Material Datasheet

Alumina (Al_2O_3) – 99.7% CeramAlox™

Material webpage

Overview

CeramAlox 99.7 is a high purity grade Alumina (Aluminum Oxide) and one of the high performance grades in this range of materials. This 99.7% Alumina material provides superior mechanical and electrical properties, while maintaining a reasonable cost.

Primary Advantages

- Cost to Performance Ratio
- Improved Electrical Insulation
- 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 99.7
Mechanical	Compressive Strength	MPa	2000
	Density	g/cm^3	3.95
	Flexural Strength @ 25°C	MPa	250-350
	Fracture Toughness K_{Ic}	$MPa \cdot m^{1/2}$	4
	Hardness	GPa	14
	Young's Modulus	GPa	370
	Poisson's Ratio	-	0.23
Thermal	Thermal Conductivity	W/mK	33
	CTE @ 25°C – 400°C	$10^{-6}/K$	6.5
	CTE @ 25°C – 700°C	$10^{-6}/K$	7.5
	Thermal Shock	°C	Good
	Maximum Temperature (Air)	°C	1700
	Maximum Temperature (Inert)	°C	1700
Electrical	Dielectric Constant @ 1 MHz	-	9.9
	Dielectric Constant @ 10 MHz	-	9.7
	Dielectric Strength	kV/mm	11
	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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