

Typical Properties of Ceramic Materials

Properties	Unit	A-92	A-96	A-997	ZTA	YSZ	SiC
Density	g/cc	3.60	3.70	3.92	4.02	6.02	3.10
Water Absorption	%	0	0	0	0	0	0
Flexural Strength	MPa(psix10 ³)	330(48)	360(52)	380(55)	450(65)	1200(174)	462(67)
Tensile Strength	MPa(psix10 ³)	220(32)	220(32)	265(39)	290(42)	-	307(44.6)
Compressive Strength	MPa(psix10 ³)	2200(320)	2400(348)	2600(377)	2900(421)	2550(370)	2500(363)
Elastic Modulus	GPa(psix10 ⁶)	276(40)	300(44)	370(54)	360(52)	210(30)	390(57)
Hardness	HV	1300	1500	1700	1600	1300	
Fracture Toughness(K _{Ic})	MPa m ^{1/2}	4	5	5	6	13	4
Coef.of Thermal Expansion(25-1000℃)	1x10 ⁻⁶ /℃	8.0	8.0	8.2	8.3	10.3	4.2
Thermal Conductivity	W/m°K	16.7	24.8	30.0	27.0	2.2	125.0
Volume Resistivity(25℃)	ohm-cm	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹⁴	> 10 ¹³	< 10 ³
Max. Use Temperature	℃	1500	1600	1750	1500	1500	1400
Dielectric Constant (1MHz)	25℃	8.7	8.9	9.6	10.2	26.0	-
Dielectric Loss(1MHz)	25℃	0.0001	0.0002	0.0001	0.0005	0.001	-
Abrasive Property Angle30°, 5.5kg/cm ² , 2min	g	0.45	0.42	0.48	0.42	0.35	0.20