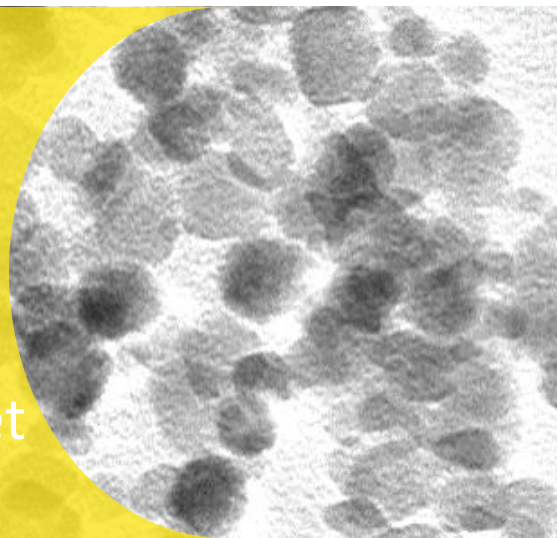




YSZ

Yttria-stabilized zirconia datasheet



Our offer

We offer yttria-stabilized zirconia nanoparticles dispersed in various media for use in a wide range of applications. They can be used as starting materials, or sintering additives, for the fabrication of ceramics and ceramic nanocomposites for structural, biomedical, dental applications and more. They can be employed to produce ceramic membranes, Solid Oxide Cells, or inorganic coatings. They can also be used as nanofillers in composite materials, for instance dental composites, optical coatings, nanoimprint lithography resins, 3D-printing feedstocks, or lubricants.

We offer as well undoped zirconia dispersions (please refer to the corresponding datasheet), and zirconia containing other dopants, for instance Gd₂O₃.

Main benefits

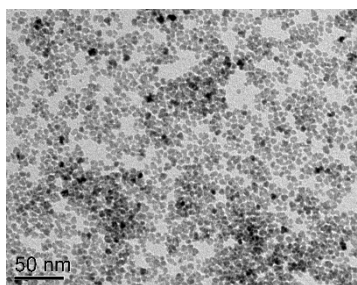
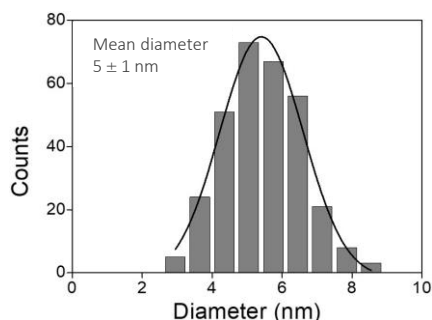
- Smallest nanoparticles on the market
- Highest transparency and low viscosity at high particle loading
- Low organic content
- High sinterability at low temperature
- Fine-grained final ceramics
- Highly translucent final ceramics
- Improved mechanical properties of final ceramics

Main properties

Chemical formula	ZrO ₂ - 1 to 10 mol% Y ₂ O ₃
Crystal structure of particles	Tetragonal*
Morphology	Nearly spherical**
Average particle size	5 to 20 nm depending on the grade
Density (theoretical)	6.1 g/cm ³ for 3YSZ
Refractive index	≥ 2.10
Dispersion solid content	Up to 70% depending on morphology and dispersion medium
Dispersion medium	Water, alcohol, polyol, acetone, MEK, and other selected organic solvents, methacrylates, acrylates, customer specific monomer mixtures
Type of functionalization	Depends on dispersion medium and application requirements

* Some grades contain a small fraction of monoclinic particles. ** Some grades contain a small fraction of anisotropic particles.

Example of size distribution



Industrial batches (up to 8 kg of dry matter depending on the grade) and samples available
Safety Data Sheet available

Provided data are typical values, they are not contractual.

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