

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	MPa	545	800	1000	1400	180	1400
800°C	MPa	354	250	270	270	270	Degrades
Compressive Strength	MPa	1700	2000	2000	2000	1500	7000
Modulus of Elasticity	GPa	205	205	205	205	160	600
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})	MPam ^{1/2}	6.0	6.0	10.0	10.0	3.5	6.0

Thermal Properties:

Max. Use Temp.	°C	1000	1000	1000	1000	1800	
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	°C	375	250	250	250	200	
Specific Heat Capacity	J/kgK	400	400	400	400		480

Electrical Properties:

Resistivity 25°C	Ohm.cm	> 10 ¹²	> 10 ¹²	> 10 ¹²	> 10 ¹²	10 ⁸	
400°C		5 x 10 ⁵	2 x 10 ³	2 x 10 ³	2 x 10 ³	6 x 10 ³	
1000°C		< 10 ³	< 10 ³	< 10 ³	< 10 ³	< 10 ³	

