

MATERIAL DATA SHEET

Material type: Zirconia (Y-TZP)

FZM/K

Properties		Unit	Specific value
Main component		-	ZrO ₂ , Y ₂ O ₃ , Al ₂ O ₃
Purity		wt.-%	≥ 99.8
Density		g / cm ³	≥ 6.0
Open porosity		vol.-%	0
Average size of crystallites		µm	0.8
Bending strength σ_m	DIN EN 843-1	MPa	1000
Weibulls modulus		-	10
Toughness K_{Ic}	SEVNB	MPa * m ^{0.5}	4.6
Compressive strength		MPa	2200
Young's modulus	static	GPa	200
Poisson's ratio		-	0.30
Hardness	HV1	-	1420
Maximum service temperature in air		°C	1000
Coefficient of thermal expansion	20 - 1000 °C	10 ⁻⁶ / K	10.5
Specific heat	20 °C	J / (kg * K)	400
Thermal conductivity	100 °C	W / (m * K)	2.5
Resistivity	50 °C	Ω * cm	5 * 10 ¹⁰
	100 °C	Ω * cm	2.5 * 10 ⁹
	300 °C	Ω * cm	4.5 * 10 ⁵
	600 °C	Ω * cm	8 * 10 ³
	1000 °C	Ω * cm	15
Stability under hydrothermal conditions (autoclave) 230°C / 28 bar / deionized water		h	> 5
Typical colour		-	white

The data indicated on this table are in line with the introductory German Industrial Standard DIN 60672-2 and relate to test specimens from which they are obtained. They are not unconditionally applicable to other forms of the same material. The data must be regarded as indicative only. All data refer to a temperature of 20 °C, unless otherwise specified.