

ALUMINA

Property	ASTM Method	Designation	Dense AL-95	Dense AL-96	Dense AL-98	Dense AL99.5	Dense AL99.8
% Alumina	-	% Al ₂ O ₃	94.8	96.0	97.6	99.5	99.6

Color	-		Cream	White	White	Cream - White	Cream
Gas/ Liquid Permeability	F134B	Atm-cc/sec	None	None	None	None	None

Density	C 20-97	g/cc	3.65	3.68	3.83	3.90	3.91
Hardness	-	Mohs Scale	9	9	9	9	9
Water Absorption	C 20-97	%	0	0	0	0	0
Flexural Strength	F417-87	PSI	45,000	48,000	60,000	55,000	50,000
Tensile Strength	-	PSI	20,000	19,000	22,000	25,000	25,000
Compressive Strength	-	PSI	300,000	330,000	350,000	375,000	375,000
Elastic Modulus	C848	PSI x 10 ⁶	44	45	51	54	54
Shear Modulus	C848	PSI x 10 ⁶	17	18	20	21	21

Linear Coefficient of Thermal Expansion:	C372-96	(@ 25 °C - 100 °C) x10 ⁻⁶ /°C	5.0	6.0	6.2	7.3	6.6
	-	(@ 25 °C - 300 °C) x10 ⁻⁶ /°C	6.6	6.8	6.7	6.4	6.9
	-	(@ 25 °C - 600 °C) x10 ⁻⁶ /°C	7.6	7.7	7.5	7.2	7.6
Thermal Conductivity 25 °C	C 408	W/m-K	22	23	27	31	30
Maximum Use Temperature (Non Loading)	-	°C	1650	1700	1700	1675	1675
	-	°F	3000	3100	3100	3050	3050

Dielectric Strength (1/8" Thick)	D149-97A	V/mil	250	260	270	270	245
Dielectric Constant @ 1MHz	D150-98	At 25 °C	9.2	9.2	9.5	9.8	10.1
Dielectric Constant (@GHz)	D2520-95	At 25 °C	9.0 (@10.6)	8.8 (@10.4)	9.7 (@7.0)	9.7 (@9.9)	10.0 (@7.3)
Dielectric Loss @ 1MHz	D 150-98	At 25 °C	0.0003	0.0005	0.0004	0.0001	0.023
Dielectric Loss (@GHz)	D2520-95	At 25 °C	0.0008 (@10.6)	0.0007 (@10.4)	0.0005 (@7.0)	0.0001 (@9.9)	0.003 (@7.3)
Volume Resistivity (ohm-cm)	D 257	At 25 °C	>1.0E + 15	>1.0E + 15	>1.0E + 15	>1.0E + 15	>1.0E + 15
	-	At 300 °C	1.3E + 14	2.3E + 14	2.0E + 14	4.0E + 13	7.9E + 12
	-	At 700 °C	2.5E + 09	7.1E + 09	8.1E + 09	5.1E + 09	7.7E + 09

NOTE: THE INFORMATION IN THIS DATA SHEET IS FOR DESIGN GUIDANCE ONLY. STC DOES NOT WARRANTY 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.