



				Silicates				
Property		ASTM Method	Units	Steatite L-4	Steatite L-5	Cordierite	Mullite	Lava Grade A Fired
General	Crystal Size (Average)	Thin Section	Microns	7	7	--	7	--
	Color	--	--	Tan	Gray-Green	Orange-Tan	Gray-Tan	Gray-Tan
	Gas Permeability	--	atms-cc/sec	--	--	Porous	--	Porous
	Water Absorption	C 20-97	%	0	0	10	0	3
	Density	C 20-97	g/cc	2.65	2.75	2.00	3.00	2.30
Mechanical	Hardness	Vickers 500 gm	GPa (kg/mm ²)	4.9 (500)	4.9 (500)	5.8 (590)	10 (1000)	4.4 (450)
	Hardness	--	R45N	57	57	50	78	42
	Fracture Toughness	Notched Beam	MPam ^{1/2}	--	--	--	3	--
	Flexural Strength (MOR) (3 point) @ RT	F417-87	MPa (psi x 10 ³)	117 (17)	138 (20)	66 (9.5)	206 (30)	69 (10)
	Tensile Strength @ RT	--	MPa (psi x 10 ³)	103 (15)	103 (15)	19 (2.7)	138 (20)	21 (3)
	Compressive Strength @ RT	--	MPa (psi x 10 ³)	551 (80)	586 (85)	165 (24)	1034 (150)	172 (25)
	Elastic Modulus	C848	GPa (psi x 10 ⁶)	103 (15)	103 (15)	103 (15)	179 (26)	--
	Poisson's Ratio	C848	--	0.24	0.24	0.31	0.24	--
Thermal	C.T.E. 25 - 100° C	C 372-96	x 10 ⁻⁶ /C	7.3	8.5	2.1	3.6	2.9
	C.T.E. 25 - 300° C	C 372-96	x 10 ⁻⁶ /C	7.4	8.6	2.5	4.1	3.3
	C.T.E. 25 - 600° C	C 372-96	x 10 ⁻⁶ /C	7.5	8.6	3.0	4.8	3.6
	Thermal Conductivity @ RT	C 408	W/m K	3	3	3	4	2
	Max Use Temp	--	Fahrenheit (°F)	2350	2350	2350	3100	2000
--		Celcius (°C)	1290	1290	1290	1700	1100	
Electrical	Dielectric Strength (.125" Thick)	D 149-97A	V/mil	260	270	120	250	100
	Dielectric Constant @ 1 MHz	D 150-98	--	5.6	5.7	5.5	6.7	5.3
	Dielectric Constant @ Gigahertz	D 2520-95	--	5.6	5.8	--	6.7	--
				9.2	12.5	--	11.4	--
	Dielectric Loss @ 1 MHz	D 150-98	--	0.003	0.0014	--	0.003	--
	Dielectric Loss @ Gigahertz	D 2520-95	--	0.005	0.0017	--	0.003	--
				9.2	12.5	--	11.4	--
	Volume Resistivity, 25° C	D 257	ohms-cm	> 1 x 10 ¹⁴	> 1 x 10 ¹⁴	> 1 x 10 ¹⁴	> 1 x 10 ¹⁴	--
	Volume Resistivity, 300° C	D 1829	ohms-cm	2 x 10 ¹⁰	1 x 10 ¹¹	--	4 x 10 ¹⁰	--
	Volume Resistivity, 500° C	D 1829	ohms-cm	1 x 10 ⁹	4 x 10 ¹⁰	--	1 x 10 ⁹	--
Volume Resistivity, 700° C	D 1829	ohms-cm	2 x 10 ⁸	1 x 10 ⁹	--	--	--	
Volume Resistivity, 1000° C	D 1829	ohms-cm	--	--	--	--	--	

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.

