Nanostructured powders for demanding ceramic applications

Enabling next generation ceramic components and coatings
Innovnano offers a range of nanostructured yttria-stabilised zirconia and zirconate powders. All powders are manufactured using our EDS technology to suit a diverse range of industry applications, from technical and structural ceramic components to functional coatings.

The advantages of a nanostructured powder

Compared to a conventional microstructure, nanostructured ceramic powders have a higher specific surface area for increased reactivity. This translates to improved powder properties and enables lower sintering temperatures, leading to end-product benefits.

With Innovnano’s nanostructured powders, you can produce components, devices or coatings that are stronger, lighter or more durable, to name just a few of the enhanced properties that can be achieved.

For optimal processability, we can provide our powders in 3 ready-to-use forms:

Dry powder | Spray-dried ready-to-press granulate | Suspension

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<th>Our powders</th>
<th>Benefits for your product</th>
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<tr>
<td>High purity</td>
<td>Uncompromised ceramic performance</td>
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<tr>
<td>Small grain sizes</td>
<td>Improved mechanical properties</td>
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<td>Uniform dispersion of mixed</td>
<td>Chemical homogeneity and controlled grain growth</td>
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<td>oxide components</td>
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<tr>
<td>Higher specific surface area and reactivity</td>
<td>Lower sintering temperatures, to minimise grain growth and retain beneficial nanostructure</td>
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<tr>
<td>Uniform granular morphology</td>
<td>Improved flowability for easy application of powders</td>
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For more detailed information on our complete collection of ziriconia powders and suspensions, please visit [www.innovnano-materials.com](http://www.innovnano-materials.com)
The performance of your product is highly influenced by the quality, properties and consistency of the materials used in the manufacturing process.

Our patented Emulsion Detonation Synthesis (EDS) technology guarantees that our nanostructured powders are produced under carefully controlled parameters for assured quality, reproducibility and performance, batch after batch.

Involving a cycle of high temperatures and pressures, EDS produces single and mixed oxide powders, with an ultrafine nanostructure and excellent chemical homogeneity, ensuring our powders offer application-optimised properties.

EDS – our process, your advantage
The use of our nanostructured ceramic powders allows enhanced control over the structure of materials, to improve their functionality and enable higher performance for next generation, hi-tech ceramics.

Our purpose-built manufacturing facility and expert staff offer all the experience, technology and scalability demanded by the fast-paced ceramic industry:

- New automated technologies optimise and standardise operations
- Production capacity →1000tpa
- Support, product continuity and traceability for your entire product journey, from R&D to commercial

Our Heritage

Innovnano is affiliated to CUF, an established European chemical company with decades of invaluable expertise in the development and commercialisation of novel industrial technology, and expert materials processing.

5 reasons to choose Innovnano

1. Client satisfaction is our priority, from evaluation samples to tonnage shipments
2. Proprietary EDS manufacturing technology
3. Batch-to-batch quality and continuity assured
4. Our nanostructured powders enable lower sintering temperatures for improved performance and product value
5. Sustainable practices throughout the supply chain

“Future applications are there to be explored and commercialised”
Innovnano is a dedicated manufacturer of nanostructured ceramic powders. Using a unique synthesis technology, which guarantees small grain sizes and excellent chemical homogeneity, our high performance zirconia powders support industrial applications with the most demanding requirements.

Abrasives | Bioceramics | Energy materials | Sensors | Structural parts | Thermal barrier coatings | Wear components

Enabling next generation ceramic materials

Expect more from your ceramics

Providing enhanced chemical, physical and mechanical properties for application-specific demands, nanostructured powders can improve the performance of your end-product ceramics:

- Improved hardness, flexural strength and fracture toughness
- Excellent tribological performance and resistance to chemical degradation, micro-cracking and thermal shock
- Extremely high melting point and metal adhesion
- Low thermal conductivity
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