



MAGNESIA STABILIZED ZIRCONIA SPECIFICATIONS

	Property	ASTM Method	Units	MSZ (Magnesia Stabilized)
General	Crystal Size (Average)	Thin Section	Microns	30
	Color	--	--	Ivory or Yellow
	Gas Permeability	--	atms-cc/sec	gas tight <10 ⁻¹⁰
	Water Absorption	C 20-97	%	0
Mechanical	Density	C 20-97	g/cc	5.72
	Hardness	Vickers 500 gm	GPa (kg/mm ²)	11.7 (1200)
	Hardness	--	R45N	78
	Fracture Toughness	Notched Beam	MPam ^{1/2}	12
	Flexural Strength (MOR) (3 point) @ RT	F417-87	MPa (psi x 10 ³)	620 (90)
	Tensile Strength @ RT	--	MPa (psi x 10 ³)	310 (45)
	Compressive Strength @ RT	--	MPa (psi x 10 ³)	1862 (270)
	Elastic Modulus	C848	GPa (psi x 10 ⁶)	206 (29.8)
Poisson's Ratio	C848	--	0.28	
Thermal	C.T.E. 25 - 100° C	C 372-96	x 10 ⁻⁶ /C	8.9
	C.T.E. 25 - 300° C	C 372-96	x 10 ⁻⁶ /C	9.7
	C.T.E. 25 - 600° C	C 372-96	x 10 ⁻⁶ /C	10.0
	Thermal Conductivity @ RT	C 408	W/m K	3
	Max Use Temp	--	Fahrenheit (°F)	2200
--		Celcius (°C)	1200	
Electrical	Dielectric Strength (.125" Thick)	D 149-97A	V/mil	300
	Dielectric Constant @ 1 MHz	D 150-98	--	22.7
	Dielectric Constant @ Gigahertz	D 2520-95	--	29.2
				6.2
	Dielectric Loss @ 1 MHz	D 150-98	--	0.0016
	Dielectric Loss @ Gigahertz	D 2520-95	--	0.0018
				6.2
	Volume Resistivity, 25°C	D 257	ohms-cm	> 1 x 10 ¹³
	Volume Resistivity, 300° C	D 1829	ohms-cm	5 x 10 ⁷
Volume Resistivity, 500° C	D 1829	ohms-cm	1 x 10 ⁷	
Volume Resistivity, 700° C	D 1829	ohms-cm	2 x 10 ⁶	

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