

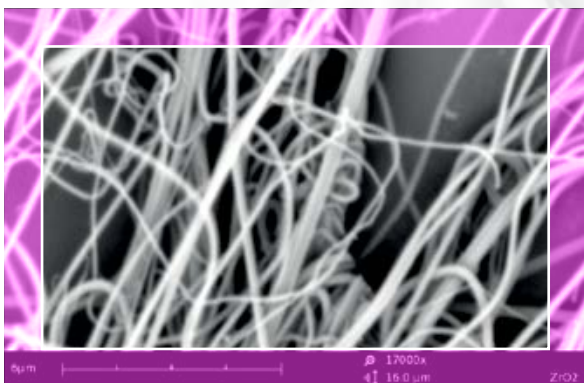
ZrO₂

NnF CERAM[®] – ZrO₂

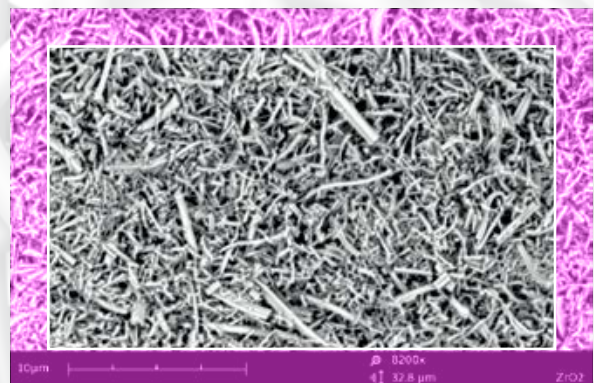
Product description

Zirconium dioxide nanofibers are a novel kind of ceramic material developed by **PARDAM, s.r.o.** in the Czech Republic. Nanofibrous products are fully comprised of ceramic basis of zirconium oxide with a minor amount of porous particles from the same material. Zirconium dioxide nanofibrous material is basically produced in monoclinic and tetragonal crystal phase modification, but the production setup can be simply modified to obtain other phases such as tetragonal or cubic zirconia. The properties and characteristics obtained by combinations of nanofibrous morphology and conventional properties of zirconia material predestine ZrO₂ nanofibers for applications in many sectors. ZrO₂ nanofibers can be also used as a support material for different catalytic nanoparticles (Pt, Pd, Ag, Fe..) which are embedded in the porous nanofiber structure within one production step (no additional coating).

Images



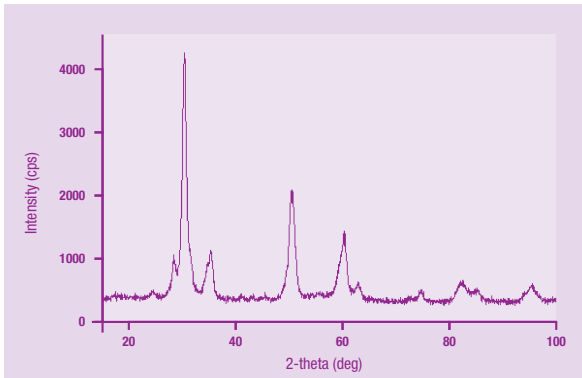
SEM image, magnification: 17000x



SEM image, magnification: 8200x

Physical properties

■ Crystal phase



■ Physical form and structure



Material characteristics

fiber structure	polycrystalline nanofiber
typical fiber diameter	200-800 nm ±100
fiber length	2 to hundreds of μm
specific surface area	20-30 m²/g
crystal phase	monoclinic and tetragonal
typical size of crystallites	8-13 nm
physical form	3D cotton/ white fluffy powder

High melting point 2700 °C | Low thermal conductivity 2 Wm⁻¹K⁻¹ | High strength | High ionic conductivity | Low electric conductivity | Electrically conductive above 600 °C | Specific optical and electrical properties | Catalyst | Oxygen sensor

* Producer can modify the fiber length to different values in accordance with customers' requests and application. Please feel free to contact us for more information.

Zirconia may be doped with Y, La, Ce... for enhancement of its natural material properties. Specific surface of Yttrium doped zirconia is above 40 m²/g

Applications

Electro ceramics | Catalyst | Catalyst support | Piezoelectric crystals | Oxygen sensors | Abrasives | Thermal barrier coatings | Fireproof materials | Ion conductors | Buffer layer for growing superconductors | Materials for high temperature chemical processes | Inorganic separator

Important notice for purchaser

All statements, technical information and recommendations contained in this document are based on tests conducted by PARDAM's R&D team and its approved equipment and are believed to be reliable. However the accuracy or completeness of the tests is not guaranteed. THE FOLLOWING IS MADE IN LIEU OF ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. The manufacturer's and seller's only obligation will be to replace the quantity of the product proved to be defective. Neither the seller nor the manufacturer will be liable for any injury, loss or damage, direct, indirect or consequential, arising out of the use of the product. Before using, the user must determine the suitability of the product for their intended use.