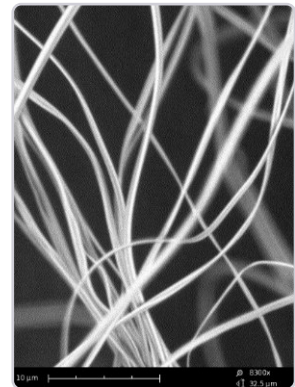
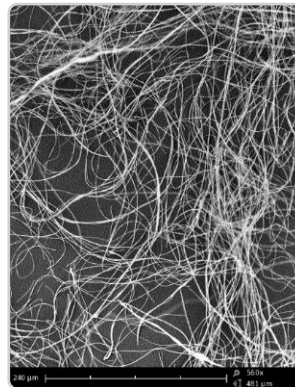


NnF CERAM[®] - (γ) (α) Al₂O₃

Aluminium trioxide nanofibers are a ceramic material developed and produced by PARDAM NANO4FIBERS s.r.o. in the Czech Republic. These products are based on a ceramic aluminium trioxide matrix enriched with a small amount of porous particles of the same material. Aluminium trioxide nanofibrous material is generally produced by modification of the γ -crystalline phase, and the manufacturing process can be easily modified to obtain other phases such as α -crystalline phase. The combination of nanofibrous morphology and specific properties of zirconium dioxide predispose Al₂O₃ to a wide range of applications in various industries. Al₂O₃ nanofibers can also be used as a carrier for various catalytic nanoparticles (e.g., Pt, Pd, Ag, Fe), which are incorporated into the porous structure of the nanofibers in a single manufacturing step, without the need for subsequent coating.

α -Al₂O₃ is crystalline and also known as corundum, which is an important mineral; with various admixtures it forms gems such as ruby and sapphire. γ -Al₂O₃ is also crystalline, but its crystal structure differs from α -Al₂O₃. The higher reactivity and specific surface properties make γ -Al₂O₃ an important material for catalysis and other applications.



APPLICATIONS

α - ALUMINIUM TRIOXIDE

- Abrasive
- Advanced ceramic material
- Electronic components - electrical insulator
- Thermal conductor
- Nanocomposites

γ - ALUMINIUM TRIOXIDE

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

PHYSICAL PROPERTIES

	α - ALUMINIUM TRIOXIDE	γ - ALUMINIUM TRIOXIDE
Structure	Nanofibrous structure Polycrystalline nanofiber Hard and durable material	Nanofibrous structure Polycrystalline nanofiber Flexible material
Crystalline phase	Trigonal	Cubic
Form and structure	3D structure	3D structure
Typical fiber diameter	130 - 550 nm (\pm 100 nm)	130 - 550 nm (\pm 100 nm)
Fiber length	2 to hundreds of μ m Fiber length can be modified by grinding to a dimension of 2 - 12 μ m (80%). If you need any material modification, please do not hesitate to contact us.	
Specific surface area	3 - 15 m ² /g	3 - 15 m ² /g
Melting point	2 045 °C	Change in crystal modification at 1000 °C
Thermal conductivity	High thermal conductivity 30 Wm ⁻¹ K ⁻¹	
Electrical conductivity	Good electrical insulator, electrical conductivity < 10 ⁻¹⁴ Sm ⁻¹	
Optical properties	Refractive index 1,76	Refractive index 1,7

MATERIAL DOPING

Aluminium trioxide nanofibers can be doped with various additives to optimize its specific properties.

IMPORTANT NOTICE

All statements, technical information and recommendations in this document are based on tests carried out by the team of PARDAM NANO4FIBERS s.r.o.

