

Technox® Zirconia Ceramics

The Properties:

Technox Grades	Units	Technox 500	Technox 1000	Technox 2000	Technox 3000	Technox 802	Tungsten Carbide
Nominal Composition		Mg-PSZ	3Y-TZP	3Y-TZP	3Y-TZP	8Y-FSZ	6% Co
Density	g/cm ³	5.6	6.05	6.05	6.05	5.7	15.00

Mechanical Properties:

Flexural Strength 20°C	Kpsi	79	116	145	203	26	203
800°C	Kpsi	51	36	39	39	22	Degrades
Compressive Strength	Kpsi	246	290	290	290	218	1015
Modulus of Elasticity	10 ⁶ psi	51	30	30	30	23	87
Poissons Ratio		0.31	0.30	0.30	0.30	0.30	0.26
Hardness	Hv _{0.3}	1120	1400	1300	1350	700	1500
Fracture Toughness (K _{IC})	MPa ^{1/2}	6.0	6.0	10.0	10.0	3.5	6.0

Thermal Properties:

Max. Use Temp.	°F	1832	1832	1832	1832	3272	
Thermal Expansion Coeff.	x 10 ⁻⁶ /°C	10	10	10	10	11	
Thermal Conductivity	W/mK	2.5	2	2	2	2.5	60
Thermal Shock Resistance (Up)	°C	800	800	800	800	500	
Thermal Shock Resistance (Down)	°C	375	250	250	250	200	
Specific Heat Capacity	J/kgK	400	400	400	400		480

Electrical Properties:

Resistivity 25°C	Ohm.cm	10 ¹⁰	10 ⁹	10 ⁹	10 ⁹	10 ⁸	
400°C		5 x 10 ⁵	2 x 10 ³	2 x 10 ³	2 x 10 ³	6 x 10 ³	