

Material	Alumina (Al ₂ O ₃)	Zirconia (ZrO ₂)		Silicon carbide (SiC)			Silicon nitride (Si ₃ N ₄)			Quartz
	99% Al ₂ O ₃	Zirconia toughened alumina (ZTA)	Zirconia	Sintered SiC (SSiC)	Reaction-bonded SiC (RBSiC)	Nitride-bonded SiC (NBSiC)	Gas pressure sintering Si ₃ N ₄	Hot pressing sintering Si ₃ N ₄	High thermal conductivity Si ₃ N ₄	
Density (g/cm ³)	≥3.83	≥4.1	6	3.1	3.02	2.72	3.2	3.3	3.25	2.2
Flexure strength (MPa)	310	700	900	380	250	160	700	900	600~800	48
Young Modulus (GPa)	360	330	200	420	330	220	300	300	300~320	72
Poisson's ratio	0.23	0.25	0.3	0.15	0.19	0.19	0.25	0.28	0.25	0.15
Compressive strength (MPa)	2200	2300	2100	3900	3500	3500	2500	3000	2500	1100
Hardness (HV)	1650	1200	1250	2800	2500	2500	1500	1600	1500	750
Fracture toughness (MPa·m ^{1/2})	4.2	7	7.5	3.5	3.8	3.8	5~7	6~8	6~7	0.4
Maximum working temperature (°C)	1600	1200	1000	≥1600	1380	1550	1100	1300	1100	1350
Thermal conductivity (W/m·K)	24	18	3	74-160	45	15	20	25	80~100	1.4
Thermal expansion coefficient (/°C)	7*10 ⁻⁶	8*10 ⁻⁶	1*10 ⁻⁵	4.1*10 ⁻⁶	4.5*10 ⁻⁶	5*10 ⁻⁶	3*10 ⁻⁶	3.1*10 ⁻⁶	3*10 ⁻⁶	5.5*10 ⁻⁷
Thermal shock resistance (ΔT °C)	200	250	400	500	400	400	550	800	/	≥1000

* The actual product may have slight differences due to factors such as the composition of the raw material, molding and sintering process, etc.