

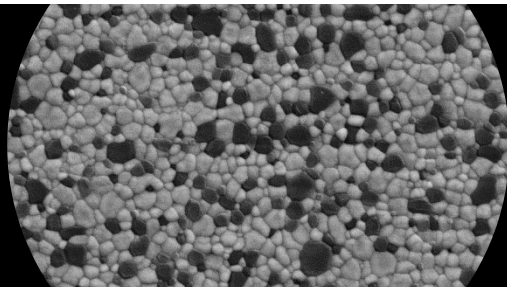
NANOe

Ready-to-sinter Nanopowders for Industrial Use



Zirconia (ATZ) datasheet

Al_2O_3 ZrO_2 ZTA



Zirconia - ATZ nanopowders

Our Offer

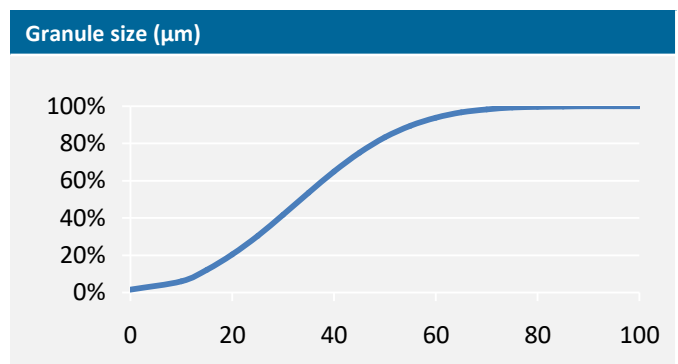
We offer several types of ATZ nanopowders: one with binding system (ATZ-BA), one without (ATZ). Our ATZ is a homogeneous mix of our 150nm alpha alumina and our 20nm yttria stabilised zirconia. The powders are available in spray-dried granulates or slurries. Customized ZTA nanopowders are available on demand, with different weight ratio between alumina and zirconia, or different yttria doping rates.

Key Benefits

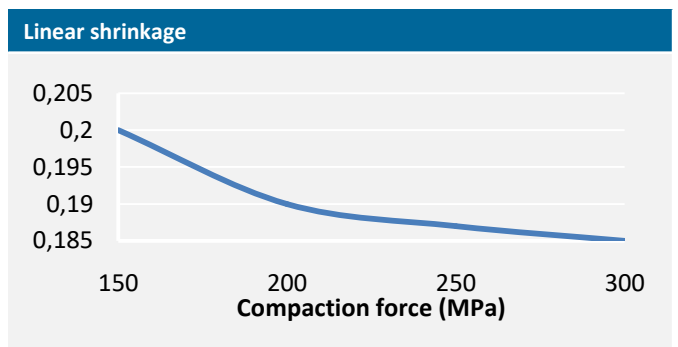
- higher bending strength than zirconia

- lower ageing

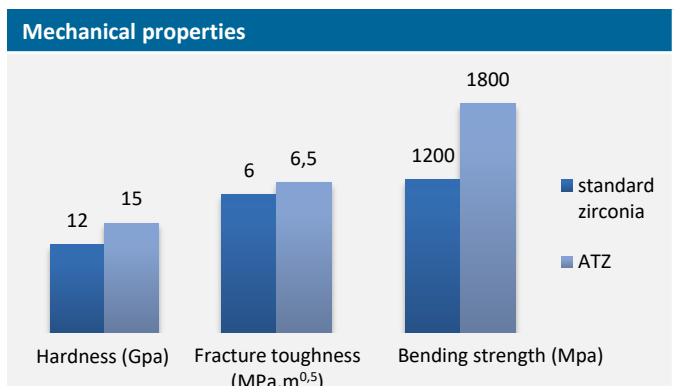
General Characteristics		ATZ-20/80-BA
Loss on ignition	wt%	4
Average crystallite size	nm	Al:150 / Zr:50
Free density	g/cm ³	1.5
Minimum purity (Zr+Y+Hf+Al)	%	99.9
Alumina content	%	20
Specific surface area	m ² /g	15 ± 2
Granulates size	µm	35



Purity		ATZ-20/80-BA
ZrO ₂	wt%	73.1
Al ₂ O ₃	wt%	20
Y ₂ O ₃	wt%	4,0
HfO ₂	wt%	< 2
MgO	ppm	200
Na ₂ O	ppm	< 40
SiO ₂ , K ₂ O, CaO, Fe ₂ O ₃	ppm	< 30



Sintering		ATZ-20/80-BA
Compaction force	MPa	> 250
Sintering temperature	°C	1500
Sintered density	g/cm ³	> 5.45
Intercept grain size Al	µm	0.6
Intercept grain size Zr	µm	0.4
Hardness (Hv10)	GPa	> 14
Fracture toughness (K ₁₀)	Mpa.m ^{0.5}	> 6.5
Bending strength	MPa	1800 - 2000



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