

AIC CERAMIC MATERIAL CHARACTERISTICS

	Item	Units	Alumina (Al ₂ O ₃)	Alumina (Al ₂ O ₃)	Quartz (GE-124 Equiv)	Zirconia (MgO - TTZ)	Alum. Nitride (AlN - HP)	Alum. Nitride (AlN)
PHYSICAL PROPERTIES	Color		White/Ivory	White/Ivory	Transparent or Opaque	Ivory	Black	Gray
	Purity		99.5%	99.8%	----	----	----	----
	Bulk Density	kg/m ³ X 10 ⁻³	3.9	3.92	2.2	5.72	3.25	3.3
	Porosity (Water Absorption)	%	0	0	0	0	0	0
MECHANICAL PROPERTIES	Hardness	GPa (Vickers)	14	14	5.5 ~ 6.5 (MOHS)	11.8	----	13
	Flexural Strength	MPa (RT)	375	375	----	900	420	350
	Compressive Strength	MPa	2400	2500	1100	1750	----	----
	Young's Modulus of Elasticity	GPa	370	370	72	200	330	410
	Tensile Strength	MPa	262	248	48	483	----	----
THERMAL PROPERTIES	Coefficient of Thermal Expansion	X 10 ⁻⁶ /°C	8.2	8.2	0.55	10.2	5.5	2.4
	Thermal Conductivity	W/m-K	30	30	----	2.2	125	160
	Specific Heat	J/kg-K	800	880	670	400	----	740
ELECTRICAL PROPERTIES	Dielectric Strength	kV/mm	8.7	8.7	5	9.4	----	8.8
	Resistivity	Ω-cm	> 10 ¹⁴	> 10 ¹⁴	----	> 10 ¹³	----	> 10 ¹⁴
	Dielectric Constant	@ 1MHz	9.7	9.8	3.75	28	----	8.5
	Dielectric Loss	@ 1MHz	0.0001	0.0001	0.0004	0.0010	----	0.0002

Properties are typical and should be used for reference purposes only. Please contact us for additional information.