Fraunhofer
UMSICHT

FRAUNHOFER INSTITUTE FOR ENVIRONMENTAL, SAFETY, AND ENERGY TECHNOLOGY UMSICHT

1 *Demonstrator of the Nanopur-hybridsystem consisting of micro-sieves and LED-disinfection*

NANOTECHNOLOGIES FOR WATER TREATMENT

NANO-WATER.DE

Fraunhofer Institute for Environmental, Safety, and Energy Technology UMSICHT
Osterfelder Strasse 3
46047 Oberhausen, Germany

Dr.-Ing. Ilka Gehrke
Head of Department
Photonics and Environment
Phone +49 208 8598-1260
ilka.gehrke@umsicht.fraunhofer.de

www.umsicht.fraunhofer.de

Nanotechnologies for clean potable water!

Nanosciences are fascinating in small-scale, but are rarely applied on a grand scale. We use nanotechnological processes and products to offer excellent solutions within the water treatment.

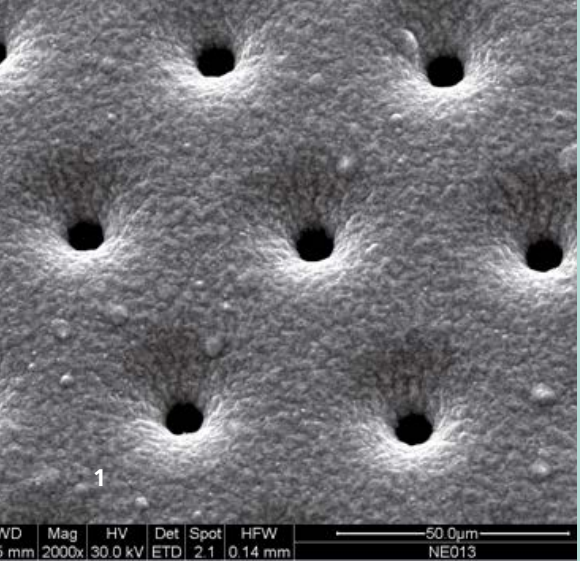
nANO water

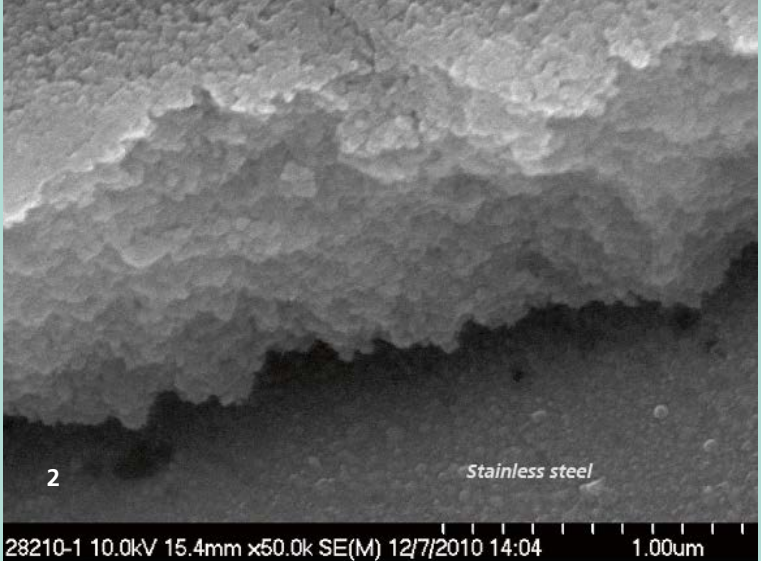
Keywords

- Reactive micro filters
- Textured surfaces
- LED decontamination

Industrial sectors

- Water technologies
- Waste water technologies
- Food processing
- Pharmaceuticals
- Chemical industry
- Power plant technology





1 *Microsieve coated with titanium dioxide*

2 *Titanium dioxide nanocoating*

Technological specifications

- Metal microsieves with titanium dioxide/ silver-coating for photocatalysis (dp 0,5 to 10 µm, filter area > ø 5 inches)
- Tube modules for LED decontamination (100 – 1000 l/h)
- Ultra-short-pulse laser for the production of microsieves and surface texturing
- One test unit in laboratory scale (stirring cell, filtration surface < ø 80 mm, 400 ml test volume, < 100 bar)
- Two test units in pilot-plant-scale (microsieves pack/pile < 0,3 m², ca. 1 m³/h, < 16 bar)
- Laboratory analysis (3-D-optical measurement technology, particle sizer, turbidity measurement, Zetasizer)

Our service

- Fabrication of tailor-made microsieves with functional surfaces for mechanical and chemical purification of water and waste water
- Production of nanotextured surfaces of arbitrary geometry and materials for e.g. abrasion-minimized surfaces
- Development and application of processes for LED decontamination in combination with microsieves and for LED disinfection (LED modules, laboratory equipment and technical devices)
- Experimental characterization in laboratory-scale and pilot plants
- Feasibility studies
- Market survey
- Comprehensive supporting laboratory analysis

Your benefit

- Safer and higher quality
- More efficient processes by high effort and yield/output
- More reliability via multi barrier systems
- Customer satisfaction