

Zirconia Toughened Alumina (Al₂O₃-ZrO₂) CeramAlloy™ Ultra Hard







Material webpage



Overview

Zirconia Toughened Alumina (ZTA) is a high performance ceramic composite. It exhibits high hardness, strength, wear and corrosion resistance from its Alumina content, while still maintaining reasonably high fracture toughness from its Zirconia content.

Primary Advantages

-  High performance composite
-  Chemical inertness
-  Up to 1,500°C use temperature
-  Excellent wear resistance

Common Applications

- High Pressure Equipment
- Focusing Nozzles
- Metal Extrusion Dies
- Thread & Wire Guides
- Metal Forming Rollers & Guides
- Deep Well Down-Hole Valves & Seats

	Properties	Units	CeramAlloy Ultra Hard
General	Composition	-	Alumina / Zirconia
	Color	-	Off White
Mechanical	Compressive Strength	MPa	3000
	Density	g/cm ³	4.18
	Flexural Strength @25°C	MPa	850
	Fracture Toughness K _{1c}	MPa.m ^{1/2}	5
	Hardness (Vickers 500g)	GPa	21.5
	Young's Modulus	GPa	350
	Poisson's Ratio	-	0.22
Thermal	Thermal Conductivity @ 25°C	W/mK	20
	CTE @ 25°C - 400°C	10 ⁻⁶ /K	7.5
	Maximum Temperature (Air)	°C	1500
	Maximum Temperature (Inert)	°C	1500
	Thermal Shock Resistance ΔT	°C	200
Electric	Dielectric Strength DC @ 25°C	kV/mm	16
	Dielectric Constant @ 1MHz	-	10
	Volume Resistivity @ 25°C	ohm-cm	>10 ¹⁶

Disclaimer: The values presented are 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. The actual values can vary according to the shape and size of the component.



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