

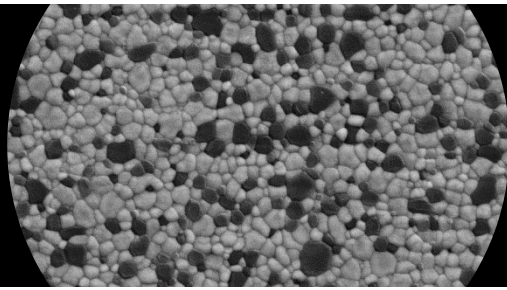
NANOe

Ready-to-sinter Nanopowders for Industrial Use



Zirconia (ATZ) datasheet

Al_2O_3 ZrO_2 ZTA



Zirconia - ATZ nanopowders

Our Offer

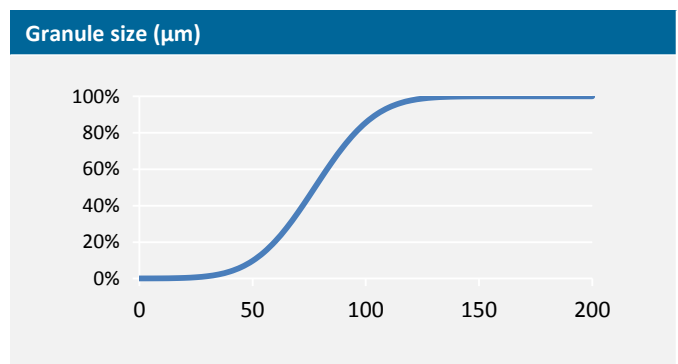
We offer several types of ATZ nanopowders: one with binding system (ATZ-BA), one without (ATZ). Our ATZ is a homogeneous mix of our 150nm alpha alumina and our 20nm yttria stabilised zirconia. The powders are available in spray-dried granulates or slurries. Customized ZTA nanopowders are available on demand, with different weight ratio between alumina and zirconia, or different yttria doping rates. For bending strength applications, we recommend our ATZ-20/80-2.5Y-BA, with yttria doping of 2.5%.

Key Benefits

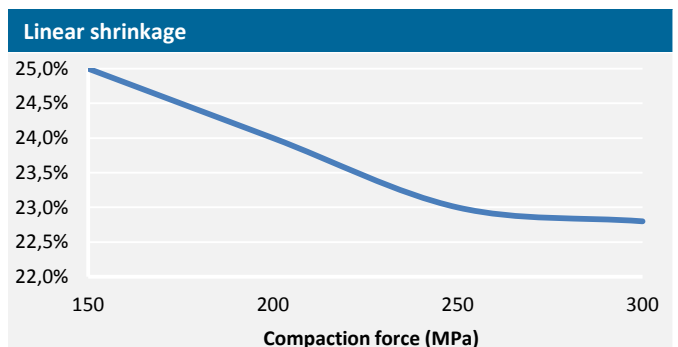
- higher bending strength than zirconia

- lower ageing

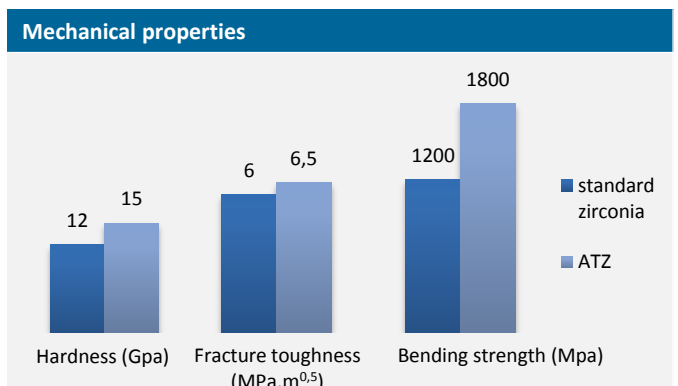
General Characteristics		ATZ-20/80-2.5Y-BA
Loss on ignition	wt%	5
Average crystallite size	nm	Al:150 / Zr:20
Free density	g/cm ³	1.5
Minimum purity (Zr+Y+Hf+Al)	%	99.9
Alumina content	%	20
Specific surface area	m ² /g	18 ± 2
Granulates size	µm	80 - 100



Purity		ATZ-20/80-2.5Y-BA
ZrO ₂	wt%	73.11
Al ₂ O ₃	wt%	20
Y ₂ O ₃	wt%	4.09
HfO ₂	wt%	2.73
MgO	ppm	200
Na ₂ O	ppm	< 40
SiO ₂ , K ₂ O, CaO, Fe ₂ O ₃	ppm	< 30



Sintering		ATZ-20/80-2.5Y-BA
Compaction force	MPa	> 250
Sintering temperature	°C	1450 -1500
Sintered density	g/cm ³	> 5.47
Intercept grain size Al	µm	0.5
Intercept grain size Zr	µm	0.35
Hardness (Hv10)	GPa	> 14
Fracture toughness (K ₁₀)	Mpa.m ^{0.5}	> 6.5
Bending strength	MPa	1800 - 2000



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