



ZIRCONIUM OXIDE

DATA SHEET

PROPERTIES		Unit	Siziox Y ₂ O ₃	Siziox Y ₂ O ₃	Siziox MgO
ZrO ₂ Content		%	94	94	94
Color			white	black	yellow
Specific weight		gm / cc	>6	>5,9	>5,5
Water absorption		%	0	0	0
Elasticity module		G Pa	200	180	200
Flexural strength		M Pa	900	800	450
Compressive strength		M Pa	2800	2500	2500
KIC fracture strength		M Pa/m ^{1/2}	13	13	7
Abrasion resistance		Kg / mm ²	1200	1200	1100
Volume resistivity	25°C	Ohm cm	>10 ¹⁰	>10 ¹⁰	>10 ¹⁰
	300°C		>10 ⁸	>10 ⁸	>10 ⁸
	700°C		>10 ⁷	>10 ⁷	>10 ⁷
Electrical resistance	25°C	KV / mm	>10	>10	>10
	500°C		>2,0	>2,0	>2
	1000°C				
Electrical permittivity Dielectric constant		a 100 MHz	10,0	10,0	10,0
Specific heat	25-700°C	J / Kg °k	410	410	410
Thermal conductivity	25°C	W / m °k	2	2	2
	300°C		3	3	3
	500°C		6	6	6
	800°C		8	8	8
Coefficient of thermal expansion	25-200°C	10 ⁻⁶ / °C	8,5	8,5	8,5
	25-700°C		9	9	9
	25-1000°C		10,7	10,5	11
Max working temperature		°C	1000	800	1000
Res. to abrupt temp. variations			great	great	great

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