

CeramTec 433 Alumina, 99.9%

Category : Ceramic , Oxide , Aluminum Oxide

Material Notes:

433 (99.9%) is an alumina that exhibits high hardness. Its fine, equiaxial microstructure provides excellent sliding and abrasive wear resistance. This material is ideal for corrosive conditions. A higher degree of surface finish (approaching 0.2 μm , Ra) is available for applications such as textile guides and mechanical seals.

Order this product through the following link:

http://www.lookpolymers.com/polymer_CeramTec-433-Alumina-999.php

Physical Properties	Metric	English	Comments
Density	4.00 g/cc	0.145 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	2000	2000	HV 0.5; DINV ENV 843-4
Tensile Strength at Break	241 MPa	35000 psi	ACMA Test #4 / DIN EN 843-1
Tensile Modulus	400 GPa	58000 ksi	Young's; DINV ENV 843-2 / ASTM-F417
Flexural Strength	414 MPa	60000 psi	20 x 40 mm
Compressive Strength	2700 MPa	392000 psi	ASTM C-773-88 / DIN 51067T1
Poissons Ratio	0.30	0.30	DINV ENV 843-2
Fracture Toughness	4.20 MPa-m ^{1/2}	3.82 ksi-in ^{1/2}	DIN 51109
Shear Modulus	138 GPa	20000 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	8.00 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	4.44 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	DIN EN 821-1
	6.70 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	3.72 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 20.0 - 200 $^\circ\text{C}$	@Temperature 68.0 - 392 $^\circ\text{F}$	
	7.70 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	4.28 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 20.0 - 600 $^\circ\text{C}$	@Temperature 68.0 - 1110 $^\circ\text{F}$	ASTM-C373
	8.20 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	4.56 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	@Temperature 20.0 -	@Temperature 68.0 -	

Thermal Properties	¹⁰⁰⁰ °C Metric	¹⁸³⁰ °F English	Comments
Specific Heat Capacity	0.900 J/g-°C @Temperature 100 - 200 °C	0.215 BTU/lb-°F @Temperature 212 - 392 °F	DINV ENV 821-3
Thermal Conductivity	37.0 W/m-K	257 BTU-in/hr-ft²-°F	DIN EN 821-2 / ASTM-C408
Maximum Service Temperature, Air	1550 °C	2820 °F	

Component Elements Properties	Metric	English	Comments
Al2O3	99.9 %	99.9 %	

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.00e+14 ohm-cm	>= 1.00e+14 ohm-cm	ASTM-D257
Dielectric Constant	10 @Frequency 1.00e+6 Hz	10 @Frequency 1.00e+6 Hz	IEC 672-1 / ASTM-C150

Descriptive Properties	Value	Comments
Color	Light Pink	
Thermal Shock Resistance R1 (K)	225	Hasselman (Experimental)

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