



DATA SHEET

Zirconia Stabilized Alumina (ZTA)

Description:

Zirconia Stabilized Alumina is an Alumina based material with mechanical properties enhanced by the addition of yttria partially stabilized zirconia. This composition typically contains 80% of Al₂O₃ with the remainder comprising mainly ZrO₂ and Y₂O₃.

Salient Features:

- Very High Mechanical Strength
- Very fine grain microstructure
- Excellent corrosion resistance
- High Impact Resistance and Toughness
- Enhanced fracture toughness and thermal shock resistance

Typical Applications:

- Wear resistance components
- Special Ballistic Applications
- Automotive
- Seal rings
- Pump seals
- Bearings Severe

Physical Properties

PROPERTY	TEST	UNITS	ZTA
Colour			White
Density	ASTM-C20	g/cc	4.30
Average Crystal Size	THIN-SECTION	Microns	2
Water Absorption	ASTM-373	%	0
Gas Permeability			0
Poisson's Ratio (20°C)	ASTM-C623		0.24
Hardness	ROCKWELL 45 N	R45 N	80
Tensile Strength (25°C)	ACMA TEST #4	MPa (psi x 10 ³)	550 (79)
Thermal Conductivity (20°C)	ASTM-C408	W/mK	20
Coefficient of Thermal Expansion (25-1000°C)	ASTM-C372	1X10 ⁻⁶ /°C	8.30
Dielectric Strength	ASTM-D116	Dc-kV/mm (ac V/mil)	85.3 (2166)
Dielectric Constant (1 KHz)	ASTM-D150		12.5
Dielectric Loss (1 MHz)	ASTM-D150		0.01
Volume Resistivity 100°C	ASTM-D1829	Ohm-cm	9 X 10 ¹²

Production Capabilities

- Isostatic and uniaxial pressing
- Lapping & polishing to 5 microinch Ra
- Manual, CNC and high precision machining

Please note that all values quoted are based on test pieces and may vary according to component design. These values are not guaranteed in anyway whatsoever and should only be treated as indicative and for guidance only.