

PROPERTIES OF ALUMINA

The table below shows typical properties of some commonly available alumina grades, alongside zirconia toughened alumina. Other grades of alumina are available.

	PROPERTY	UNITS			
GENERAL	Chemical formula	n/a	Al ₂ O ₃	Al ₂ O ₃	Zirconia toughened alumina
	Alumina content	%	96	99.5	-
	Density	g/cm ³	3.69	3.86	4.6
MECHANICAL	Compressive Strength	MPa	>2100	>2100	2500
	Flexural Strength	MPa	370	315	675
	Young's Modulus	GPa	275	375	330
THERMAL	Max. use temperature	°C	1620	1725	1500
	Thermal Conductivity	W/mK	25.5	29.3	17
	Coefficient of Linear Thermal Expansion	10 ⁻⁶ /°C	6.4	6.9	8
ELECTRICAL	Volume Resistance	Ωcm	>10 ¹⁴	>10 ¹⁴	>10 ¹⁴
	Dielectric Constant		9.3	9.6	-
	Dielectric Strength	kV/mm	26	31	-

Properties shown are typical values, they are not absolute material properties, and should be used for guidance only. It is recommended that materials and components are tested for their suitability for a specific application.

For more information and advice please discuss your application with our sales staff.

Typical Applications:

- Ballistic armour
- Electronic substrates
- Element formers/thread guides
- Feedthroughs
- High voltage insulators
- Laser cavities
- Radomes
- Wear components (including blades, valves & guides)

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