

Table of USTC Composition Properties						
Properties	Test	Units	USTC 980	USTC 995	USTC 998	USTC 999
Color			white	ivory	ivory	ivory
Al ₂ O ₃ Content	-	%	98.0%	99.5%	99.8%	99.9%
Crystal Size	ASTM E384	Micron	2-25	2-45	.5-25	3
Hardness	ASTM E384	KNOOP	1500	1600	-	-
	ASTM E18	Rockwell 45N	-	-	-	87
Specific gravity	ASTM E384	Gm/cc	3.7-3.8	3.8-3.9	3.93	3.95
Porosity	ASTM E383	% H ₂ O Absorbtion	0.0	0.0	0.0	0.0
Compressive Strength	ASTM C773	KPSI	325	370	390	550
Flexural Strength	ASTM F394	KPSI	43	45	52	60
Tensile Strength	ACMA #4	KPSI	28	32	30	32
Youngs Modulus	ASTM C848	PSI x 10 ⁶	49	53	56	56
Shear Modulus			18	22	23	20
Poissons Ratio			0.21	0.21	0.23	0.23
Thermal Expansion		°C	x 10 ⁻⁶	x 10 ⁻⁶	-	x 10 ⁻⁶
	ASTM C372	25-200	6.74	6.40	-	6.50
		25-1000	8.37	8.14	7.8	8.60
Dielectric Strength	ASTM D149	ACV/MIL	230	215	269	215
Dielectric Constant	ASTM D150	1 MHz	9.3	9.5	9.5	9.9
		10 GHz	9.3	9.6	9.6	10.0
Dissipation Factor	ASTM D150	1 MHz	.0003	.0002	.0002	.0002
		10 GHz	.0003	.0007	.0007	.0007
Loss Index	ASTM D150	1 MHz	.0028	.0019	.002	.002
		10 GHz	.0023	.0007	-	.0007
Volume Resistivity	ASTM D257	°C	Ohm-cm	Ohm-cm	Ohm-cm	Ohm-cm
		25	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴
		100	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴
		300	1.0x10 ¹¹	8.9x10 ¹³	>10 ¹³	>10 ¹³
		500	3.7x10 ⁸	6.9x10 ¹⁰	2.6x10 ¹²	>10 ¹²
		700	3.5x10 ⁷	1.0x10 ⁹	-	-