



ECOLOGY



WOOD



INTERIERS



FN NANO® TECHNOLOGY

NANO

FACADES



HEALTHCARE



WATER



INDUSTRY



MONUMENTS





ECOLOGY



WOOD



INTERIERS



FN NANO® TECHNOLOGY



FACADES



HEALTHCARE



WATER



UZRAČNĚ



MONUMENTS

INDUSTRY



PROBLEMS OF HEALTHCARE FACILITIES

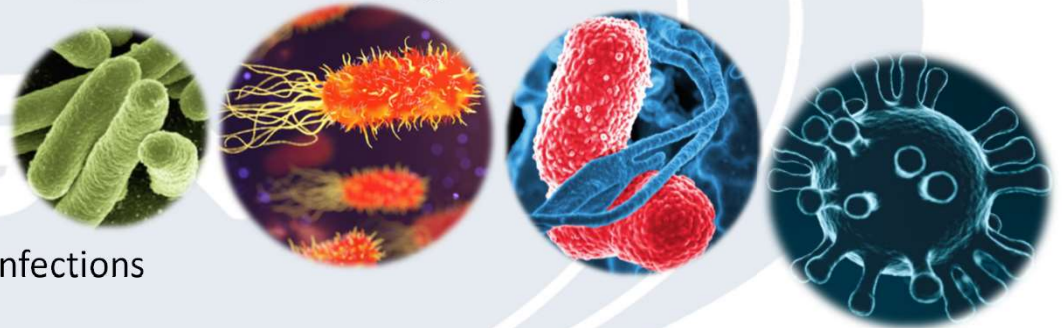
Healthcare providers' personnel must carry out number of various activities in many various environments that endanger their lives, and they are exposed to high amount of risk related to their jobs, such as:

BIOLOGICAL RISKS - being infected from the air or contaminated walls or ceilings. (i.g. Pseudomonas, Legionella, MRS nosocomial infection, tuberculosis, hepatitis or coronavirus) including risks of subsequent infection i.g. after loss of immunity during the cancer treatment.

CHEMICAL RISKS – from the use of disinfection products and chemical materials (glutaraldehyde, persterile, etc.)

The most common threats include:

- ✓ Patogens transmitted in blood
- ✓ Patogens transmitted in the air
- ✓ Diseases transmitted by contact with the ill people
- ✓ Overoccupied hospitals – spread of drop and other infections



Another not negligible problem is the obligation to paint the premises very frequently (once a year or once every two years depending on the type of premises, based on local valid legislation), which increases the operation costs and leads to limited operation of individual highly specialized units

WE HAVE THE SOLUTION FOR YOU.....



PROTECTION OF HEALTH - FN[®]1BioMax



PRODUCT DESCRIPTION:

Biocide antibacterial fotocatalytic coating with antimicrobial function for effective cleaning of air with permanent effect.

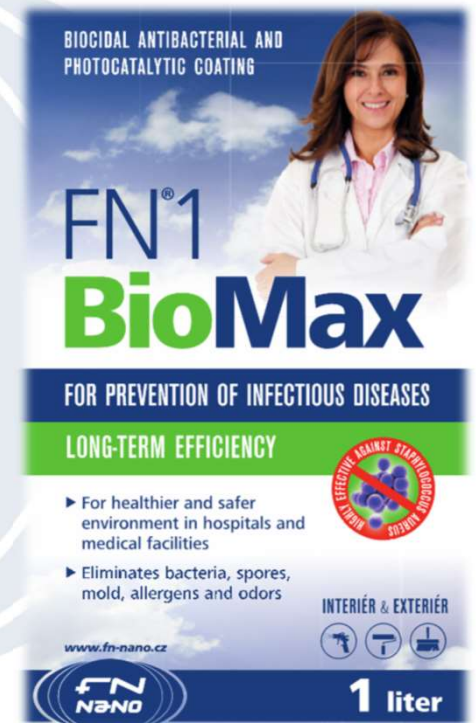
It is the most efficient coating providing for prevention of infections, for creating healthier and safer inner environment in healthcare facilities.

Purely white protective coating on the basis of nano technology which functions 24/7 on the principle of photocatalysis in combination with biocide effect. SZU stipulated the biocide efficiency at dark and during day light, the efficiency is improved by the photocatalytic effect.

It provides antibacterial protection to walls and plasterboards (thus walls and ceilings).

It does not release any materials to the surrounding environment, vice versa, it removes harmful substances from it.

Minimum functionality and efficiency is 5 or 7 years.





PROTECTION OF HEALTH - FN[®]1BioMax



ADVANTAGES:

- ✓ It efficiently liquidates microorganisms – viruses, bacteria, molds and spores including **MRSA** (Meticilin-resistant golden staphylococcus)
- ✓ Significantly lowers the risk of transmission of infection diseases
- ✓ Prevents settling of viruses and bacteria on the walls
- ✓ Efficient prevention of odours and molds
- ✓ Eliminates molecules of allergens and toxic elements
- ✓ Functions 24/7 when it cleans the air on the basis of photocatalytic and biocide effect and eliminates microorganisms and organic pollutants in it.
- ✓ Functions as zero-noise, zero-maintenance, zero-disorder and highly economic and most efficient air purifier



PREVENTS
INFECTION



PREVENTS
MICROORGANISM
BUILDUP



PREVENTS
DIRT BUILDUP



SUPER-STRONG
SELF-CLEANING
EFFECT



LOW ENERGY
CONSUMPTION



EASY
APPLICATION



7
YEARS
GUARANTEE OF
EFFECTIVENESS



PROTECTION OF HEALTH - FN[®]1BioMax

COATING FUNCTIONING:

✓ The created layer functions immediately after drying and functions even without the daylight thanks to a biocide component. The efficiency grows by the daylight exposure or **non-harmful** artificial soft UVA light. Maximum efficiency of the coating is achieved at **safe** wave length of 365 nm.



- ✓ The antibacterial and highly protective coating is ideally applied on the ceiling.
- ✓ It sets higher standard of protection of both healthcare personnel and patients.
- ✓ **The Photocatalytic effect is permanent, non-exposable and does not lower in time.**





PROTECTION OF HEALTH - FN[®]1BioMax



GUARANTEED EFFECTIVE TIME



No dirt, no microorganisms – bacteria, viruses, spores, molds etc. can settle on the protective nano coating FN[®]1 BioMax during whole its lifetime.

THE WALLS COATED BY FN[®] CAN ONLY BE PAINTED ONCE EVERY 5-7 YEARS (ACCORDING TO ORDINANCE No. 306/2012 Coll.)



Surfaces treated by ordinary biocide paints and treated by disinfection means must be renewed and that according to Ordinance no. 306/2012 of Coll. – depending on the load of the medical facility once every 1-2 years.



PROTECTION OF HEALTH - FN[®]1BioMax



BENEFITS FOR THE HEALT CARE FACILITIES:

- ✓ **Longterm protection of surfaces against microorganisms** (viruses and microorganisms cannot mutate and thus cannot create protection for itself), excellent supplement to used disinfection means
- ✓ It helps to keep **sanitary conditions and liquidates harmful substances from the air** (efficient reduction of vapours concentration from chemical substance and disinfections)
- ✓ **Lowering the infection risks** so it is extra suitable e.g. for oncologic patients in time of immunity loss
- ✓ Improves the prevention of infection – **lowers the risks of nosocomial infections** and infections distributed in the air
- ✓ **Lowering the costs** due to lower sickness and after-surgery complications at patients
- ✓ Less disruption of the medical facility operation in relation to painting and **lowering its operation costs**
- ✓ The walls coated by FN[®] 1BioMax can be painted only once every five to seven years (according to Ordinance no. 306/2012 of Coll.)
- ✓ Improving the hygienic purity of the environment - **less bacteria and less odour – air purification**
- ✓ **Longterm Effect – inexhaustible effect**
- ✓ **Photocatalysis does not bring any harmful substances** to the environment, unlike the chemical detergents, vice versa, **it eliminates them**





PROTECTION OF HEALTH - FN[®]1BioMax



SUMMARY OF TEST RESULTS OF MEDICAL INSTITUTES:

SZÚ TESTS of antibacterial efficiency – The State Medical Institute (SZÚ) –CEM, NRL Labs for disinfection and sterilization carried out testing of antibacterial efficiency of the FN1[®] BioMax sample via the testing method modified according to ISO 22196. At the testing temperature of $36 \pm 1^\circ \text{C}$, relative humidity of the environment of more than 90 % and after 5 hours of effect, the following results were reached for individual tested microbes:

(K = check-up in log – reference glass, P = tested sample, K – P = decrease in log)

Staphylococcus aureus	K 6,86	P –	> 6,86
Pseudomonas aeruginosa	K 6,5	P 1	5,50
Escherichia coli	K 6,89	P –	> 6,89

LABORATORY EXPERTISE OF SZÚ

All tested microbes lowered by **5 log** scales which are achieved by the baktericide effect.

In 5 hours it loquidates viruses and bacteria on its surface, only 1 bacteria out of 100.000 bacteria remains.





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PROTECTION AGAINST SETTLING AND OVERGROWTH OF MICROORGANISMS

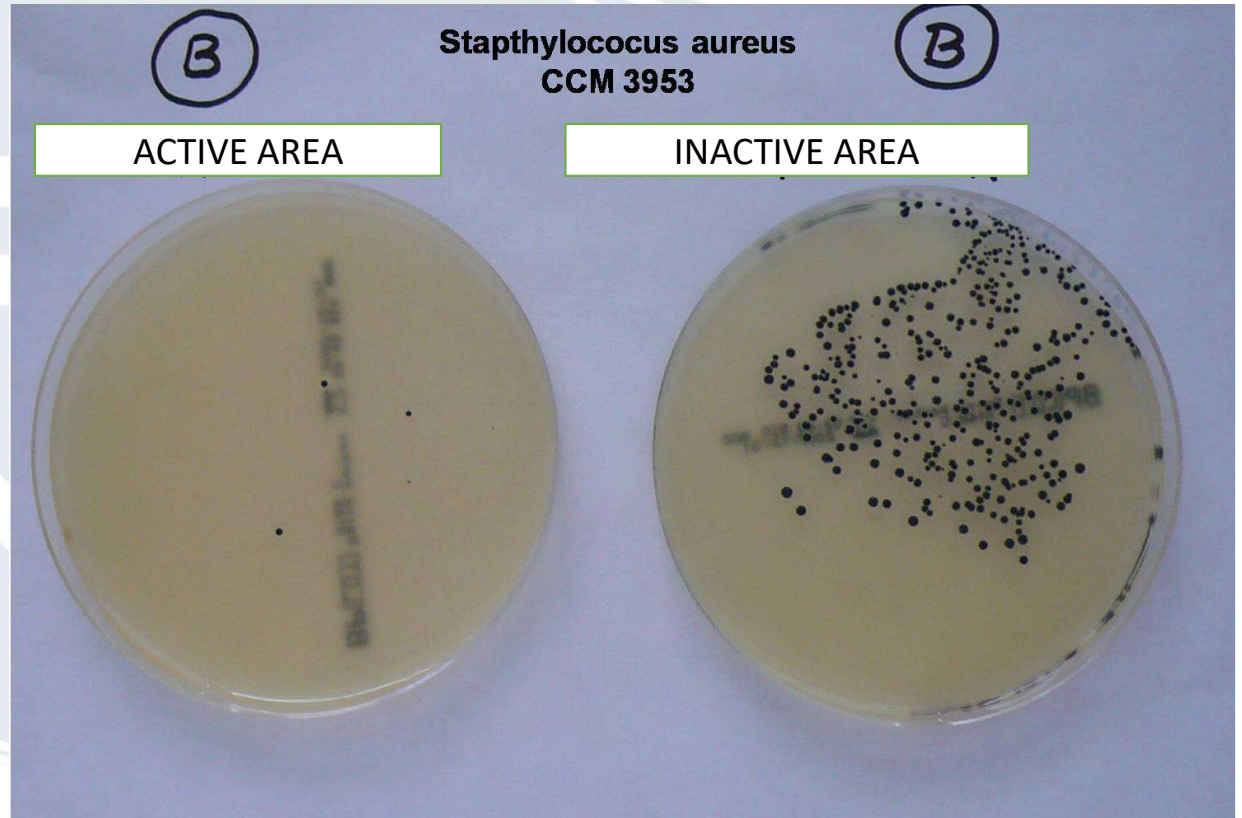
FN[®] surface activated by the ultraviolet light efficiently prevents settling and growth of microorganisms povrch (viruses, bacteria, yeast, algae).

This efficiency was tested and proved by number of expert institutions.

[Tests of SZÚ](#)

[Tests of ZÚ Ostrava – bacteria](#)

[Tests of ZÚ Ostrava – microCopic fibrous funghi](#)





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DEMONSTRATED IMPLEMENTATIONS:

Application and lighting of ceiling surfaces in medical facilities



Faculty Hospital Motol - hematology



Eye Clinic Gemini and detail of the surgery room



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DEMONSTRATED IMPLEMENTATIONS:



Eye clinic Gemini



Children sanatorium Křetín



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DEMONSTRATED IMPLEMENTATIONS:



FN Motol – ambulance of children Hematology and Oncology center



Biocel – Paskov healthcare unit



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DEMONSTRATED IMPLEMENTATIONS:



G.I.C. Clinic in the USA – pathology unit



Šumperk Hospital – delivery room

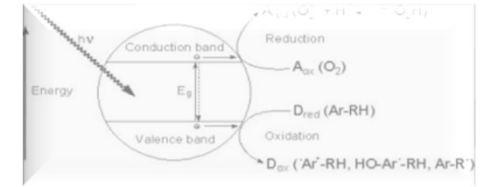


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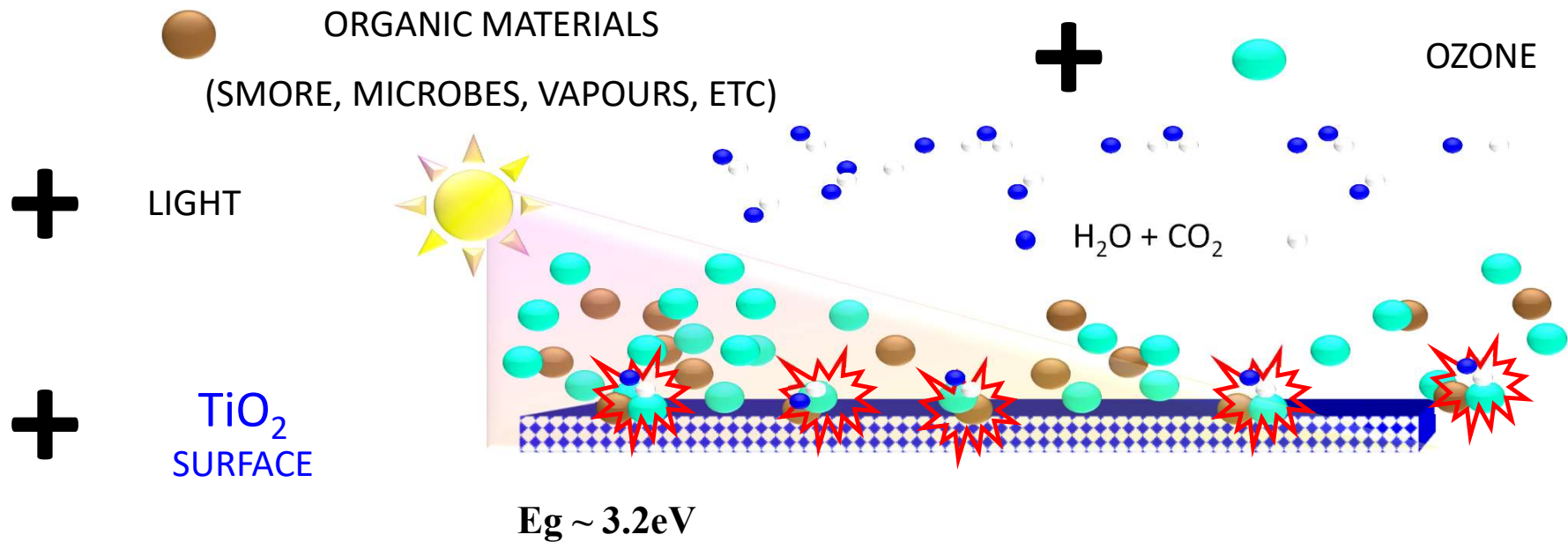


PRINCIPAL OF PHOTOCATALYSIS FUNCTIONING:

SEMICONDUCTING PHENOMENON



Oxidation potential for activated TiO_2 surface is higher than on chlorine or ozone!

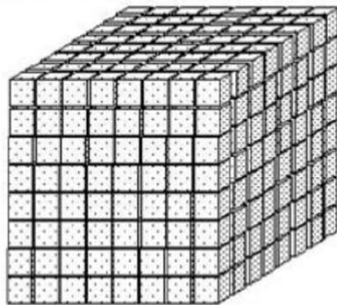
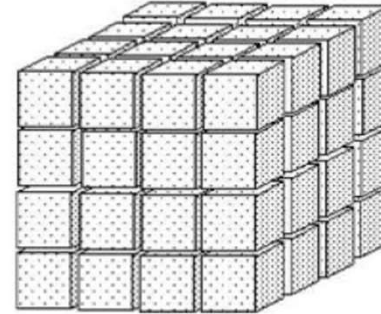
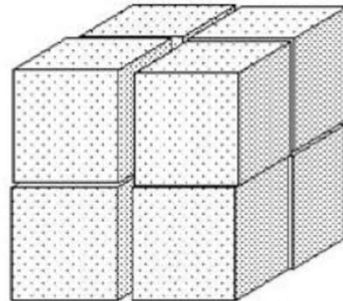
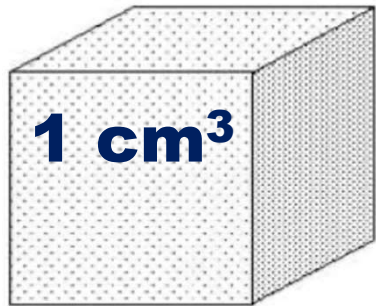




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EXPLANATION OF NANOTECHNOLOGY:



Cube of 1cm³ has the surface of 6cm². If we divide it to cubes of size of 1nm³, **the total surface size will be 6,000m²**



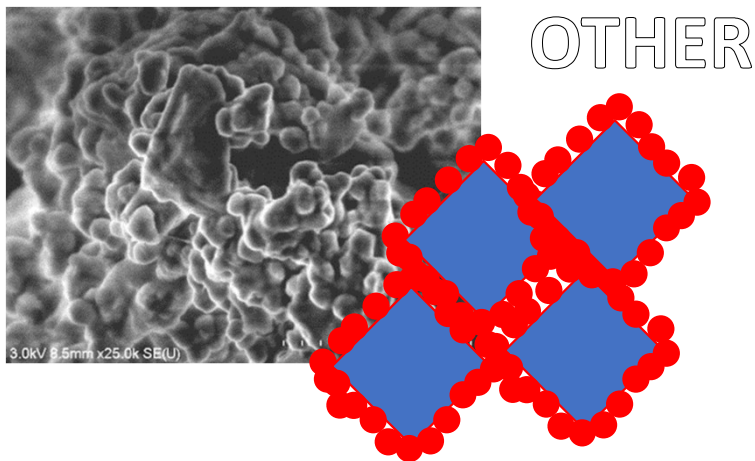
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COMPARISON OF EFFICIENCY:

OTHER PRODUCTS:

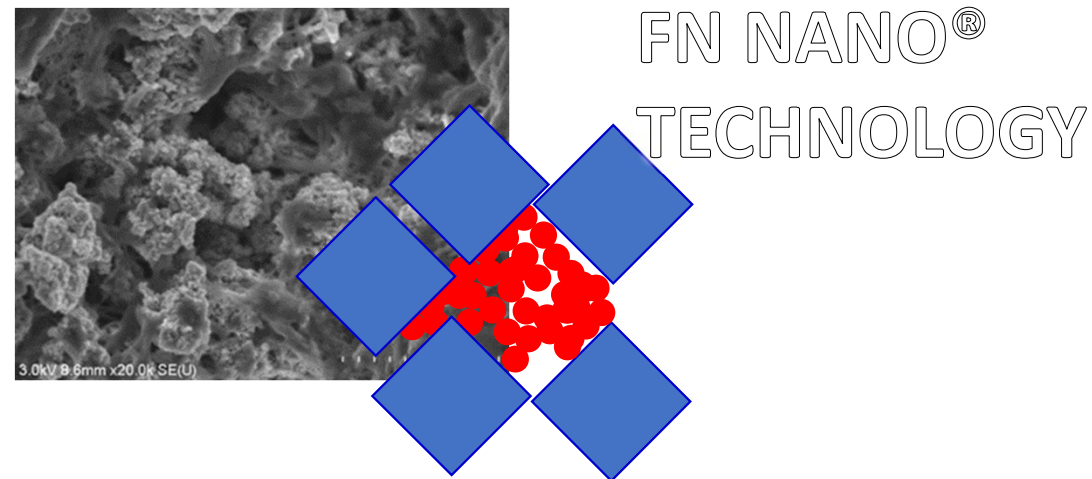
Photos from the electron microscope:
crystals of photocatalyzator are coated by the coating binder.
This reduces the surface for the photocatalysis.



Scheme: binder coated photocatalyst crystals.

FN NANO[®] TECHNOLOGY:

Photos from the electron microscope:
Crystals of the photocatalyzator are pushed in high concentration to the surface
of the porous structure created by the binder. This maximizes the surface for photocatalysis.

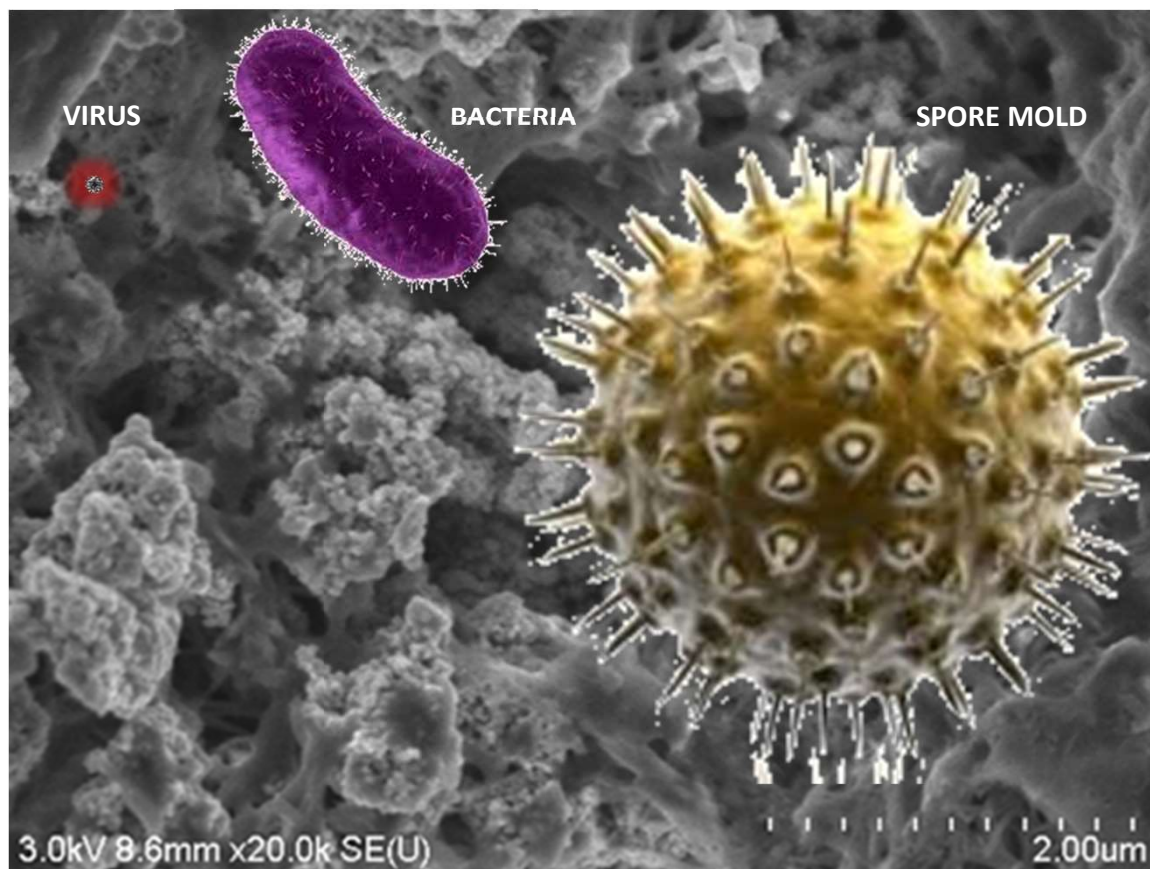


Scheme: crystals of photocatalyst envelop the binder structure,
rise to the surface.



PROTECTION OF HEALTH - FN[®]1BioMax

Highly efficient photocatalytic surface of FN NANO[®] created by functional coatings of FN[®] due to morphology of the coating layer and its high porosity captures viruses, bacteria and spores and subsequently eliminates them via photocatalysis and other factors. **Photocatalytic surface transforms the light energy into electro-chemical power, which efficiently purifies the air, liquidates the microorganisms and ensures self-cleaning of the surfaces. Nanocrystals perfectly absorb the UV light.**





PROTECTION OF HEALTH - FN[®]1BioMax



CERTIFICATION:



COOPERATING ORGANIZATIONS:





PROTECTION OF HEALTH - FN[®]1BioMax



• WHO WE ARE

Our technology is based on inventions invented by our mother company Advanced Materials-JTJ s.r.o. (AMJTJ) thanks to Ing. Jan Procházka, Ph.D. and his father Ing. Jan Procházka. We bring highly efficient photocatalytic functional coatings FN[®] with exceptionally strong self-cleaning effect of the coated surface to the market.

All the surfaces we create are capable of cleaning the air from pollutants and this way they contribute to better environment on our planet.

The coatings reflect heating radiation with the efficiency of 20-30% and thus lower the heating of the surface by sunlight. In the conditions of global warming thus help to cool the cities in the summer.

• DO YOU KNOW THAT:

1 m² is the surface that cleans 3.000.000 m³ of air every year



1 m² of the surface cleans same amount of air that 1 person needs for one year



15 m² compensates pollutants from the operation of 1 diesel passenger car





PROTECTION OF HEALTH - FN[®]1BioMax



OUR MISSION

- ✓ Are projects aimed at cleaning of the air from hazardous pollutants (NO_x, (NO_x, PM_{2,5} and smaller, PAH, VOC, BaP) that complement the ecological efficiency of planting greenery when fighting climate change and environmental pollution.
- ✓ In cooperation with our mother company, we work on TRIO project constantly improving the efficiency of FN NANO[®] technology for cleaning the air from hazardous immission elements.
- ✓ We work on preparation of compensation measures using photocatalytic technology for liquidation of hazardous emissions and immissions.

OUR TEAM



Ing. Jan Procházka, Ph.D.



Mgr. Pavel Šeříl CSc.



Michal Krabec



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Palo Magyar



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