

ZIRCONIA TOUGHENED ALUMINA (ZTA)

Property	ASTM Method	Designation	Dense ZTA
% Alumina			70-80
Color			White
Gas/ Liquid Permeability	F134B	Atm-cc/sec	None
Density	C 20-97	g/cc	4.24
Hardness	-	Mohs Scale	9
Water Absorption	C 20-97	%	0
Flexural Strength	F417-87	PSI	80,000
Elastic Modulus	C848	PSI x 10 ⁶	49
Shear Modulus	C848	PSI x 10 ⁶	20
Linear Coefficient of Thermal Expansion:	C372-96	(@ 25°C - 300°C) x10 ⁻⁶ /°C	4.9
		(@ 25°C - 300°C) x10 ⁻⁶ /°C	7.0
		(@ 25°C - 600°C) x10 ⁻⁶ /°C	7.1
Thermal Conductivity 25°C	C 408	W/m-K	24
Maximum Use Temperature (Non Loading)		°C	1500
		°F	2730
Dielectric Strength (1/8" Thick)	D149-97A	V/mil	240
Dielectric Constant @ 1MHz	D150-98	At 25°C	12.3
Dielectric Constant (@GHz)	D2520-95	At 25°C	12.4 (@9.4)
Volume Resistivity (ohm-cm)	D 257	At 25°C	5.0E + 14
	-	At 300°C	1.2E + 10
	-	At 700°C	4.0E + 08

NOTE: THE INFORMATION IN THIS DATA SHEET IS FOR DESIGN GUIDANCE ONLY. STC DOES NOT WARRANT THIS DATA AS ABSOLUTE VALUES. FORMING METHODS AND SPECIFIC GEOMETRY COULD AFFECT PROPERTIES. SLIGHT ADJUSTMENTS CAN BE MADE TO SOME OF THE PROPERTIES TO ACCOMMODATE SPECIFIC CUSTOMER REQUIREMENTS. MOST OF THE DENSE MATERIALS IN THE TABLE ARE RESISTANT TO MECHANICAL EROSION AND CHEMICAL ATTACK. STC HAS PERFORMED TESTING IN ACCORDANCE WITH ASTM D2442 FOR CERTAIN COMPOSITIONS. PLEASE CONTACT OUR TECHNICAL STAFF FOR APPROPRIATE MATERIAL AND SPECIFIC TEST RESULTS.