



**Technical Products, Inc.**

P: 262-335-3635 | F: 262-335-3606

E: [tpi@technicalproductsinc.com](mailto:tpi@technicalproductsinc.com)

[www.technicalproductsinc.com](http://www.technicalproductsinc.com)

## Zirconia (ZrO<sub>2</sub>) -ZTA Material Specifications

Zirconia (ZrO<sub>2</sub>) is a readily available material with reasonable processing cost, possessing excellent mechanical, electrical, and wear properties. Our fabricated Zirconia is used in a wide range of applications not limited to aerospace, automotive, medical and military.

Technical Products processes include cold isotactic pressing of green billets, pre-fired machining, sintering, and post sintered grinding operations.

Physical Properties	Units	ZTA
Sintered	-	85% Al <sub>2</sub> O <sub>3</sub> 15% ZrO <sub>2</sub>
Density	g/cc	4.1
Color	-	White
Water Absorption	%	0
Gas Permeability	%	0
Hardness (Rockwell 45 N)	-	-

Mechanical Properties	Units	ZTA
Compressive Strength	MPa / psi x 10 <sup>3</sup>	-
Tensile Strength	MPa	-
Flexural Strength	MPa	760
Modulus of Elasticity (Young's Mod.)	GPa	310
Fracture Toughness, K(I c)	MPa m <sup>1/2</sup>	6
Poisson's Ratio, 20°C	-	-

Thermal Properties	Units	ZTA
Max. Use Temperature (no-load cond.)	°C	1650
Thermal Shock Resistance Δ Tc	°C	-
Thermal Conductivity, 20°C	W/m-K	-
Thermal Expansion Coefficient, 25°C - 1000°C	1 x 10 <sup>-6</sup> /°C	8.1
Specific Heat, 100°C	J/kg*K	-

Electrical Properties	Units	ZTA
Dielectric Strength	ac V/mil	-
Dielectric Constant, 25°C	1 MHz	-
Dielectric Loss (tan delta), 25°C	1 MHz	-
Volume Resistivity, 25°C 500°C 1000°C	ohm-cm	-

\*\*The information provided in this table is a compilation of publicly available data. This information is provided for comparison purposes only, and is not intended to be warrantable. Further, *Technical Products, Inc.* disclaims any and all liability from errors, in accuracies, or omissions.