

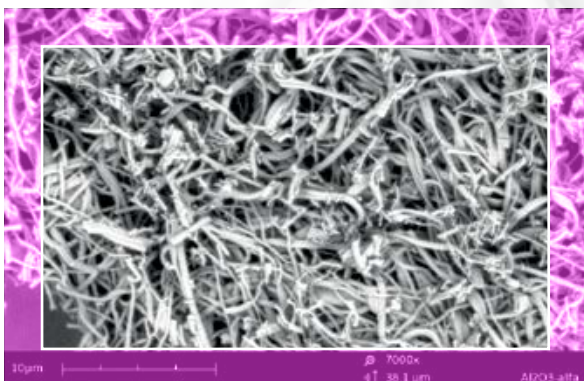
Al₂O₃

NnF CERAM[®] – Al₂O₃

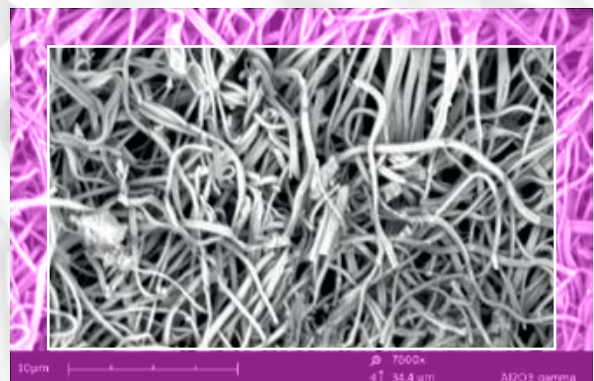
Product description

Aluminium trioxide nanofibers are a novel kind of ceramic material developed by **PARDAM, s.r.o.** in the Czech Republic. Nanofibrous products are fully comprised of a ceramic basis of aluminium oxide with minor amounts of porous particles from the same material. Aluminium trioxide nanofibrous material is basically produced in gamma – glassy crystal phase modification, but the production setup can be simply modified to obtain other phases like alpha alumina. The properties and characteristics obtained by combinations of nanofibrous morphology and conventional properties of alumina material predestine Al₂O₃ nanofibers for applications in many commercial sectors. Al₂O₃ 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



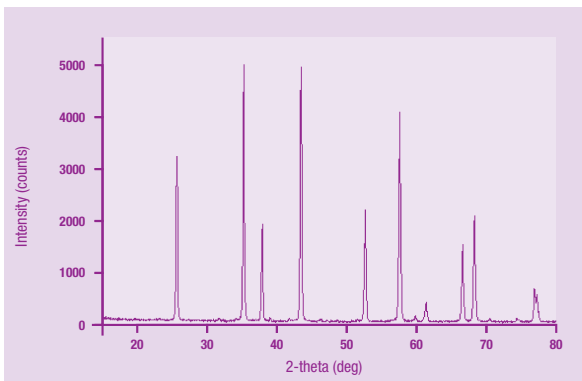
SEM image, magnification: 7000x | Al₂O₃-alfa



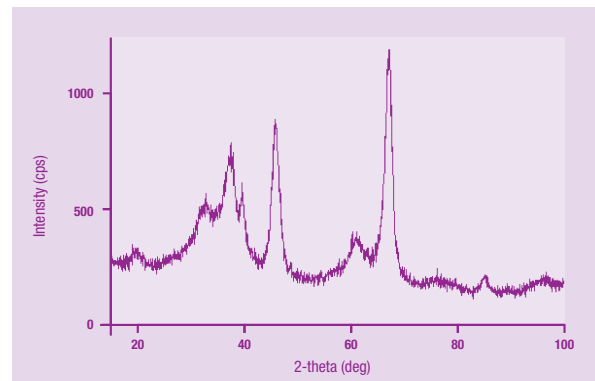
SEM image, magnification: 7800x | Al₂O₃-gamma

Physical properties

■ Crystal phase – α- alumina



■ Crystal phase – γ- alumina



Material characteristics

■ α- alumina (corundum) – trigonal

fiber structure	polycrystalline nanofiber
typical fiber diameter	300-900 nm ±100
fiber length*	2 to hundreds of μm
specific surface area	30-50 m²/g
crystal phase	alpha
typical size of crystallites	N/A
physical form	3D cotton/ white fluffy powder

Hard and durable material | Good electrical insulator; electrical conductivity < 10⁻¹⁴Sm⁻¹ | Relatively high thermal conductivity 30 Wm⁻¹K⁻¹ | Stable at high temperatures (melting point 2072 °C)

* 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.

■ γ- alumina – cubic

fiber structure	polycrystalline nanofibers
typical fiber diameter	300-900 nm ±100
fiber length*	2 to hundreds of μm
specific surface area	40-70 m²/g
crystal phase	gamma
typical size of crystallites	N/A
physical form	3D cotton/ white fluffy powder

Flexible material e.g. mineral wool | Good electrical insulator; electrical conductivity < 10⁻¹⁴Sm⁻¹ | Relatively high thermal conductivity 30 Wm⁻¹K⁻¹ | Stable at high temperatures (melting point 2072 °C) | Catalyst, catalyst carrier

Applications

■ α- alumina (corundum) – trigonal

Abrasive | Advanced ceramic material | Electrical components – electrical insulator | Thermal conductor | nanocomposites

■ γ- alumina – cubic

Optical displays | Catalyst and catalyst carrier | Electrical components – electrical insulator | Thermal conductor | Nanocomposites | Separator | Separator material for batteries

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.