

Data. Sheet of Typical Ceramic Materials

Material		99.5%Al ₂ O ₃	99%Al ₂ O ₃	95%Al ₂ O ₃	MgO.SiO ₂ (Steatite)	ZrO ₂ (Y-TZP)	TiO ₂	SiC	
General	Property								Units
Mechanical	Density	g/cm ³	≥3.85	≥3.80	≥3.60	≥2.70	≥6.0	≥4.0	≥3.21
	Water absorption	%	0	0	0	0	0	0	0
	Hardness	HV	1700	1700	1500	800	1300	800	2500
	Flexural strength	Mpa	≥379	≥338	≥320	≥190	≥1200	≥158	≥550
	Compressive strength	Mpa	≥2240	≥2240	≥2000	≥551	≥1990	----	≥3306
	Fracture toughness	Mpam ^{1/2}	4-5	4-5	3-4	----	6.5-8	3.2	3
Thermal	Max. service temperature (Non-loading)	°C	1675	1600	1550	1290	1000	1000	1600
	CTE	1×10 ⁻⁶ /°C	6.5~8.0	6.2~8.0	5.0~8.0	7.7~8.0	8.0~9.5	8.8	3.7~4.0
	20-800°C								
	Thermal shock	T(°C)	≥250	≥200	≥220	≥200	≥300	≥330	----
	Thermal conductivity	W/m.k	30	29	24	2.5	3	5	150
		(25°C)							
Specific heat	1 x 10 ³ J/(kg·K)	0.78	0.78	0.78	0.75	0.46	----	0.66	
Electrical	Volume resistivity	ohm.cm							
	25°C								
	300°C								
	500°C								
	Insulation strength	KV/mm	19	18	18	10	17	3.93	----
	Dielectric constant	(E)	9.7	9.5	9.5	5.8	29	85	----