

## PROPERTIES OF ZIRCONIA

The table below shows typical properties of some commonly available zirconia grades, alongside Alumina Toughened Zirconia (ATZ). Other grades of zirconia are available.

	PROPERTY	UNITS			
<b>GENERAL</b>	Chemical formula	n/a	ZrO <sub>2</sub> +MgO	ZrO <sub>2</sub> +Y <sub>2</sub> O <sub>3</sub>	Alumina Toughened Zirconia (ATZ)
	Density	g/cm <sup>3</sup>	5.7	6.0	5.5
	Water Absorption	%	0	0	0
<b>MECHANICAL</b>	Compressive Strength	MPa	1700	2000	2000
	Flexural Strength	MPa	600	950	Up to 2000
	Young's Modulus	GPa	250	205	220
<b>THERMAL</b>	Max. use temperature	°C	1000	1000	1000
	Thermal Conductivity	W/mK	2.5	2.0	6
	Coefficient of Linear Thermal Expansion	10 <sup>-6</sup> / °C	10	10	9
<b>ELECTRICAL</b>	Volume Resistance	Ωcm	>10 <sup>10</sup>	>10 <sup>9</sup>	-
	Dielectric Constant		28	28	-
	Dielectric Strength	kV/mm	9	9	-

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:

- Wear parts
- Valve and pump components
- High temperature tubes
- Thermal insulation components
- Cutting blades
- Grinding media

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