

Material Datasheet

Alumina (Al₂O₃) – CeramAlox

Ultra Pure 99.95%








Material webpage



Overview

CeramaAlox Ultra Pure is a very high purity (99.95%) grade of Alumina (Aluminum Oxide) exhibiting an exceptional combination of mechanical and electrical properties. It features very high hardness, exceptional electrical resistivity, high temperature mechanical stability and strength.

Primary Advantages

-  Excellent Mechanically & Electrically
-  Hardness
-  Wear & Abrasion Resistance
-  High Operating Temperature
-  Compressive Strength

Applications

Electronic Components

Laser Tubes

Mechanical Seals

High Voltage Insulators

Wear Components

Roller & Ball Bearings

Precision Shafts & Axles

	Properties	Units	CeramAlox Ultra Pure
Mechanical	Compressive Strength	MPa	3500
	Density	g/cm ³	3.98
	Flexural Strength @ 25°C	MPa	500-600
	Fracture Toughness K _{IC}	MPa·m ^{1/2}	4.5
	Hardness	GPa	18
	Young's Modulus	GPa	400
	Poisson's Ratio	-	0.23
Thermal	Thermal Conductivity	W/mK	45
	CTE @ 25°C – 400°C	10 ⁻⁶ /K	7.5
	CTE @ 25°C – 700°C	10 ⁻⁶ /K	8.0
	Thermal Shock	°C	Good
	Maximum Temperature (Air)	°C	1750
	Maximum Temperature (Inert)	°C	1750
Electrical	Dielectric Constant @ 1 MHz	-	9.9
	Dielectric Constant @ 10 MHz	-	9.7
	Dielectric Strength @ 25°C	kV/mm	16
	Volume Resistivity @ 25°C	ohm-cm	>10 ¹⁴

Disclaimer: The values presented are mean and typical of those resulted from test samples. They are provided as an indication only to serve as guidance in the design of ceramic components and are not guaranteed in any way. The actual values can vary according to the shape and size of the envisioned component.



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