

General Properties	Product name Component	136	006	516	838	848	907
	Physical properties Unit Test method	Al ₂ O ₃ 99.8%	Al ₂ O ₃ 99.99%	Al ₂ O ₃ 85%	ZrO ₂ Yttria- stabilized	ZrO ₂ Yttria- stabilized	Y ₂ O ₃ 99.90%
Bulk Specific Gravity JIS R1634	3.9	3.9	3.8	6.0	6.0	4.9	
Porosity(%) JIS R1634	0	0	0	0	0	0	
Mechanical Properties	Vickers Hardness(GPa)	18	20	10	20	14	5.4
	Bending Strength(MPa) ※(1) JIS R1601	392	400	276	1050	1050	150
	Compressive Strength(MPa)	2370	-	-	-	-	-
	Young's Modulus(GPa) Ultrasonic pulse method	392	397	278	215	223	175
	Poisson's Ratio	0.23	0.22	0.23	0.3	0.31	0.31
	Fracture Toughness(SEPB) (MPa · m ^{1/2}) JIS R1607	4.0	-	-	-	8	0.7
Thermal Properties	Coefficient of Thermal Expansion 100→500°C (×10 ⁻⁶) JIS R1618	6.8	6.8	7.6	10.6	10.4	7.1
	Thermal Conductivity 20°C(W/(m · K)) JIS R1611	34.3	32.5	11	2.8	3	13
	Specific Heat(J/(kg · K)) JIS R1611	0.78× 10 ³	0.77× 10 ³	0.76× 10 ³	0.43× 10 ³	0.46× 10 ³	0.42× 10 ³
Electrical Properties	Dielectric Breakdown Voltage(V/m) JIS C2141	1.3×10 ⁷	1.6×10 ⁷	1.5×10 ⁷	1.3×10 ⁷	1.3×10 ⁷	1.4×10 ⁷
	Volume Resistivity 20°C(Ω · cm) JIS C2141	5.4×10 ¹⁴	4.2×10 ¹⁵	4.1×10 ¹¹	3.7×10 ¹⁰	3.8×10 ¹⁰	3.2×10 ¹²
	Dielectric Constant 1MHz 3-terminal method	9.3	9.6	10.3	33.5	32.5	11.4
	Dielectric Loss Tangent 1MHz (×10 ⁴)	3.5	2.0	80	25	26	12
Characteristic / Usage	Various industrial materials	Various industrial materials	black low-reflection materials (wavelength 400)	Yttria 3mol Various industrial materials	Yttria 3mol alumina-bonded type Various industrial materials	plasma-resistant applications	

*The data are representative values, not guaranteed values.

*(1)3-point bending test

