

Typical Ceramic Material Properties

Property	Units	99% Alumina	99.9% Alumina	CeraSurf®	ATZ	YTZP
Chemical Composition	wt%	99.2% Al ₂ O ₃	99.9% Al ₂ O ₃	75% Al ₂ O ₃ 25% ZrO ₂	20% Al ₂ O ₃ 80% ZrO ₂	95% ZrO ₂ 5% Y ₂ O ₃
Density	g/cm ³	3.90	3.98	4.37	5.48	6.07
Hardness	Vicker's	1900	1900	1765	1480	1320
Elastic Modulus	Gpa	375	375	350	240	210
Poisson's Ratio	—	0.22	0.22	0.24	0.23	0.23
Flexural Strength	MPa	390	500	1300	1730	900-1500
Thermal Conductivity	W/m-°K	25	25	19	7	2
Dielectric Strength	kV/mm	11.0	11.0	10.6	9.4	9.0
Coefficient of Thermal Expansion	µm/m-°C	8.4	8.5	8.8	10.1	11.3

This chart is intended to illustrate typical properties. Property values vary with method of manufacture, size, and configuration of part. Data contained herein is not to be construed as absolute and does not constitute a representation or warranty for which CoorsTek Bioceramics assumes legal responsibility. CoorsTek Bioceramics is a wholly owned subsidiary of CoorsTek, Inc. CoorsTek and CoorsTek Bioceramics are registered trademarks of CoorsTek, Inc.

Typical implantable medical applications for ceramic materials and components:

- Orthopedic Joint Reconstruction
- Extremities
- Spinal Total Disc Replacement / Motion Preservation
- Pacemaker
- Cochlear
- Retinal
- Neuro Sensor / Stimulator
- Dental Abutment Implant
- Brachytherapy
- Heart Pump
- Electrical Feed Through