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**Alumina Al<sub>2</sub>O<sub>3</sub>**  
 Material Notes

**Subcategory:** Ceramic; Oxide, Aluminum

**Key Words:** Alpha Alumina, Al<sub>2</sub>O<sub>3</sub>, Aluminum Oxide, Corundum, Aluminum Oxide

Alumina	Designation	Dense AL-95%	Dense AL-96%	Dense AL-98%	Dense AL99.5%	Dense AL99.8%
% Alumina	% Al <sub>2</sub> O <sub>3</sub>	95	96	98	99.5	99.8
Color		Cream	White or Pink	White or Pink	White	Cream - White
Hardness	Mohs	9	9	9	9	9
Water Absorption	%	Imperv	Imperv	Imperv	Imperv	Imperv
Specific Gravity		3.65	3.65	3.75	3.85	3.92
Crystal Spec	Micron	5-40	5-30	5-20	5-25	5-25
Tensile Strength	PSI	20,000	19,000	22,000	25,000	25,000
Compressive Strength	PSI	320,000	300,000	350,000	375,000	375,000
Flexural Strength	PSI	41,000	45,000	43,000	45,000	45,000
Maximum Operating Temperature Under Non Loading Conditions	°C	1,650	1,700	1,700	1,675	1,675
	°F	3,000	3,100	3,100	3,050	3,050
Linear Coefficient of Thermal Expansion:	(@ 25 °C - 100 °C) x 10 <sup>-6</sup> /°C	5.8	6.4	6.4	6.4	6.4
	(@ 25°C - 600 °C) x 10 <sup>-6</sup> /°C	7.4	7.5	7.4	7.8	8.0
Dielectric Strength (1/4" thick)	VOLTS/MIL	210	220	230	230	230
Dielectric Constant	At 25 °C & 1 mhz	9.2	9.3	9.3	9.7	9.8
Loss Factor	At 25 °C & 1 mhz	.004	.006	.004	.003	.003
Te Value	Temp °C @ which one cm <sup>3</sup> of material has a mega ohm of resistance	840	840	940	1000	1050

**NOTE: THE INFORMATION IN THIS DATA SHEET IS FOR DESIGN GUIDANCE ONLY. FORMING METHODS AND SPECIFIC GEOMETRY COULD AFFECT PROPERTIES.**