

TECHNICAL DATA SHEET

2YSZ (powder)

Innovnano's 2 mol % Yttria-stabilised Zirconia is available as a binderless and ready-to-press powder or suspension (up to 40 wt. % solid content). High fracture toughness and bending strength complement each other in this specially designed, high performance powder.

Chemical analysis

ZrO ₂ + HfO ₂ + Y ₂ O ₃ + Al ₂ O ₃ (wt. %)	> 99.9
HfO ₂	< 3.0
Y ₂ O ₃	3.5 ± 0.3
Al ₂ O ₃	0.4 ± 0.1
SiO ₂	< 0.015
Fe ₂ O ₃	< 0.02

Physical properties

Primary particle D ₅₀ (nm)	~ 50
Powder D ₅₀ (nm)	< 250
Granule D ₅₀ (µm)	~60

Mechanical properties after sintering

	CIP	HIP
Grain size (nm)	< 250	< 250
Density (g/cm ³)	6.02	6.07
Hardness (HV10)	1250	1350
Biaxial flexural strength (MPa)	1200	1600

Performance

Fracture toughness (MPa.m ^{0.5}) [SEVNB]	14
Module of rupture (MPa) (3 point bending test)	800
Flexural strength (MPa) (4 point bending test)	1200
Cyclic fatigue resistance*	87% of static resistance
Hydrothermal resistance**	85-90% of original resistance

*ISO 22212:2006 ** ISO 13485:2016

Enhanced material properties for physically demanding applications

Innovnano is a specialist manufacturer of high quality zirconia-based ceramic powders. Using a unique synthesis technology - emulsion detonation synthesis (EDS) - Innovnano guarantees enhanced material properties so that you can expect more from your ceramics.

Innovnano
iParque
Parque Tecnológico de Coimbra - Lote 13
3040-570 Antanhol, Portugal

info@innovnano-materials.com
T: +351 239 002 850

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