



# ZIRCONIUM OXIDE

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PROPERTIES		Unit	Siziox Y <sub>2</sub> O <sub>3</sub>	Siziox Y <sub>2</sub> O <sub>3</sub>	Siziox MgO	
ZrO <sub>2</sub> Content		%	94	94	94	
Color			white	black	yellow	
Specific Weight		g/cm <sup>3</sup>	>6	>5.9	>5.5	
Porosity		%	0	0	0	
Elasticity module		GPa	200	180	200	
Flexural strength		MPa	900	800	450	
Compressive strength		MPa	2800	2500	2500	
KIC fracture strength		MPam <sup>1/2</sup>	13	13	7	
Abrasion resistance		GPa	12.3	12.5	10.7	
Volume resistivity	25 °C 300 °C 700 °C	Ohm cm	>10 <sup>10</sup> >10 <sup>8</sup> >10 <sup>7</sup>	>10 <sup>10</sup> >10 <sup>8</sup> >10 <sup>7</sup>	>10 <sup>10</sup> >10 <sup>8</sup> >10 <sup>7</sup>	
Electrical resistance	25 °C 500 °C 1000 °C	kV/mm	>10 > 2	>10 > 2	>10 > 2	
Electrical permittivity Dielectric constant		100 MHz	10.0	10.0	10.0	
Specific heat	25-700 °C	J/kg K	410	410	410	
Thermal conductivity	25 °C 300 °C 500 °C 800 °C	W/m K	2 3 6 8	2 3 6 8	2 3 6 8	
Coefficient thermal expansion	25- 200 °C 25- 700 °C 25-1000 °C	10 <sup>-6</sup> / °C	8.5 9 10.7	8.5 9 10.5	8.5 9 11	
Max working temp.		°C	1000	800	1000	
Res. abrupt temp. variations			excellent	excellent	excellent	

### Characteristics:

high density - low thermal conductivity (10% of that of alumina), the lowest among the ceramic oxides - chemical inertness - high fracture toughness - good flexibility - excellent cutting quality - high hardness – low coefficient of friction - good wear resistance - excellent resistance to thermal jumps