

NANOe

Ready-to-sinter Nanopowders for Industrial Use



ZTA-10 datasheet

Al_2O_3 ZrO_2 ZTA

Zirconia Toughened Alumina ZTA nanopowders

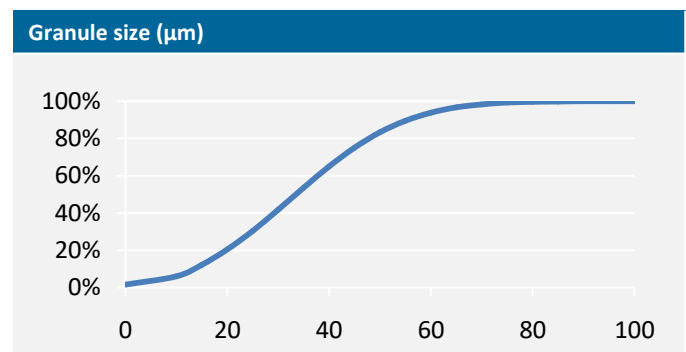
Our Offer

We offer two main types of ZTA nanopowders: one with binding system (ZTA-BA), one without (ZTA). Our ZTA is a homogeneous mix of our 150nm alpha alumina (90wt%) and our 20nm zirconia (10wt%). 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.

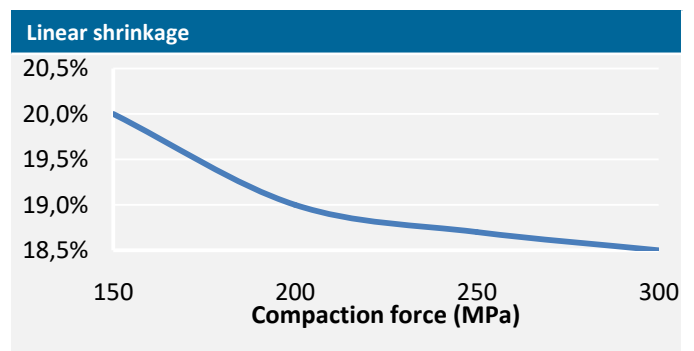
Key Benefits

- Higher toughness than alumina
- Extremely high hardness
- Better wear resistance

General Characteristics		ZTA-10-BA / ZTA-10
Loss on ignition	wt%	3 / 1
Average crystallite size	nm	Al:150 / Zr:50
Free density	g/cm ³	1.2
Minimum purity (Zr+Y+Hf+Al)	%	99.9
Zirconia content	%	10 - 12
Specific surface area	m ² /g	15 ± 2
Granulates size (d50)	µm	35



Purity		ZTA-10
Al ₂ O ₃	wt%	89.9
ZrO ₂	wt%	9.3
Y ₂ O ₃	wt%	0.5
HfO ₂	wt%	< 0.25
MgO	ppm	900
Na ₂ O	ppm	< 80
SiO ₂ , K ₂ O, CaO, Fe ₂ O ₃	ppm	< 30



Sintering		ZTA-10
Compaction force	MPa	> 200
Sintering temperature	°C	1550
Sintered density	g/cm ³	> 4.12
Intercept grain size Al	µm	0.7
Intercept grain size Zr	µm	0.3
Hardness (Hv10)	GPa	> 19
Fracture toughness (K ₁₀)	MPa.m ^{0.5}	4.5
Bending strength	MPa	740

