20.0 - 400 °C	@Temperature 68.0 - 752 °F	

Thermal Properties	Metric	English	Comments
	@Temperature 20.0 - 600 °C	@Temperature 68.0 - 1110 °F	DIN EN 821-1
	8.50 µm/m-°C	4.72 µin/in-°F	
	@Temperature 20.0 - 1000 °C	@Temperature 68.0 - 1830 °F	DIN EN 821-1
Specific Heat Capacity	0.900 J/g-°C	0.215 BTU/lb-°F	
	@Temperature 100 - 200 °C	@Temperature 212 - 392 °F	DINV ENV 821-3
Thermal Conductivity	30.0 W/m-K	208 BTU-in/hr-ft²-°F	DIN EN 821-2 / ASTM-C408
Maximum Service Temperature, Air	1400 °C	2550 °F	
Maximum Service Temperature, Inert	1400 °C	2550 °F	

Component Elements Properties	Metric	English	Comments
Al2O3	99.7 %	99.7 %	

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.00e+7 ohm-cm	>= 1.00e+7 ohm-cm	
	@Temperature 800 °C	@Temperature 1470 °F	IEC 672-1
	>= 1.00e+12 ohm-cm	>= 1.00e+12 ohm-cm	
	@Temperature 400 °C	@Temperature 752 °F	IEC 672-1
	>= 1.00e+15 ohm-cm	>= 1.00e+15 ohm-cm	
	@Temperature 20.0 °C	@Temperature 68.0 °F	IEC 672-1
Dielectric Constant	10	10	
	@Frequency 1.00e+7 Hz	@Frequency 1.00e+7 Hz	IEC 672-1 / ASTM-C150
Dielectric Strength	30.0 kV/mm	762 kV/in	6.35 mm (1/4") IEC 672-1
Dielectric Loss Index	0.00050	0.00050	
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	IEC 672-1 / ASTM-D149,150

Descriptive Properties	Value	Comments
Ra = Arithmetic Mean Roughness Value (µm)	Profilometer (0.8 mm Cutoff)	
Surface Contact Area (%)	80-95	

Thermal Shock Resistance R1 (K) Descriptive Properties	150 Value	Hasselman (Experimental) Comments
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