

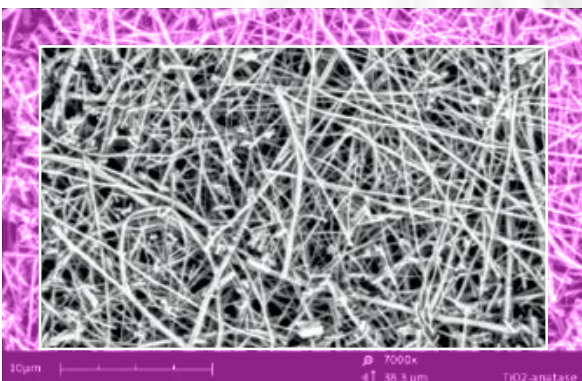
TiO₂

NnF CERAM[®] – TiO₂

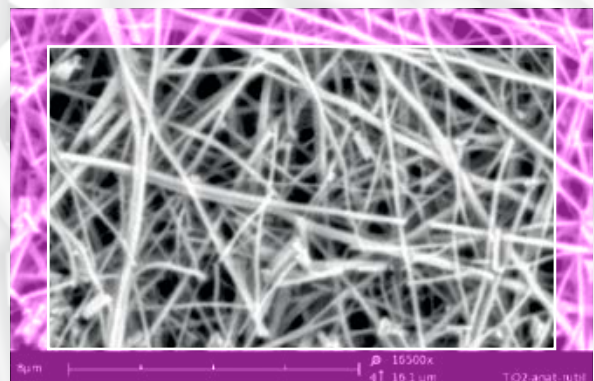
Product description

Titanium 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 titanium oxide with a possible minor amount of porous particles. The properties and characteristics of this inorganic nanofiber material such as a high specific surface area, high collision factor air draft vs. nanofibrous surface "many times higher than regular powders", predestine TiO₂ nanofibrous materials for applications in many sectors. TiO₂ 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



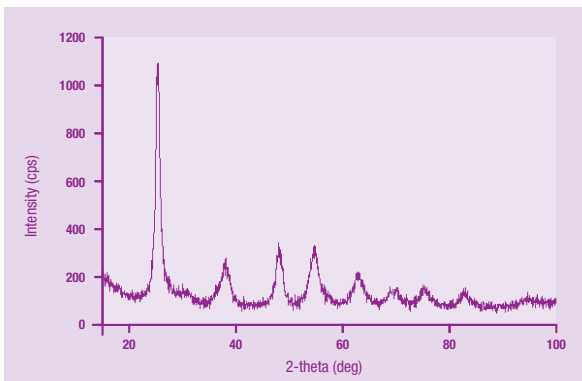
SEM image, magnification: 7000x | TiO₂-anatase



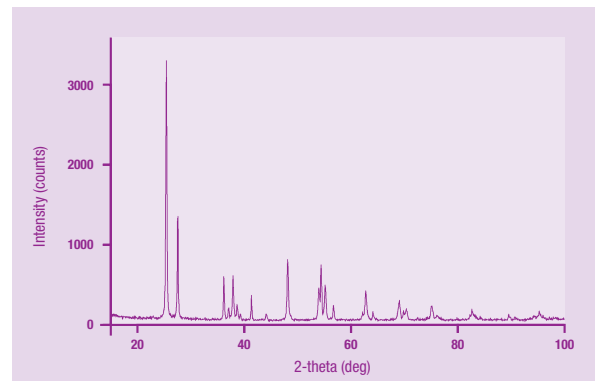
SEM image, magnification: 16500x | TiO₂-anatase - rutil

Physical properties

■ Crystal phase – Anatase



■ Crystal phase – Anatase-rutil



Material characteristics

■ Anatase

fiber structure	polycrystalline nanofiber
typical fiber diameter	200-800 nm ±100
fiber length*	2 to hundreds of μm
specific surface area	10 m²/g
crystal phase	anatase
typical size of crystallites	7 nm
physical form	3D cotton/white fluffy powder

UV photocatalyst | High refractive index 2.5 | Moderate thermal conductivity 6.5 Wm⁻¹K⁻¹ | Semiconductor

* 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.

Applications

■ Anatase

Energy convertor in solar cells | Air/fuel ratio controller in automotive | Sensors – humidity and gas sensors | Electrode material in lithium batteries | Solid oxide fuel cells | Inorganic membranes | DSSC- dye sensitized solar cells | Photocatalytic degradation of volatile compounds (VOC), bacteria and NO_x | Waste water purification

■ Anatase-rutil

fiber structure	polycrystalline nanofiber
typical fiber diameter	400-800 nm ±100
fiber length*	2 to hundreds of μm
specific surface area	10 m²/g
crystal phase	anatase-rutil
typical size of crystallites	10 nm
physical form	3D cotton/white fluffy powder

White pigment | UV absorbent | High refractive index 2.7 | Moderate thermal conductivity 6.5 Wm⁻¹K⁻¹ | Low photocatalytic activity

■ Anatase-rutil

UV absorbent | White pigment | Inorganic membranes

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.