

## Zirconia ZrO<sub>2</sub> nanopowders

### Our Offer

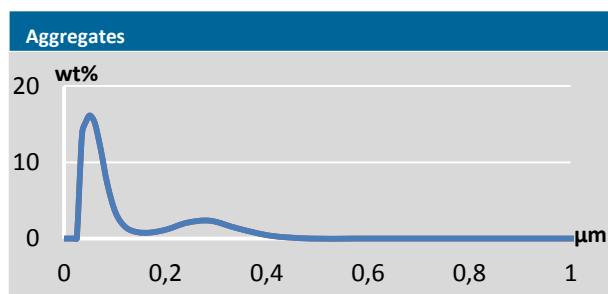
We offer two main types of zirconia nanopowders: one with binding system (3Y-TZP-BA) for ready-to-press uses, one without (3Y-TZP). The powders are available in spray-dried granulates. Customized zirconia nanopowders are available on demand, such as 8mol% yttria, ceria or magnesia stabilized zirconia.

### Key Benefits

- Higher bending strength
- Higher toughness
- Slower ageing
- Higher wear resistance

General Characteristic		3Y-TZP-BA	3Z-TZP
Yttrium Y <sub>2</sub> O <sub>3</sub>	mol %	3	3
Binding System	-	3 wt%, Organic, PVA based	None
Average Particle Size	nm	20	20
Powder Free Density	g/cm <sup>3</sup>	1,6	1,9
Minimum Purity (Zr+Y+Hf+Al)	%	99,9%	99,9%
Specific surface area	m <sup>2</sup> /g	20 ± 5	20 ± 5

Purity		3Y-TZP-BA
ZrO <sub>2</sub>	wt%	91,2
Y <sub>2</sub> O <sub>3</sub>	wt%	5,15
HfO <sub>2</sub>	wt%	3,4
Al <sub>2</sub> O <sub>3</sub>	wt%	0,25
SiO <sub>2</sub>	ppm	< 150
Na <sub>2</sub> O, Fe <sub>2</sub> O <sub>3</sub>	ppm	< 40



Sintering		3Y-TZP-BA
Compaction force	MPa	> 200 MPa
Green density	%	60 %
Sintering temperature	°C	1450
Sintered density	g/cm <sup>3</sup>	> 6,06
Intercept grain size	nm	380
Elasticity modulus	GPa	210
Hardness (Vickers)	GPa	> 11
Abrasion resistance	nm/h	5
Fracture toughness	MPa.m <sup>0,5</sup>	> 6

