

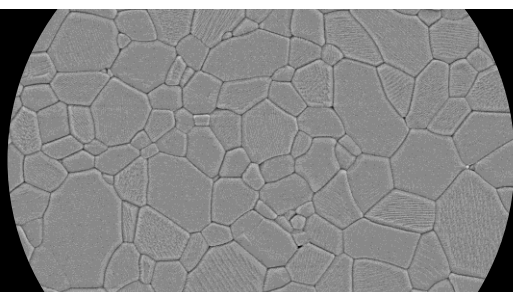
# NANOe

Ready-to-sinter Nanopowders for Industrial Use



## Alumina datasheet

$Al_2O_3$   $ZrO_2$  ZTA



## Alumina Al<sub>2</sub>O<sub>3</sub> nanopowders

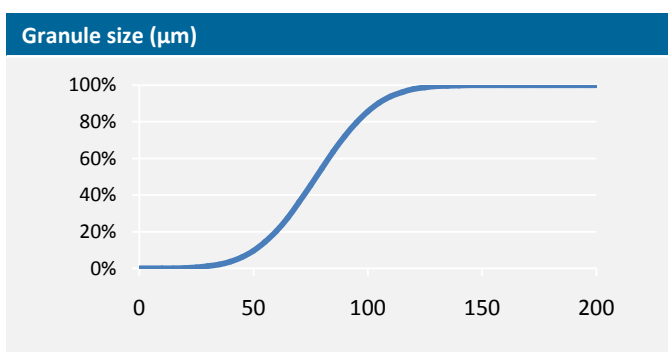
### Our Offer

We offer two main types of alumina nanopowders: one with binding system (Al100-BA), one without (Al100). The powders are available in spray-dried granulates or in slurries. Customized alumina nanopowders are available on demand, such as ultrapure alumina (99.99%), gamma alumina (5nm).

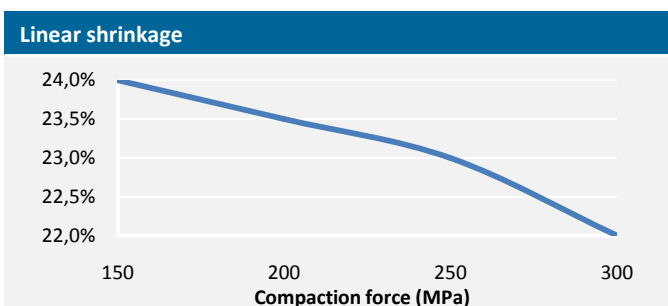
### Key Benefits

- Higher toughness
- Better wear resistance
- Extremely high hardness
- Higher breakdown electrical field
- Increased thermal shock resistance
- Less rugosity

General Characteristics		Al100-BA / Al100
Loss on ignition	wt%	4 / 1
Average crystallite size	nm	150
Free density	g/cm <sup>3</sup>	1.1
Minimum purity	%	99.9
Alpha phase	%	100
Specific surface area	m <sup>2</sup> /g	10 ± 2
Granulates size	µm	80



Purity		Al100
Al <sub>2</sub> O <sub>3</sub> + MgO	wt%	> 99.9
MgO	ppm	1000
Na <sub>2</sub> O	ppm	< 40
K <sub>2</sub> O	ppm	< 30
CaO	ppm	< 20
SiO <sub>2</sub> , Fe <sub>2</sub> O <sub>3</sub>	ppm	< 10



Sintering		Al100
Compaction force	MPa	> 250
Sintering temperature	°C	1500
Sintered density	g/cm <sup>3</sup>	3,96
Intercept grain size	µm	1,1
Elasticity modulus	GPa	390
Hardness (Hv10)	GPa	21
Fracture toughness (K <sub>I0</sub> )	MPa.m <sup>0.5</sup>	3.84
Bending strength	MPa	550 - 600

