

ZIRCONIA TOUGHENED ALUMINA (ZTA)

Property	ASTM Method	Units	ZTA-14	ZTA-20
Color	-	-	off white	off white
Gas Permeability	-	-	gas tight	gas tight

Density	C 20-97	g/cc	4.17	4.24
Hardness	-	Mohs Scale	9	9
Water Absorption	C 20-97	%	0	0
Flexural Strength	F 417-87	psi	85,000	90,000
Tensile Strength	-	psi	42,000	45,000
Compressive Strength	-	psi	375,000	400,000
Elastic Modulus	C 848	psi x 10 ⁶	49	49
Shear Modulus	C 848	psi x 10 ⁶	20	20
Poisson's Ratio	C 848	none	0.23	0.23

C.T.E., 25 – 100 °C	C 372-96	x10 ⁻⁶ /C	6.0	6.0
C.T.E., 25 – 300 °C	-	-	7.0	7.0
C.T.E., 25 – 600 °C	-	-	7.1	7.1
Thermal Conductivity, 25 °C	C 408	W/m-K	24	24
Max Use Temperature (Non-loading)	-	Fahrenheit (°F)	2730	2730
		Celsius (°C)	1500	1500

Dielectric Strength (.125" thick)	D 149-97A	V/mil	n/a	250
Dielectric Constant @ 1 MHz	D 150-98	-	n/a	12.5
Dielectric Constant @GHz	D 2520-95	-	n/a	12.4
			n/a	@9.4
Dielectric Loss @ 1 MHz	D 150-98	-	n/a	0.0006
Dielectric Loss @GHz	D 2520-95	-	n/a	0.0005
			n/a	@9.4
Volume Resistivity, 25 °C	D 257	ohms-cm	n/a	>1E + 14
Volume Resistivity, 300 °C	-	-	n/a	1E + 10
Volume Resistivity, 700 °C	-	-	n/a	4E + 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 ASTM testing qualification for certain compositions, in accordance with ASTM D2442. Please consult our technical staff for appropriate material and specific test results.

Note: In addition to the above compositions, STC offers a wide range of alternative materials. Please contact one of our applications engineers for material requirements that may not be shown above.

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SUPERIOR TECHNICAL CERAMICS CORP.

600 Industrial Park Rd, St. Albans, VT 05478

Phone: (802) 527-7726

Fax: (802) 527-1181

www.ceramics.net