

Yttria Stabilized Zirconia

Description:

Yttria Stabilized Zirconia is available both partially and fully stabilized. Grades are available for applications including structural ceramics for turbine blades and anti-ballistic and armour ceramics and ionically conductive uses. A variety of surface areas can be produced.

Composition:

ZrO ₂ :	> 89%	Y ₂ O ₃ :	< 11%
Binders:	N/A	Additives:	N/A

Specifications:

		Units
Colour	Ivory	
Compressive (Crushing) Strength	2500	MPa
Density	6.02	g/cm ³
Hardness	81	R45N
Dielectric Constant (Relative Permittivity)	29	N/A
Dielectric Strength (Breakdown Potential)	9	kV/mm
Elastic (Young's, Tensile) Modulus	210	GPa
Electrical Resistivity Order of Magnitude	1x10 ¹³	Ω-m
Flexural Strength	1240	MPa
Fracture Toughness	13	MPa
Poisson's Ratio	0.23	N/A
Specific Heat Capacity	400	J/kg-K
Tensile Strength Ultimate (UTS)	550	MPa
Thermal Conductivity	2.2	W/m-K
Thermal Expansion	10.3	µm/m-K

Features:

- Mechanical strength
- Temperature resistance
- Wear resistance
- Stability at high temperatures
- Resistance to chemical
- Very low thermal conductivity

Applications:

- Fiber optic ferrules and sleeves
- Cutting tool
- Thread and wire guides
- Oxygen sensors
- Wear parts

Production Capabilities:

- Isostatic and dry pressing, green machining
- Grinding and lapping to very tight tolerances
- Prototype, batch and volume production

These values represent typical properties of standard materials.
Values should be used only for comparison and should not be used as a warranty.