

Material Properties

Properties	Units	Alumina(Al ₂ O ₃)							Zirconia(ZrO ₂)		Silicon Carbide(SiC)			Silicon Nitride	Aluminium Nitride(AlN)	Boron Nitride (B ₄ C)	Machanable Glass Ceramics (MACOR)	Graphite	Quartz	Sapphire	
		Porous Al ₂ O ₃	Mullite	Al ₂ O ₃ 85%	Al ₂ O ₃ 92%	Al ₂ O ₃ 96%	Al ₂ O ₃ 99.5%	Al ₂ O ₃ 99.8%	ZrO ₂ -Al ₂ O ₃ (ZTA)	Y ₂ O ₃ -ZrO ₂ (YPTZ)	SSiC	SiSiC	RSiC	HPSi ₃ N ₄							
Mechanical	Density	g/cm ³		2.8	3.4	3.6	3.7	3.9	3.92	3.8~4.6	5.9~6.3	>3.1	>3.02	2.6~2.7	3.2	3.3	2.51	2.52	1.57~1.88	2.2	3.97
	Color	—	—	Tan	White	White	White	Ivory	Ivory	White	ivory/White	Black	Black	Gray	Gray	Gray	Black	White	Black	White	White/Transpa
	Water Absorption	%		0	0	0	0	0	0	0	0	0	0	16	0	0	0	—	0.3~3.0	0	0
	Vickers Hardness	Gpa	—	7.4	9.5	11	11.5	14	14~15	10.4~14.4	12.7	24	23.5	—	14	10.5~11.5	3200 ^x	230 ^x	7~7.5	11.5~13.5	18.5~21.5
	Flexural Strength (20°C)	Mpa	50~100	170	300	345	358	380	400	172~450	900	480	460	>100	700~800	260	400	94	50	80	760~1050
	Compressive Strength (20°C)	Mpa	20~100	550	1950	2200	2300	3000	3150	2300~2900	2500	3200	2500	—	3200	—	3200	345	100~200	650~1100	2000
Thermal	Thermal Conductivity (20°C)	W/m.K	3.1	3.5	16	16.7	24.8	25~35	30	13~27	2.2	150	125	24	26~42	≥170	90	1.71	95	1.4	40
	Thermal Shock Resistance (20°C)	ΔT(C)	—	300	300	250	250	200	200	300~500	350	300	400	—	530~610	400	—	—	200~250	—	—
	Maximum Use	°C	1900	1700	1400	1500	1600	1700	1700	1400~1500	1500	1600	1380	1650	1400	1600	2450	800	—	1200	2000
Electrical	Volume Resistivity (25°C)	Ω.cm	—	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴	>10 ¹³	>10 ¹⁴	5×10 ⁷	1	—	>10 ¹²	>10 ¹⁴	10	1014	0.3~1.0×10 ⁻³	7×10 ⁷	>10 ¹⁶

Note:

1. Property Values are typical and should not be considered specifications
2. The measured values mentioned before were determined for test samples and are applicable as standard values.
3. The values indicated must not be transferred to arbitrary formats, componets or partsfeaturing different surface qualities. They must not be considered as a guarantee fro specific properties. We reserve the right of technical modif

* Vicker Hardness (HV_{0.3})