



nano asociace

ASOCIACE NANOTECHNOLOGICKÉHO PRŮMYSLU ČR

Stav nanotechnologického průmyslu v ČR a jeho trendy

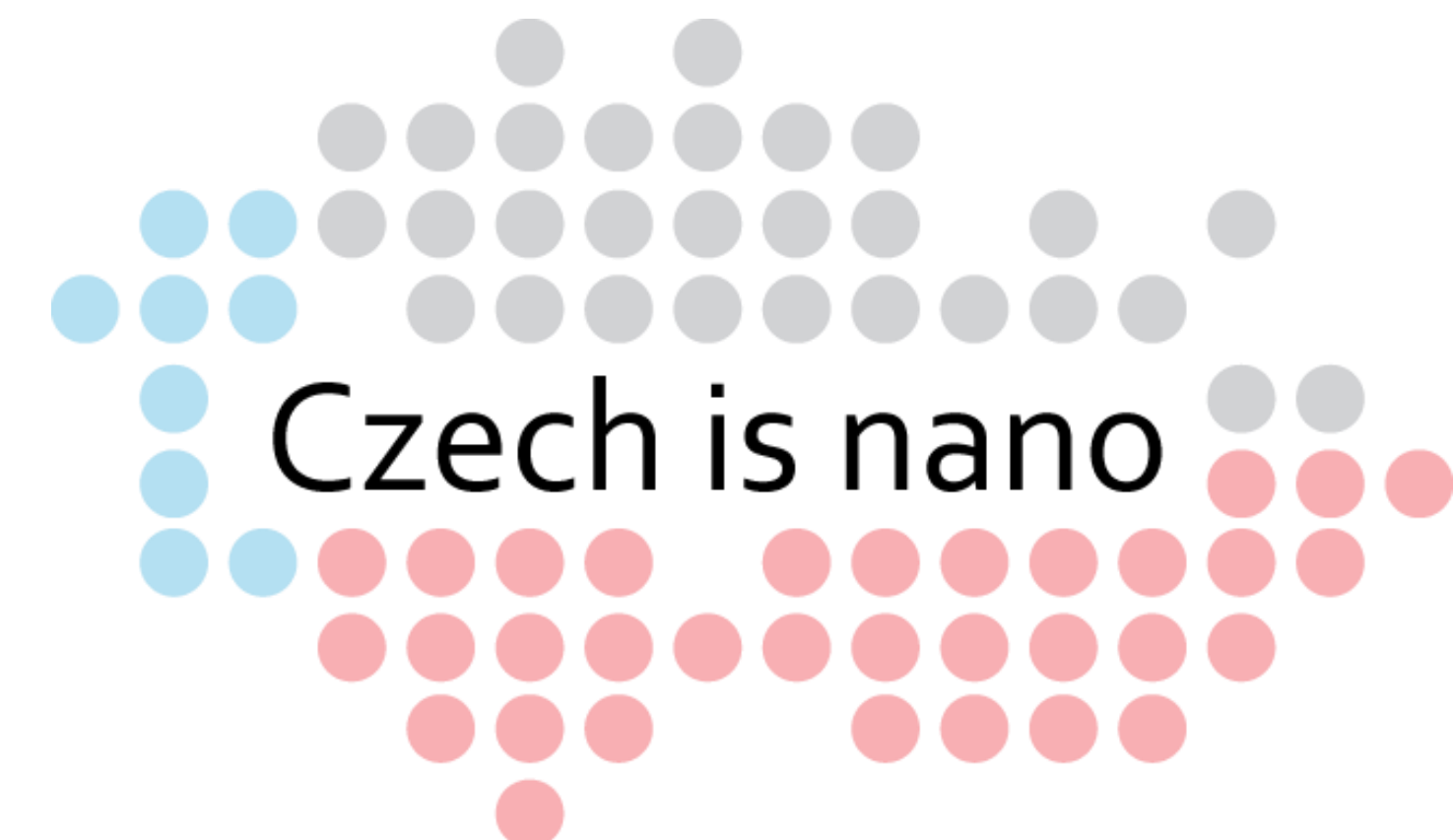
7. Podnikatelské fórum
Ústeckého kraje



Cluster
Nanotechnologie



20 let spolehlivý partner podnikatelů
ASOCIACE MALÝCH A STŘEDNÍCH
PODNIKŮ A ŽIVNOSTNÍKŮ ČR



www.nanoasociace.cz

NIA

Nanotechnology
Industries Association



nanoSPACE®



nanoSPACE®
Technology



n ANP Založena 2014
39 členů

Czech is nano





NANO je rozměr!

V přírodě vše funguje na bázi nanorozměrů.

Pokud by tyto rozměry byly větší, tak by příroda ani náš organismus nemohly fungovat.



Formy hmoty - velikosti:

Velké útvary

Makro

m

písek z lomu

Písek

Mili

10^{-3} m

písek ze Sahary

Jemné
částice

Mikro

10^{-6} m

jíly

Ultrajemné
částice (nano)

Nano

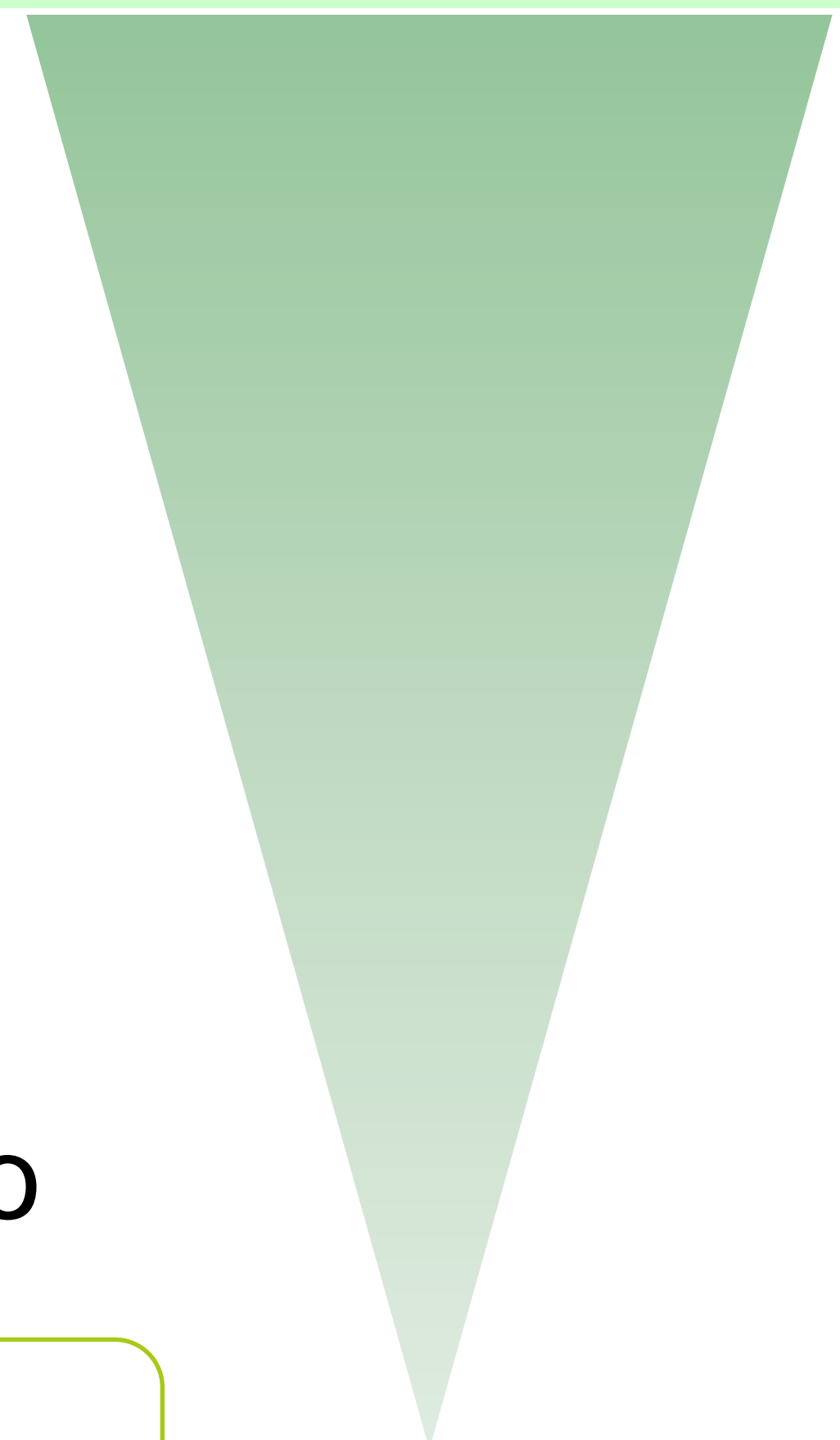
10^{-9} m

moře

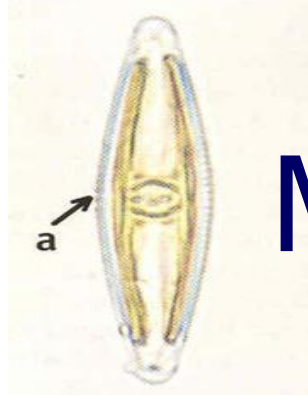
Ionty (piko)

Piko

10^{-12} m

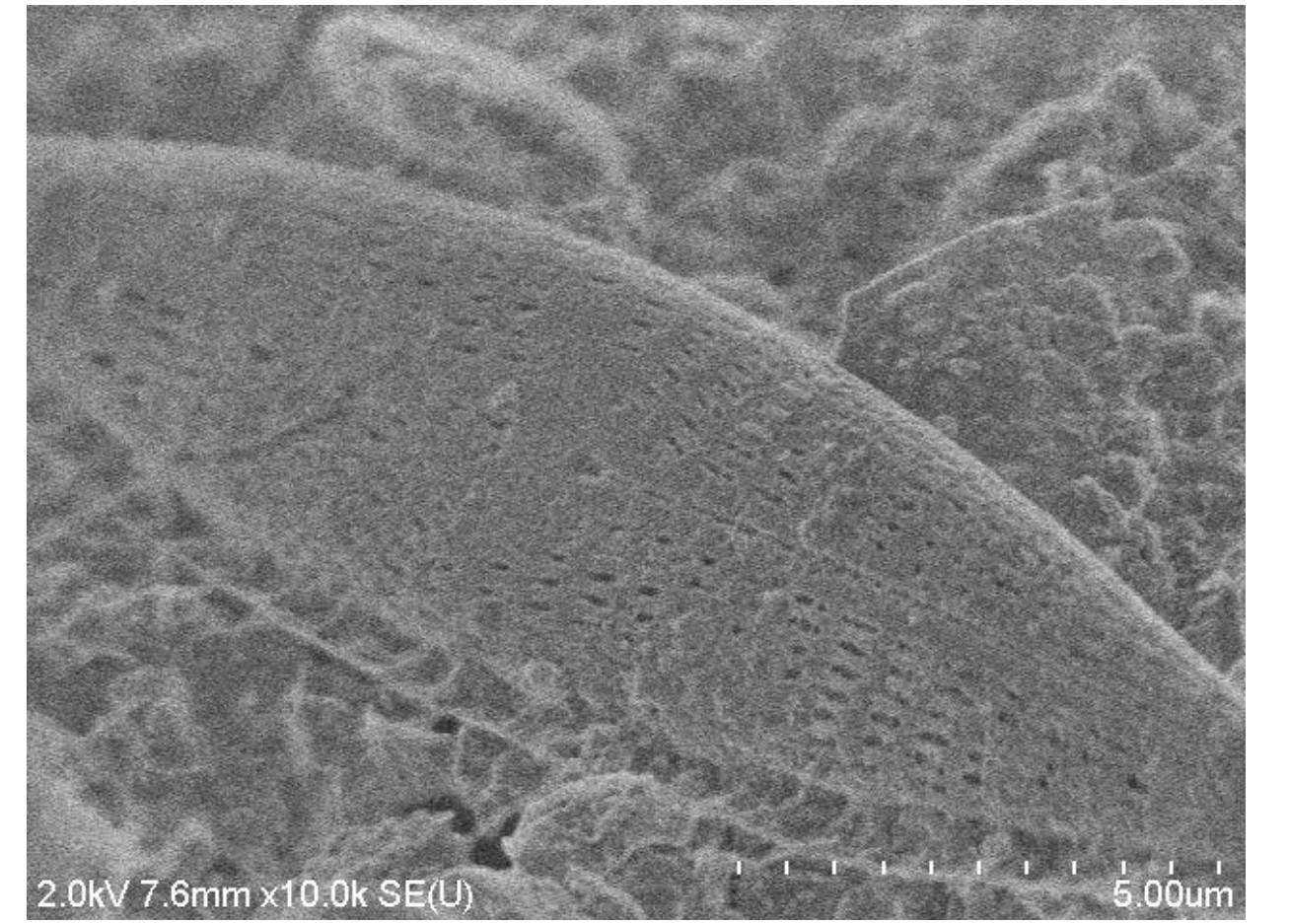
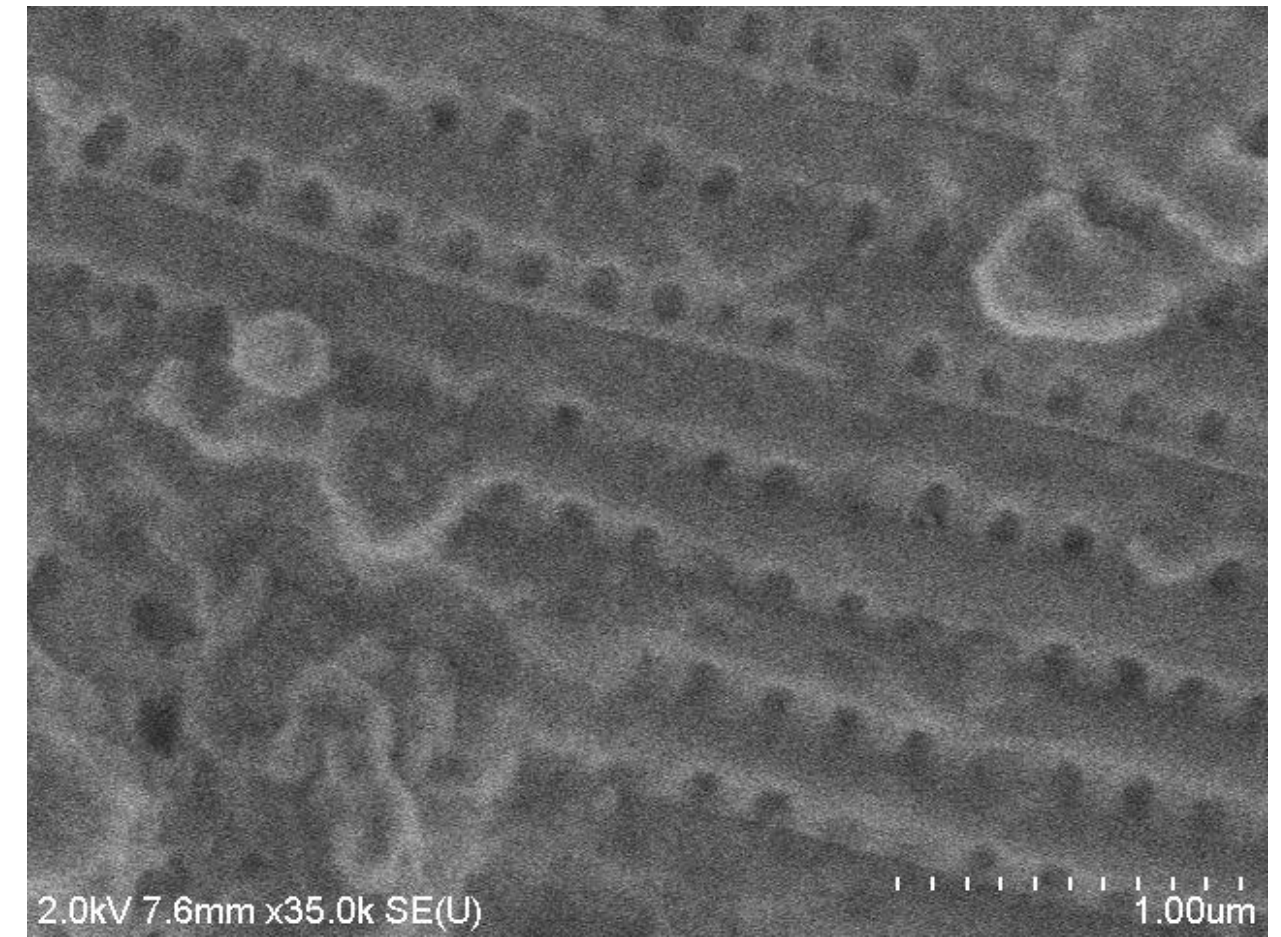
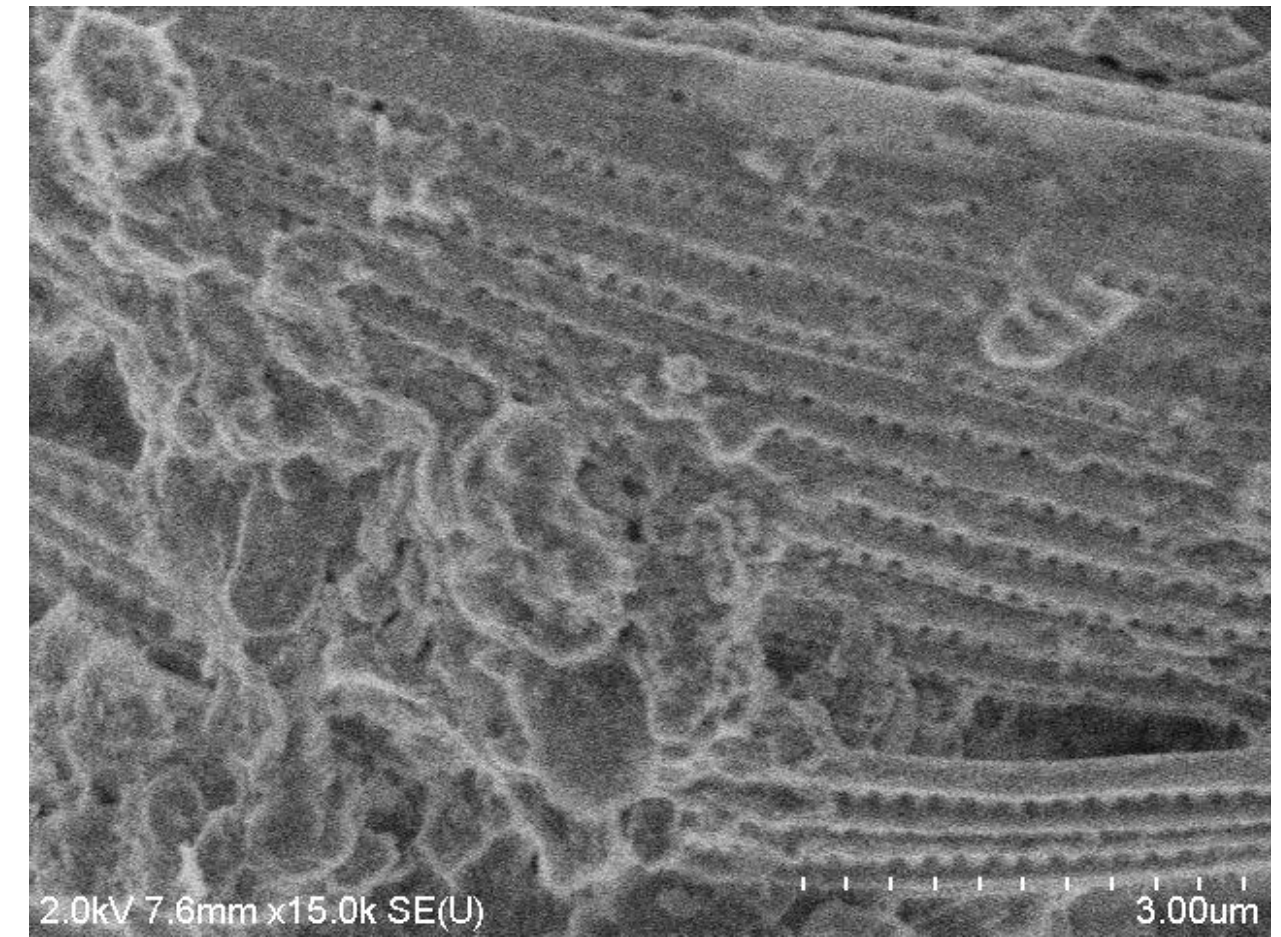
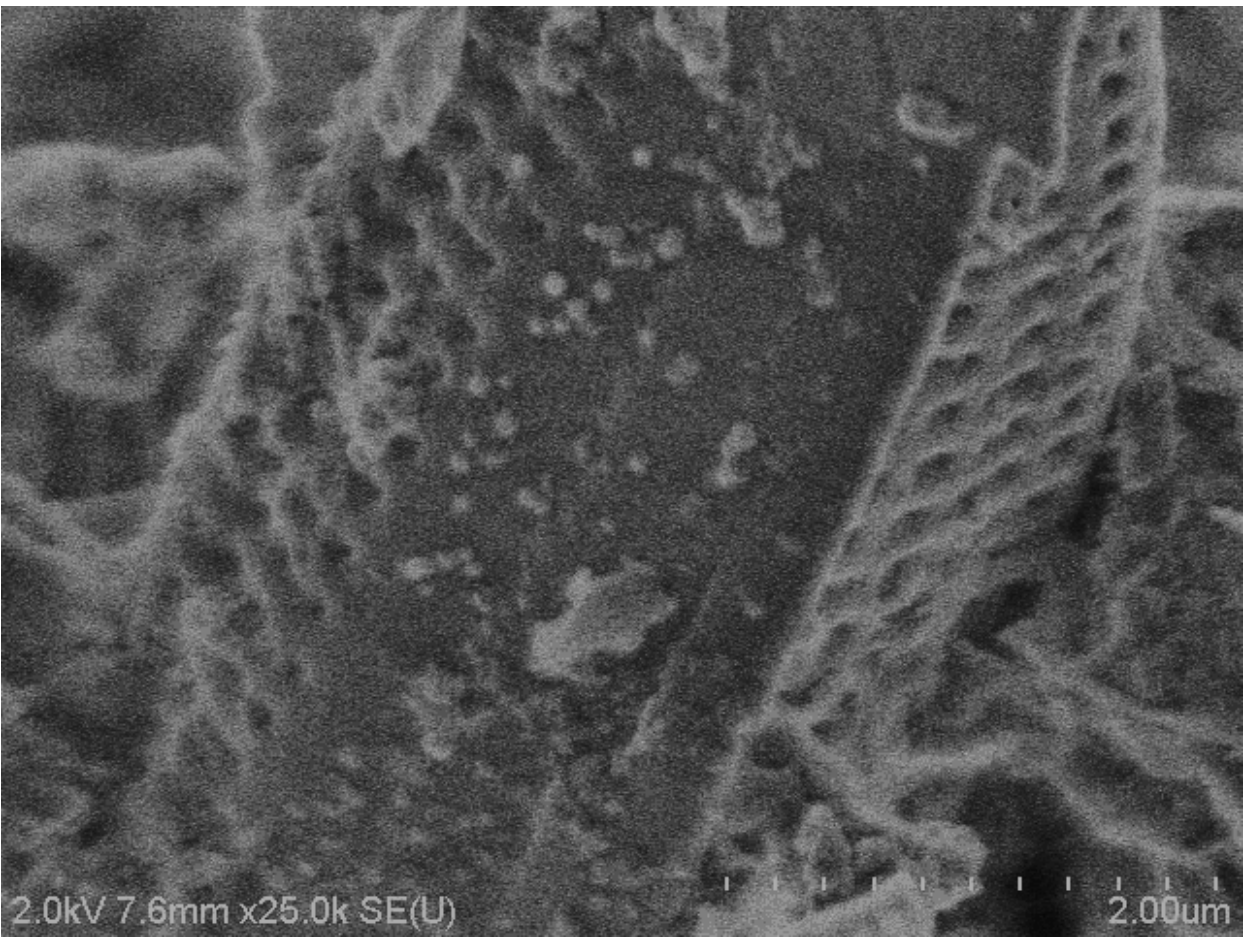
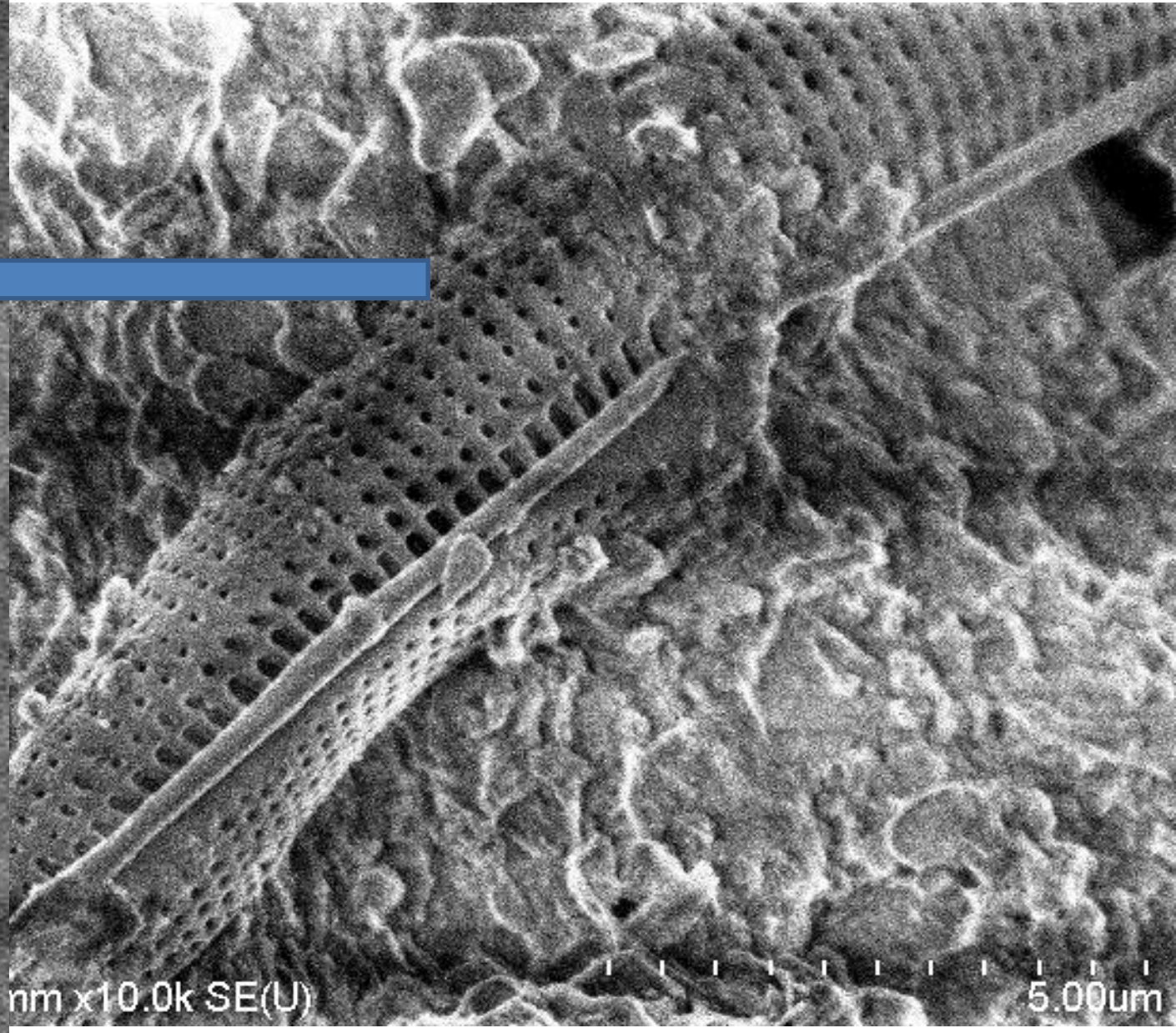
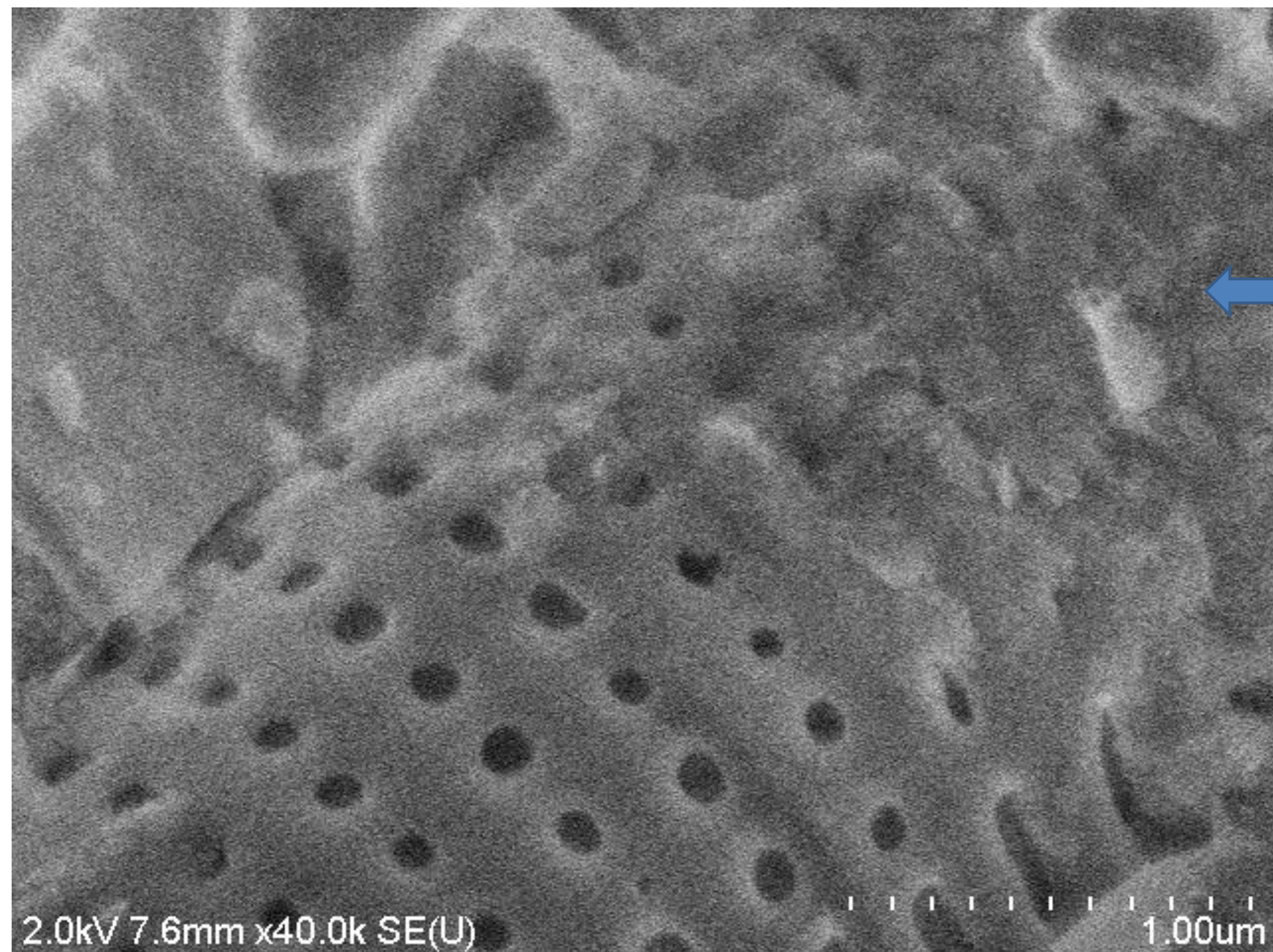


Příklad nano materiálu



Mikroorganismy

100 nm nejtypičtější rozměr – metabolické otvory, tloušťka stěny, atd



Dárek k objednávce a další [výhody nákupu](#).



bs vinařské potřeby

SLUŽBY ▾

LABORATOŘ ▾

PORADNA ▾

PRODEJNY

KONTAKT ▾



HLEDAT



MŮJ ÚČET



OBLÍBENÉ



KOŠÍK



CS

NEJPRODÁVANĚJŠÍ



Křemelina F4 pytel 15 kg (36)

Kód produktu: 31000

[Přidat k oblíbeným](#)

Skladem > 100 ks

[Dostupnost na prodejnách](#)

404,13 Kč bez DPH

489,00 Kč s DPH

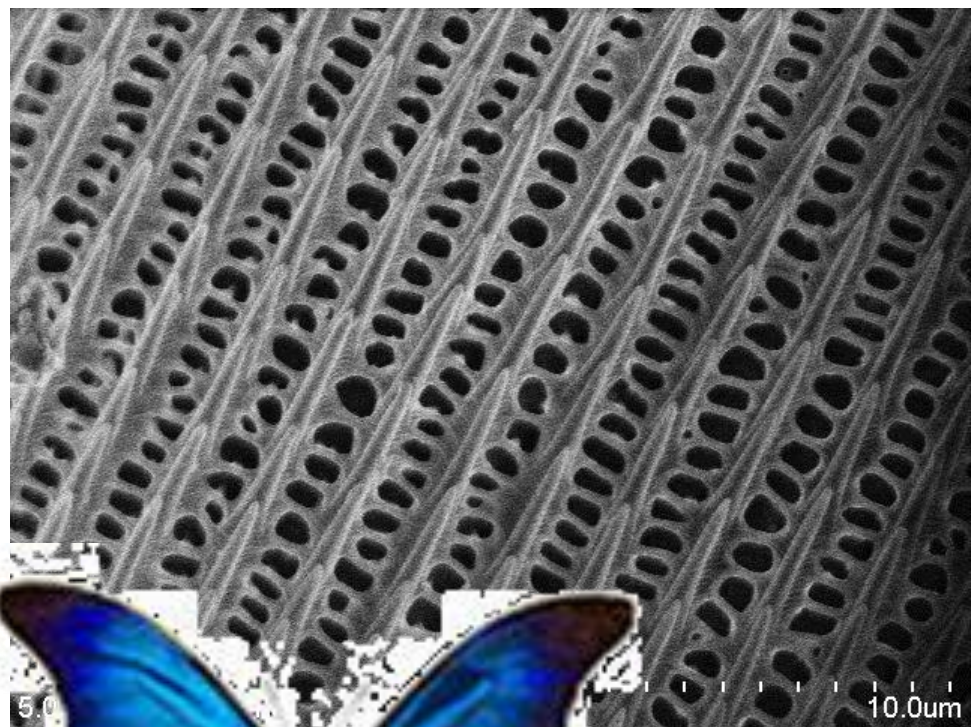
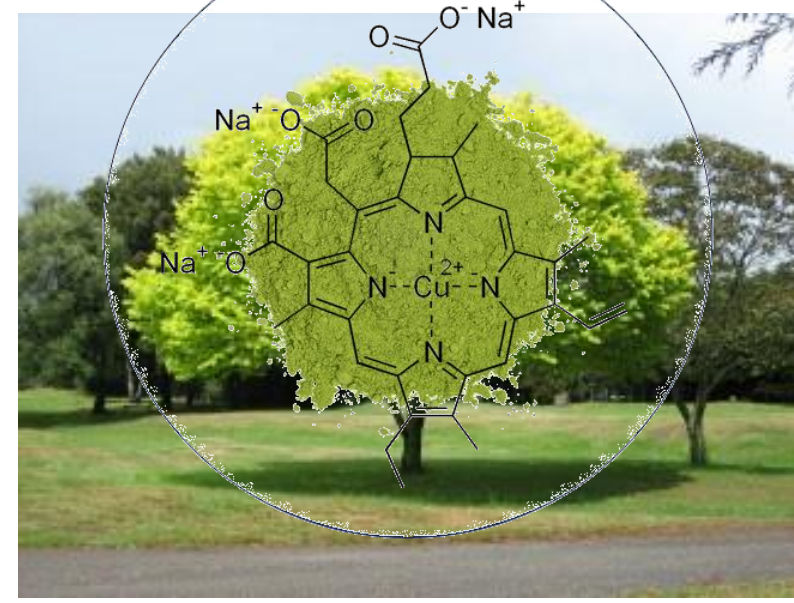
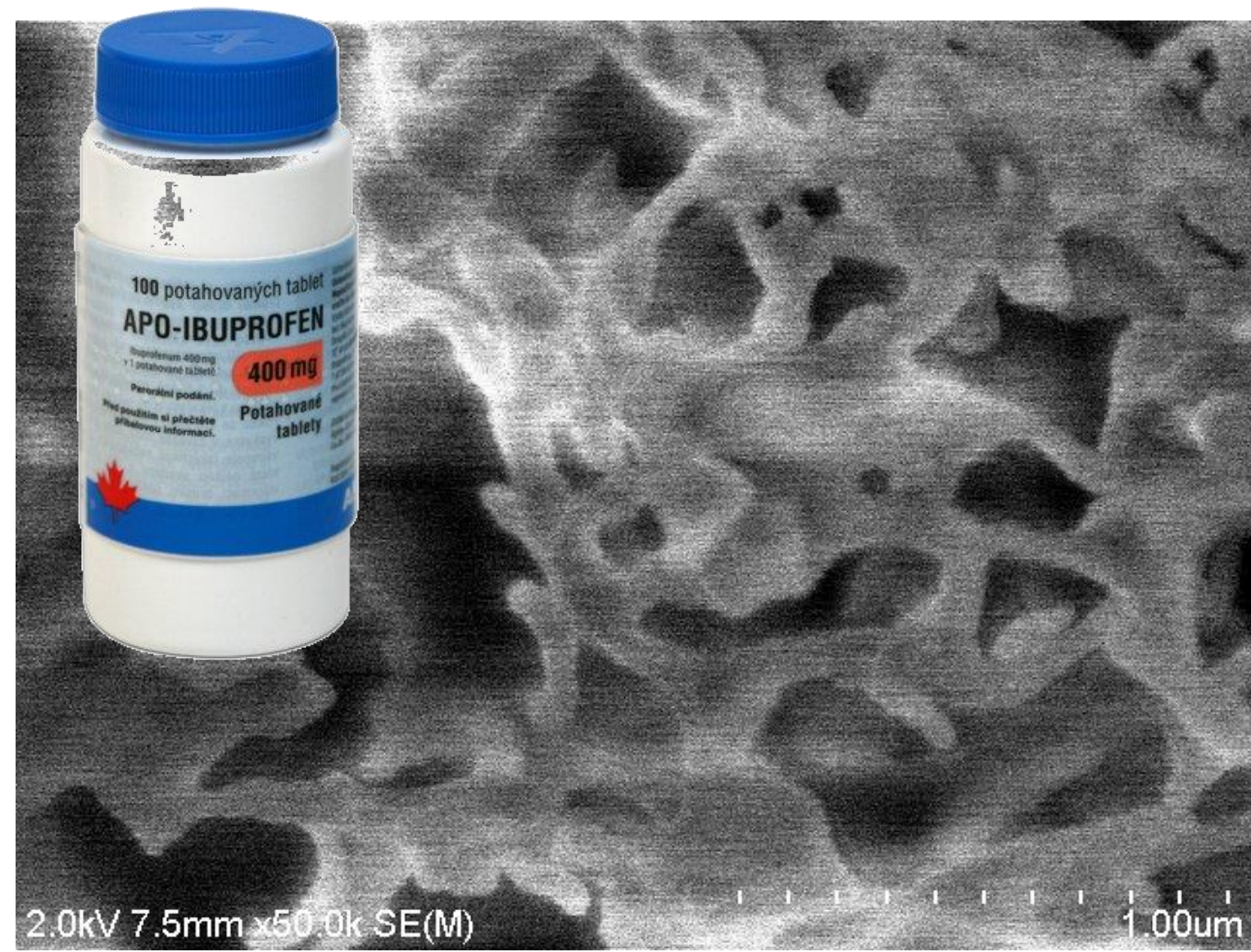
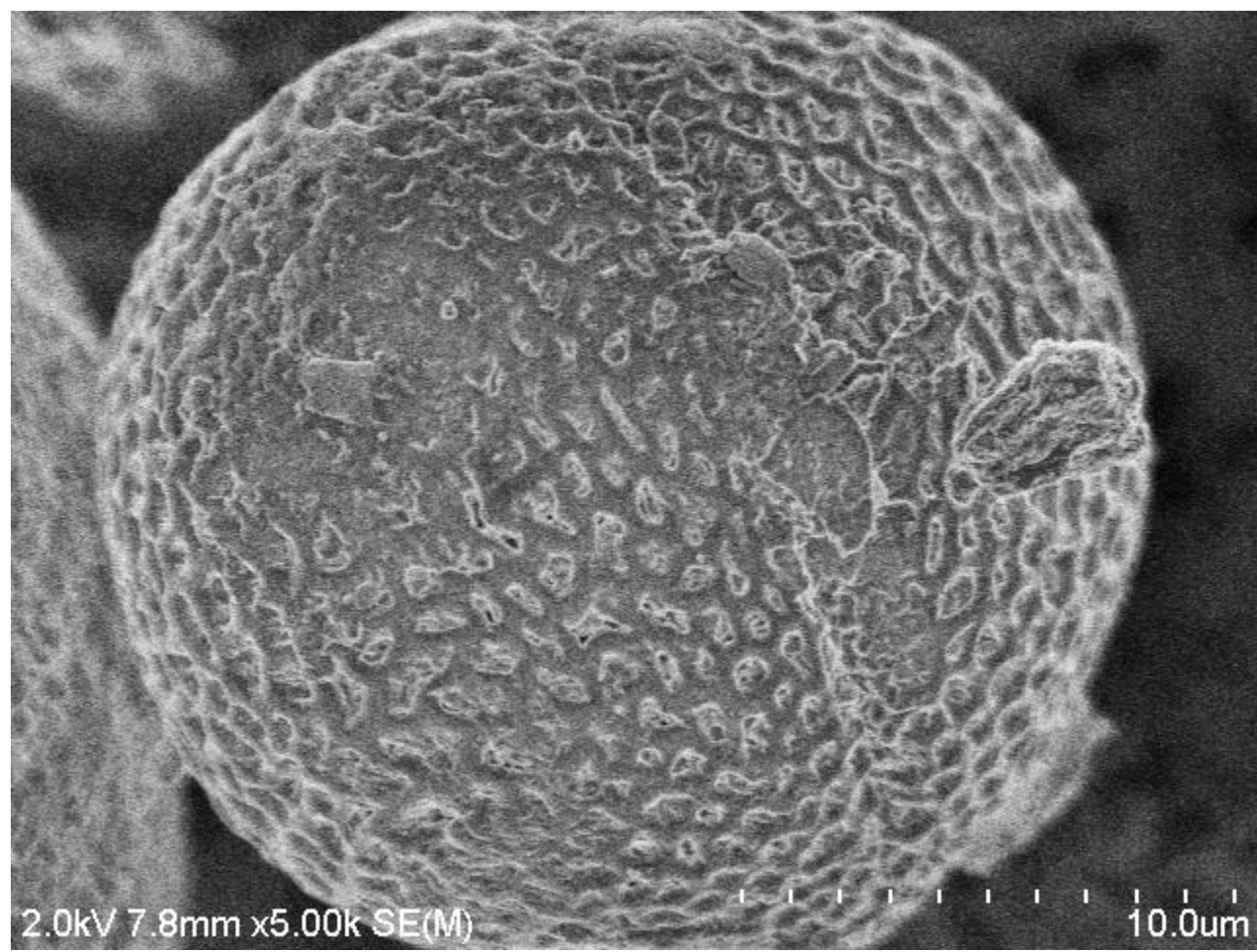


DO KOŠÍKU



Poradí vám
Veronika Mikulíková

+420 728 040 323
 eshop@vinarskepotreby.cz



Metabolické otvory lidské buňky ~ 28 nm

OCEÁNY – NEJVĚTŠÍ ZÁSOBÁRNÝ NANO, MIKRO A PIKO MATERIÁLŮ

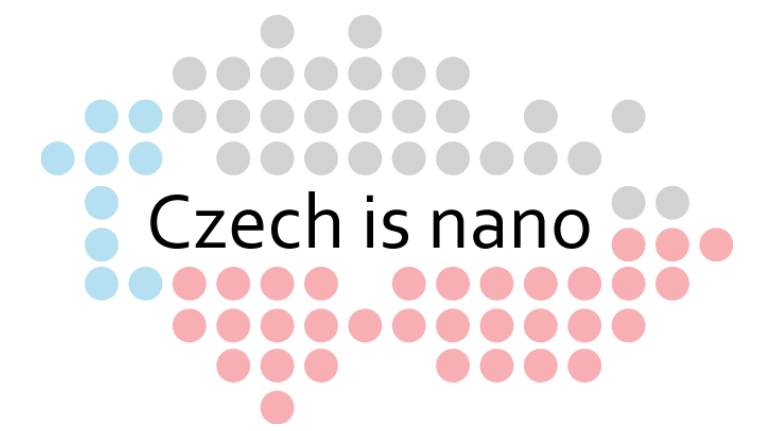
Na Na⁺ Cl Cl⁻

Délka každé strany krystalové mřížky chloridu sodného je 0,564 nm

Přechod nano a piko světa

Volně řečeno, neexistuje ostrý rozdíl mezi pravým roztokem a rozptýlenými částicemi soli ve vodě. Solný roztok je hranicí, která se za určitých podmínek chová jako roztok a za jiných jako koloid

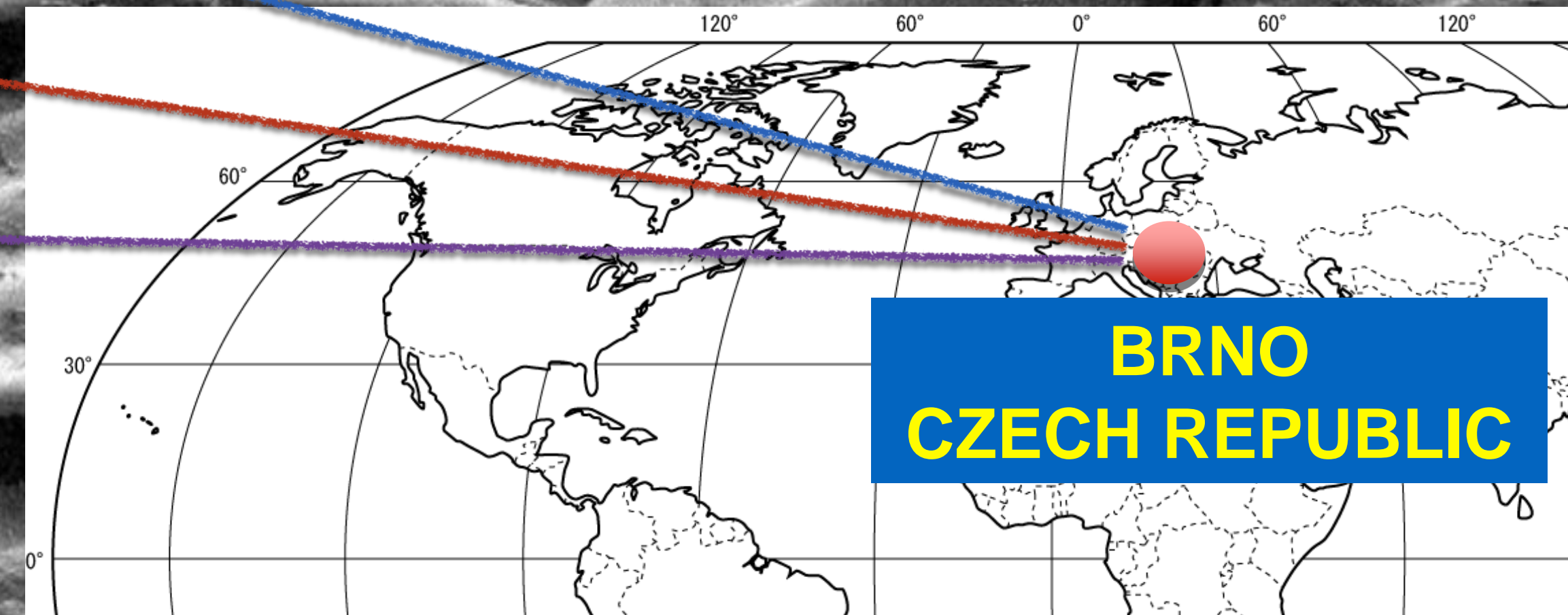
Nanotechnology at universities and research centers in the Czech Republic

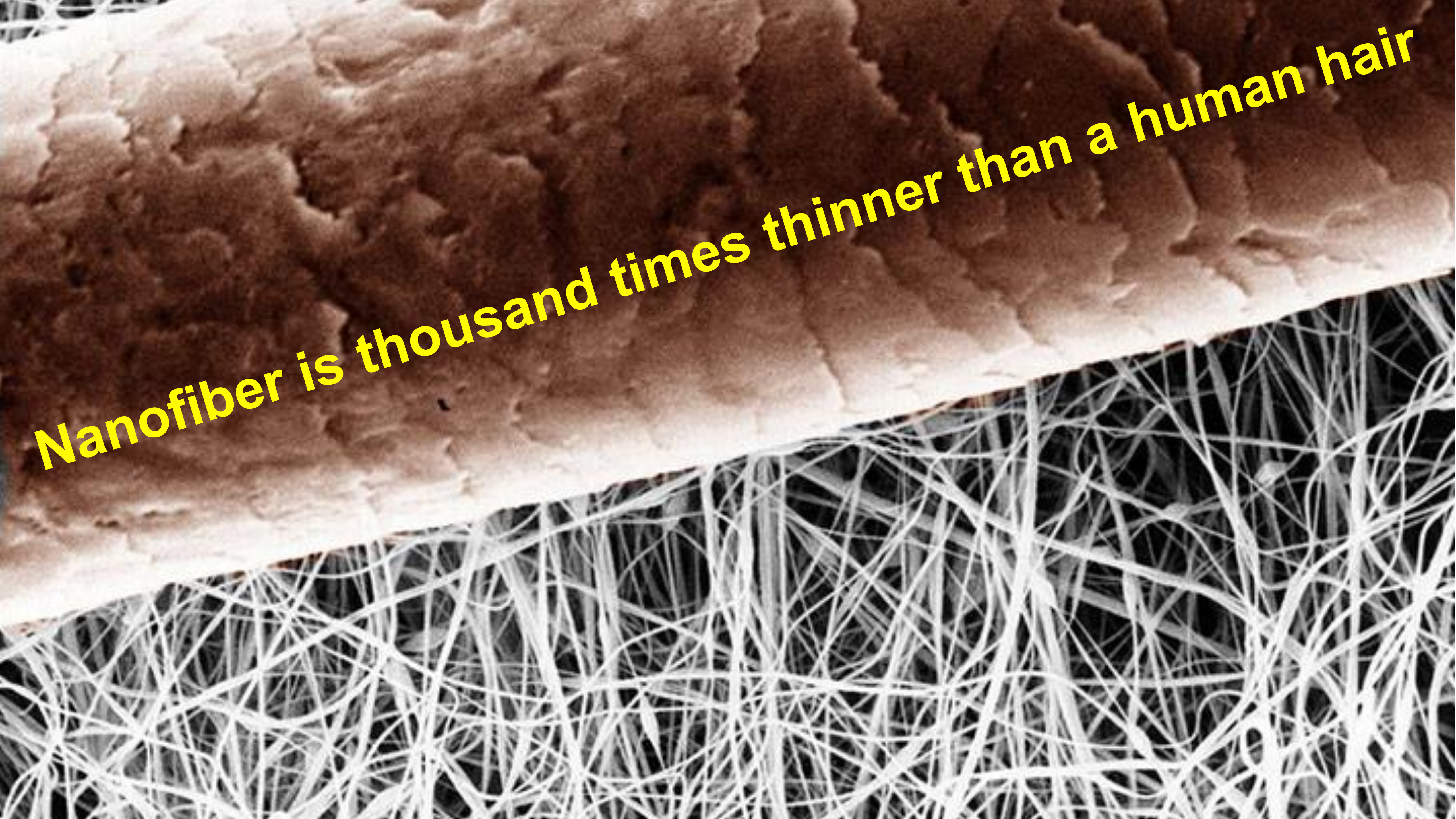


nanoelectronic and nanophotonic applications, analysis of nanostructures, nanomagnetism and spintronics, low-dimensional nanomaterials, nanocomposites, bioelectronics, nanostructured polymer-composite biomaterials that induce connective tissue growth

WE CAN LOOK INTO THE NANOWORLD

Czech Republic is the world leader in electron microscopy.

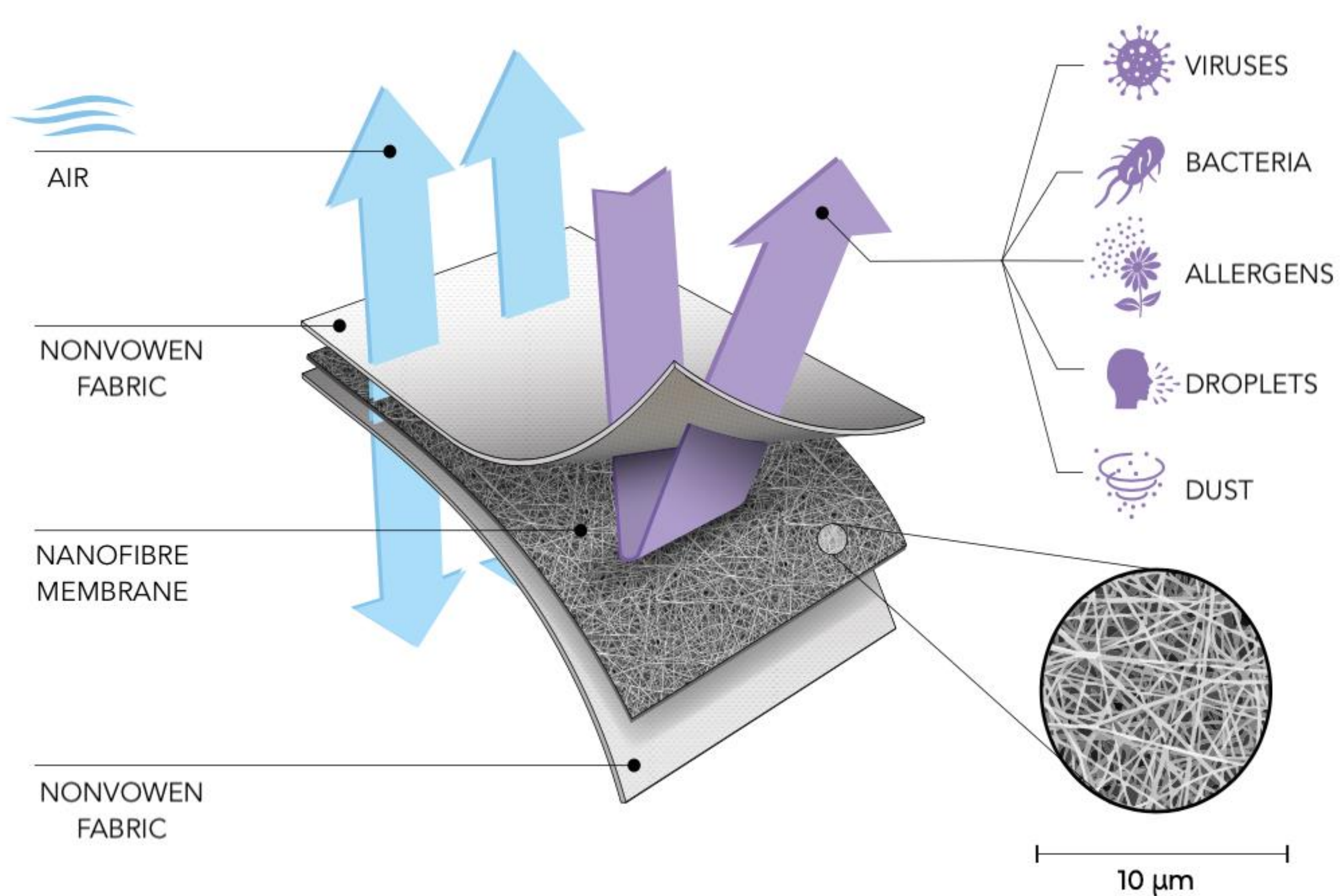




Nanofiber is thousand times thinner than a human hair

NANOFIBRE MEMBRANE

a unique solution for the filtration of very small particles
healthcare, biotechnology, industry



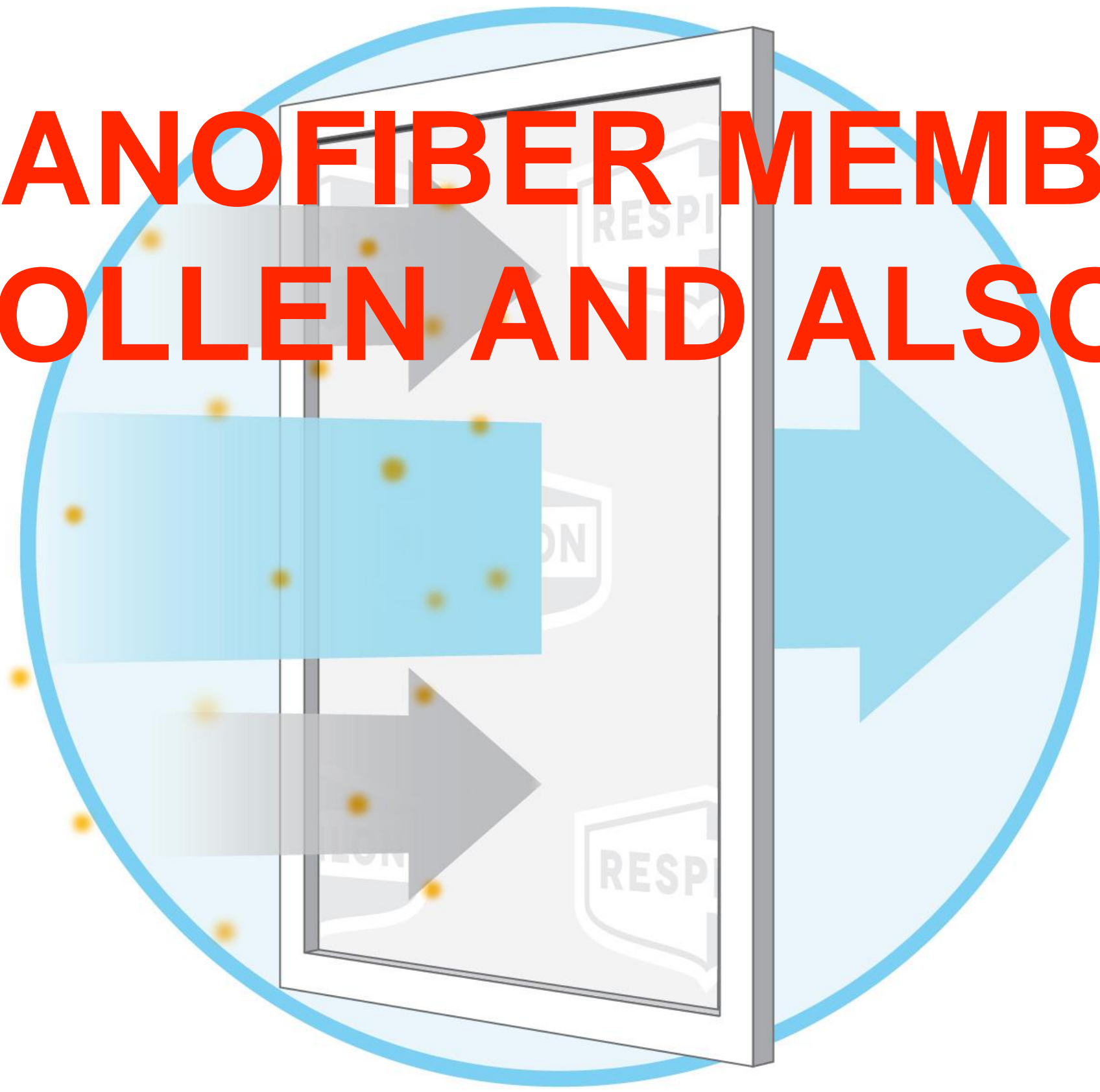
NANOTECHNOLOGY HELPS ALLERGIC PERSONS

The first concept in the world of hypoallergenic interior based on nanotechnology.

Nanofibre barrier bedding is an innovative way how to protect against dust mites and their allergens.



NANOFIBER MEMBRANE RETAINS SMOG, POLLEN AND ALSO BACTERIA



The nanofiber window screen prevents air pollution from entering indoor environment, blocks the strong wind and acts also as thermal insulation.

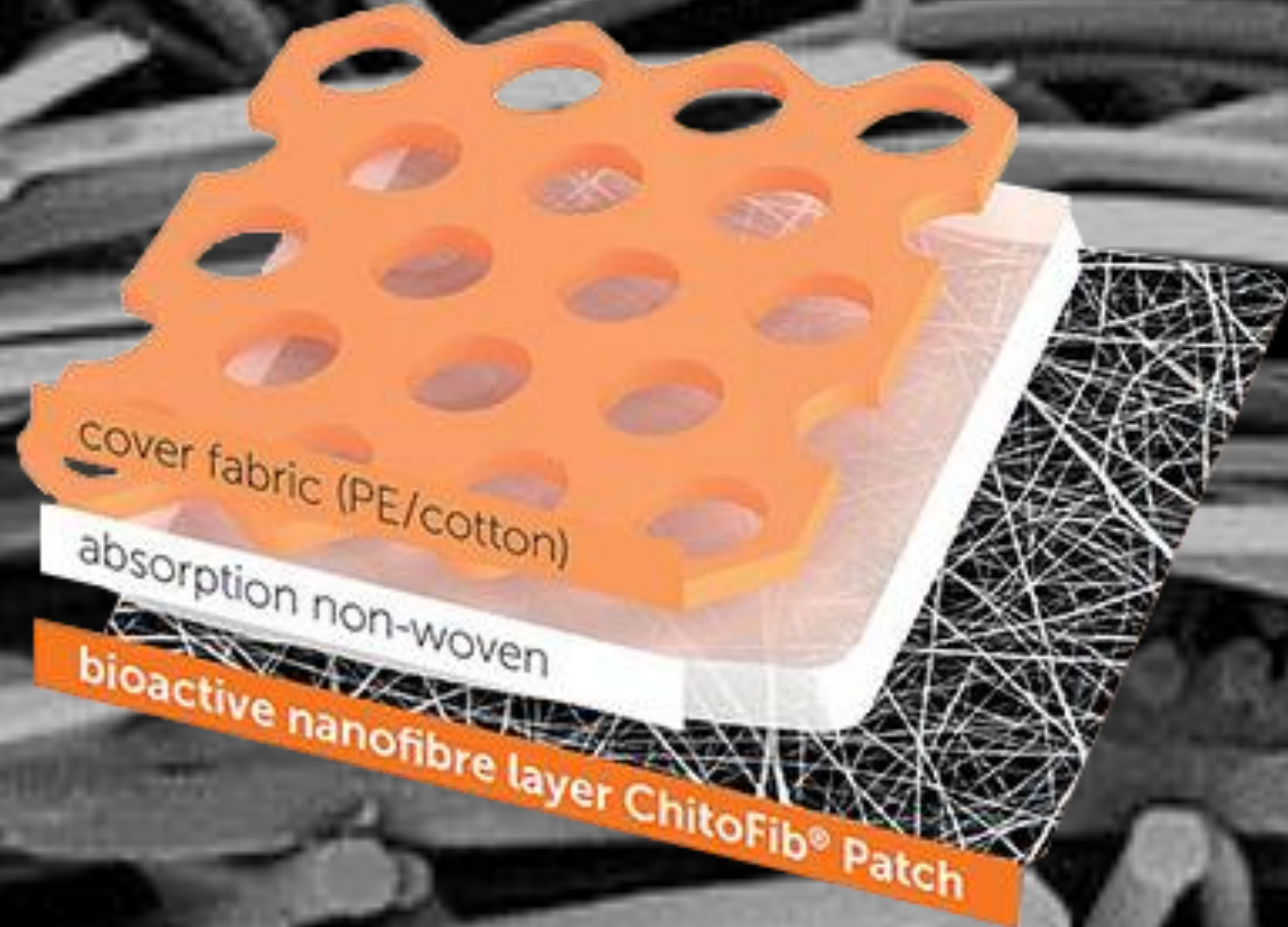


NANOFILTRATION FOR WINEMAKERS

The nanofiber membrane has a lower pressure drop, can be regenerated, no need to flush before filtration, improves filter performance. Financial savings for cellulose plates.

In the near future, the use will be extended to oil, beer or spirits filters.

NANOPATCHES PROTECT WOUNDS FROM CONTAMINATION AND ACCELERATE HEALING



The bioactive nanostructure of chitosan in combination with biopolymers promotes cell proliferation, creating a natural structure for wound healing.

FACIAL NANOMASKS HAVE HIGHER EFFICACY



When the nanofibers come into contact with moistened skin, the nanofibers dissolve and an intensive transfer of vitamins and active substances is initiated by diffusion into the skin. The substances penetrate the skin barrier very quickly and in high quantities into the deeper layers of the skin.

NANO FILTER FOR TAP WATER REMOVES HARMFUL SUBSTANCES



Tap water filters that use nanotechnology to remove harmful substances from water such as chlorine, pesticides, antibiotics, analgesics, hormones, drugs, heavy metals and microplastics.

DRINKING WATER FOR ASTRONAUTS AND PEOPLE ON EARTH

Czech nanotechnologies can produce drinking water even from faeces and urine of astronauts on long space missions.

The future is the decentralization and closure of the water cycle in each building.



NANO FASHION

Functional fashion designed with the principles of slow fashion.

Nano clothing is using materials with silver nanoparticles - antibacterial properties, special fibers improves moisture and sweat drainage.

Ideal for those who sweat.



REPLACEMENT HUMAN ORGANS

The Czech nano3D printer will build a fine skeleton of the necessary shape around which stem cells will form a human organ in laboratory conditions.

Using nanofibres delivered to the damaged bone tissue, ossification takes place, which repairs the bone to a form indistinguishable from healthy.

Hyaluronan-based scaffolds prevent immune reactions to the implants.



NANOOPTICS IS SHAPING THE LIGHT

New flat plastic lenses for lighting of supermarkets street lights, cars, offices and homes have outstanding properties due to the complex nanostructures inside and on the surface of the plastic.

SEMICONDUCTORS AND PHOTOVOLTAICS



Electronic components are often only a few nanometers. For their production you need cleanrooms and special technology.

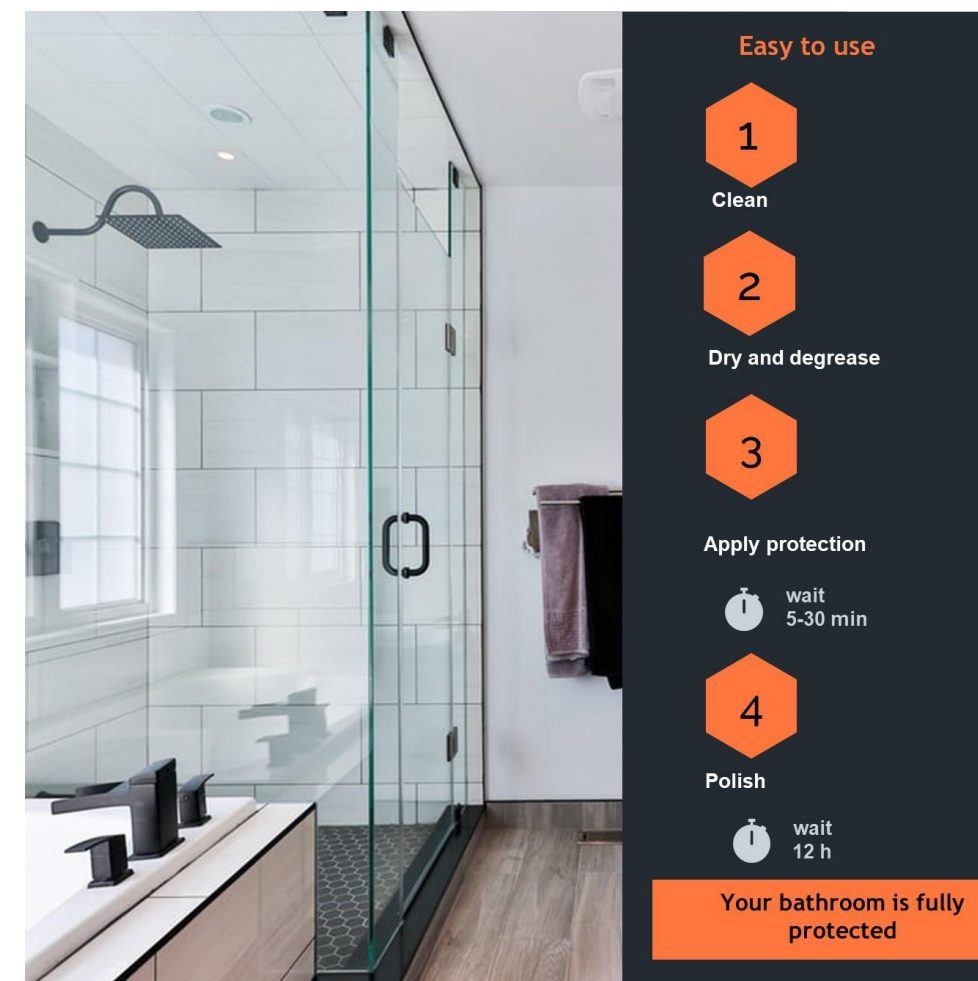
In the Czech Republic, we manufacture LPCVD furnaces for the semiconductor and photovoltaic industries, or related R&D institutes



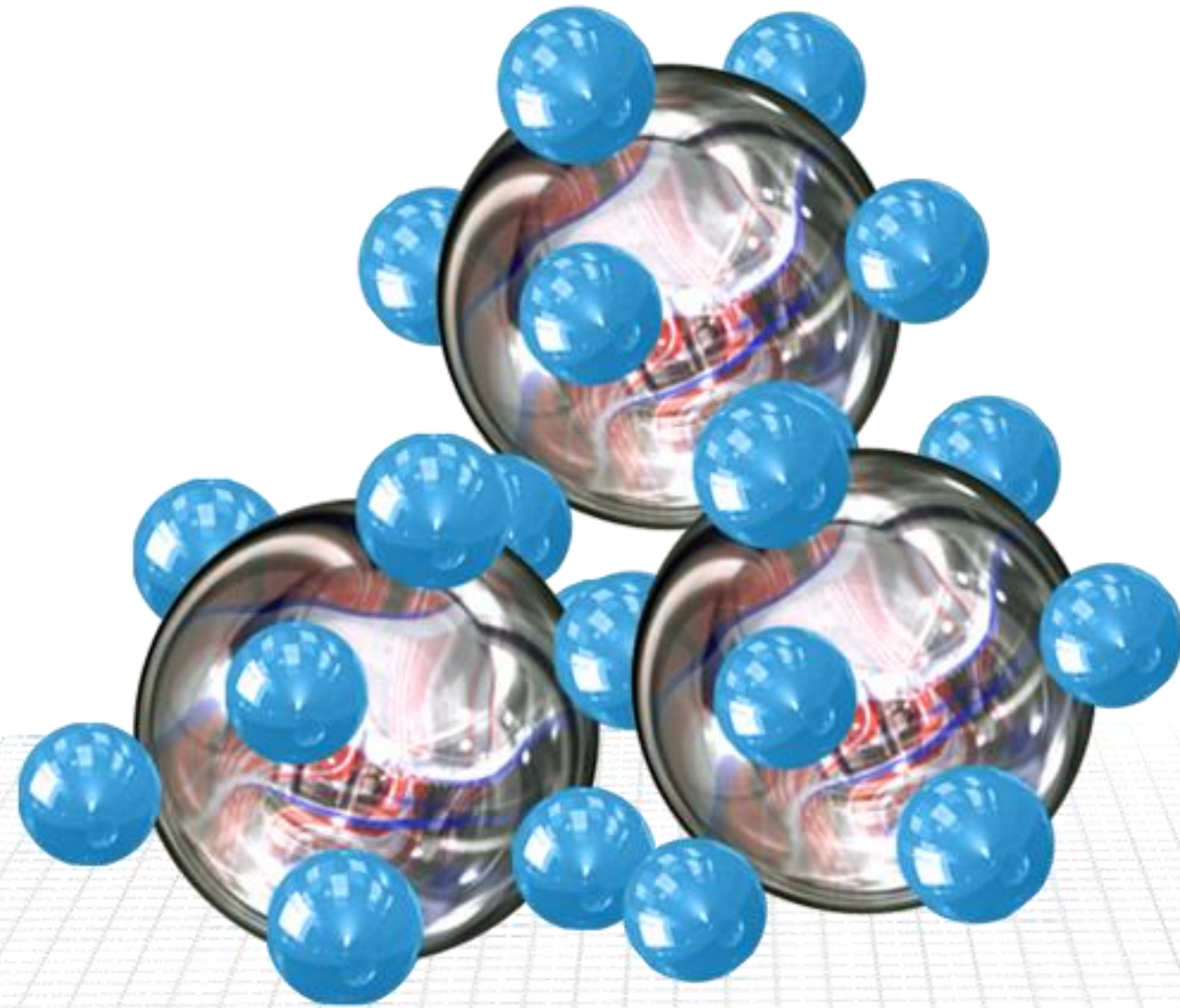
SURFACE PROTECTION NANO SOLUTION

Nanocosmetics have a long-term effect and extend the life of surfaces.

Surfaces clean for several months to 2 years after treatment.



THERMOACTIVE LAYER WITH AEROGEL REDUCES HEATING COSTS



water vapor

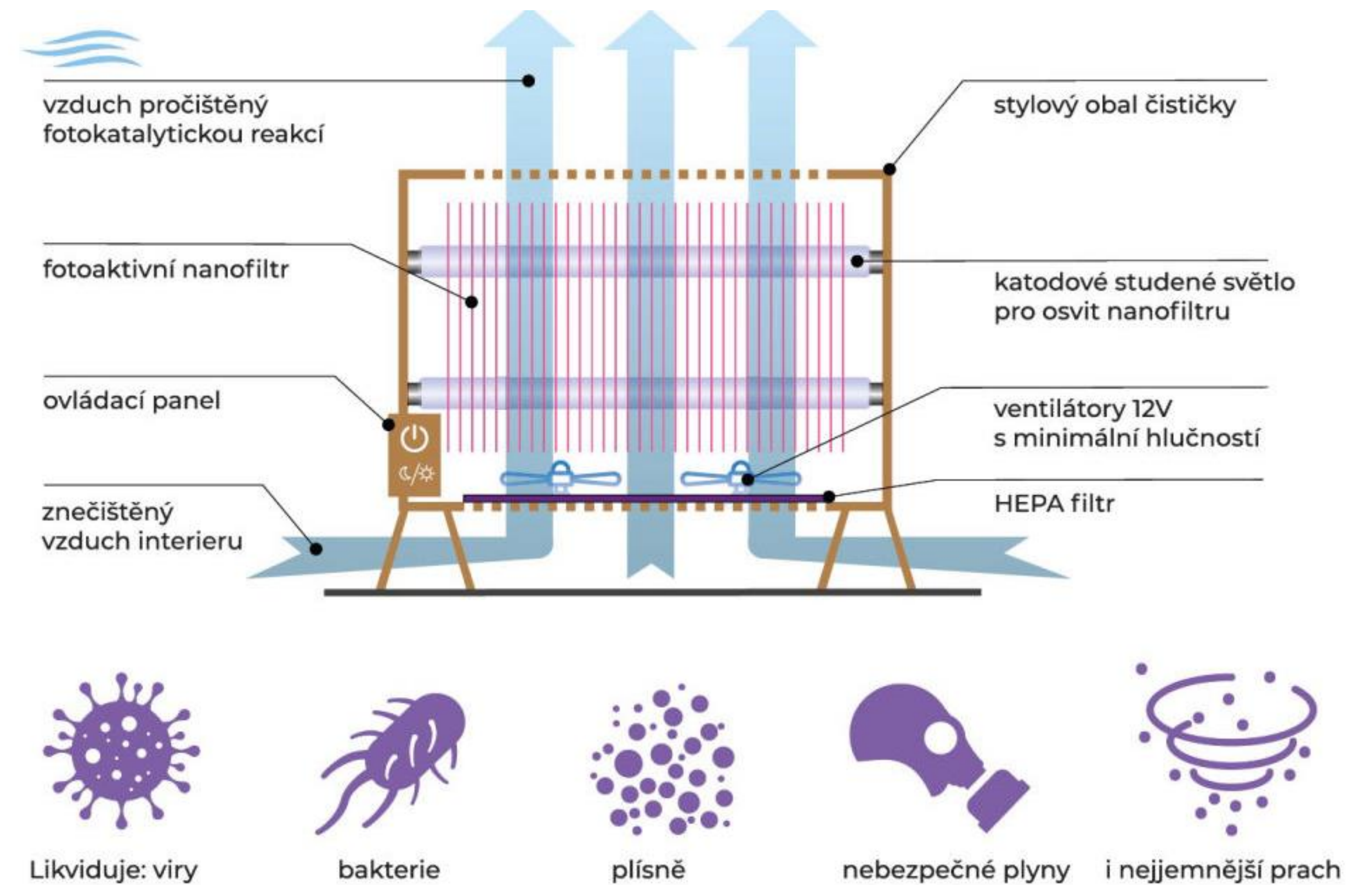
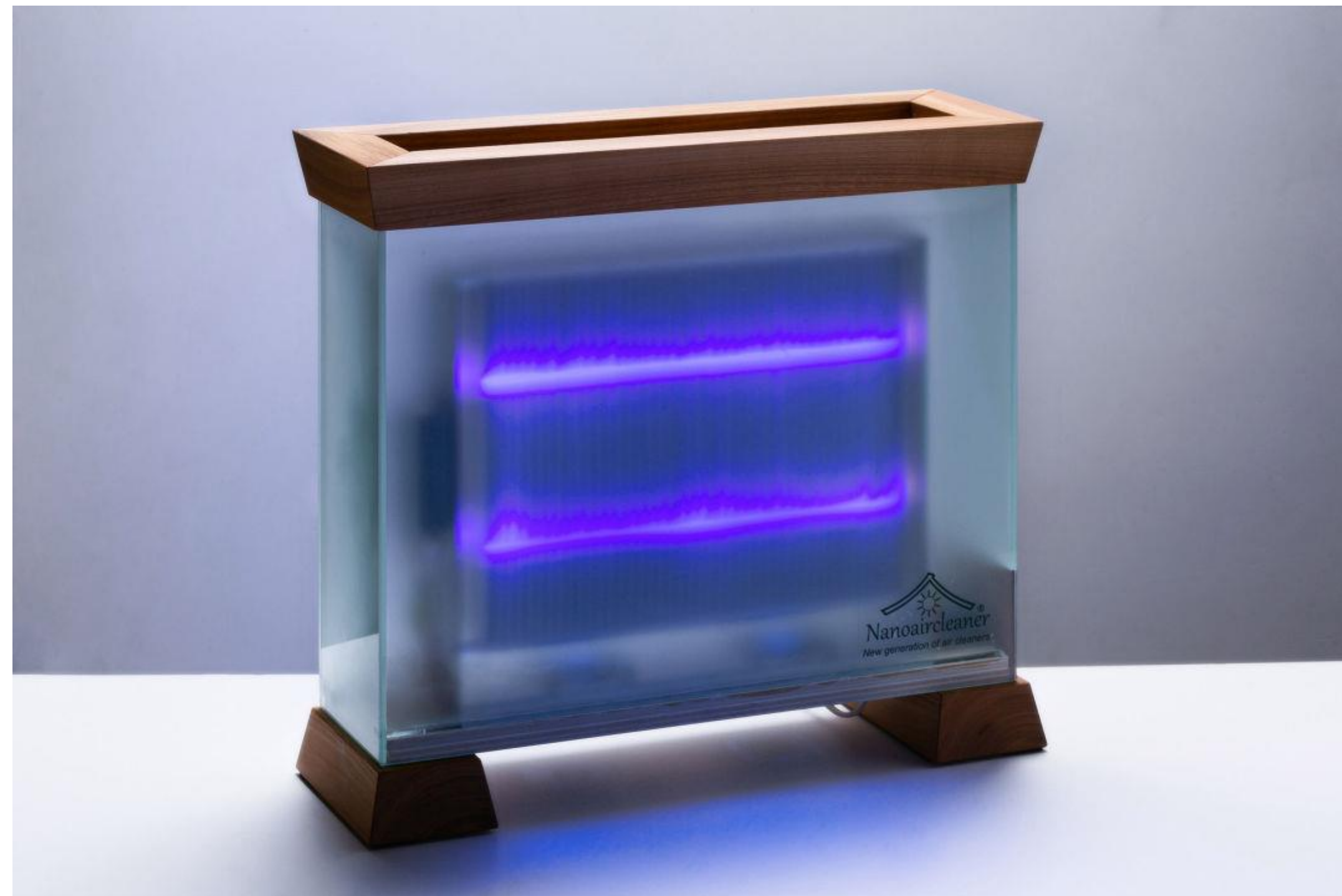
warm
air

cold
air

1 mm layer of aerogel concrete

The aerogel consists of silica hollow spheres of a few nanometres in size. It has 40 times better insulating properties than glass and weighs only one thousandth of its weight.

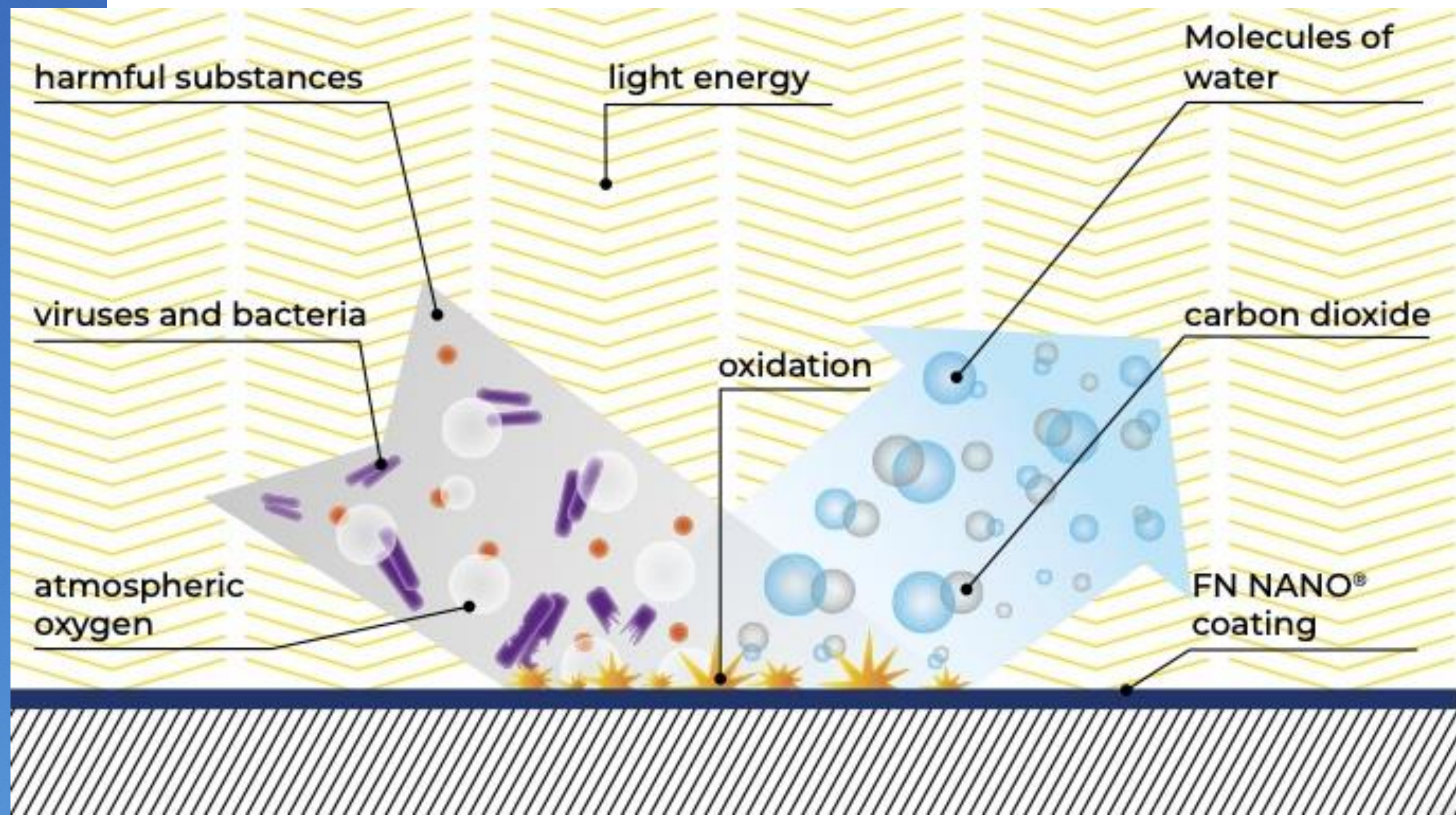
NANOCLEANERS CLEAN THE AIR IN THE KITCHEN AND BEDROOM



Nanocleaners destroy bacteria, yeasts and molds in the home.

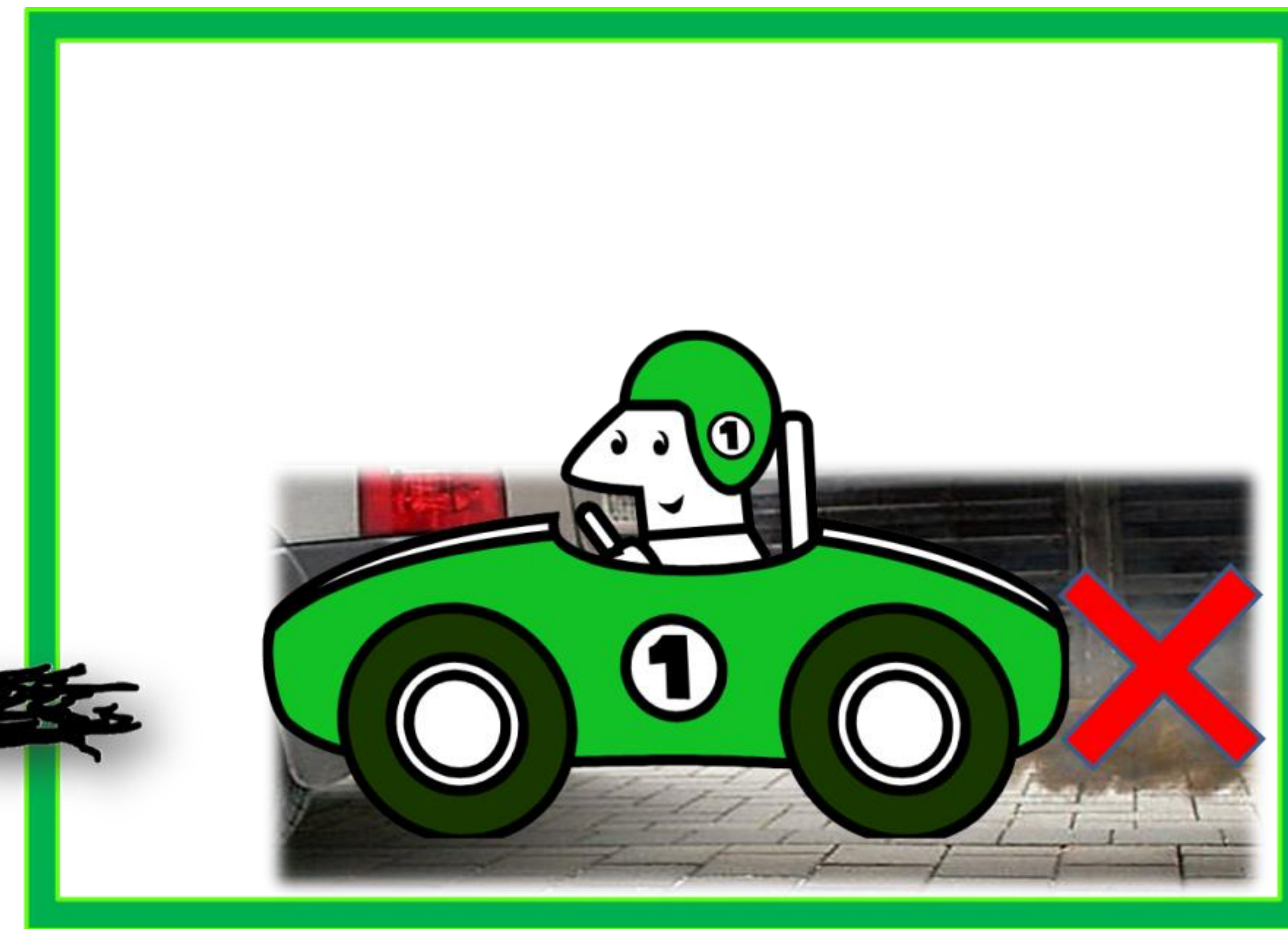
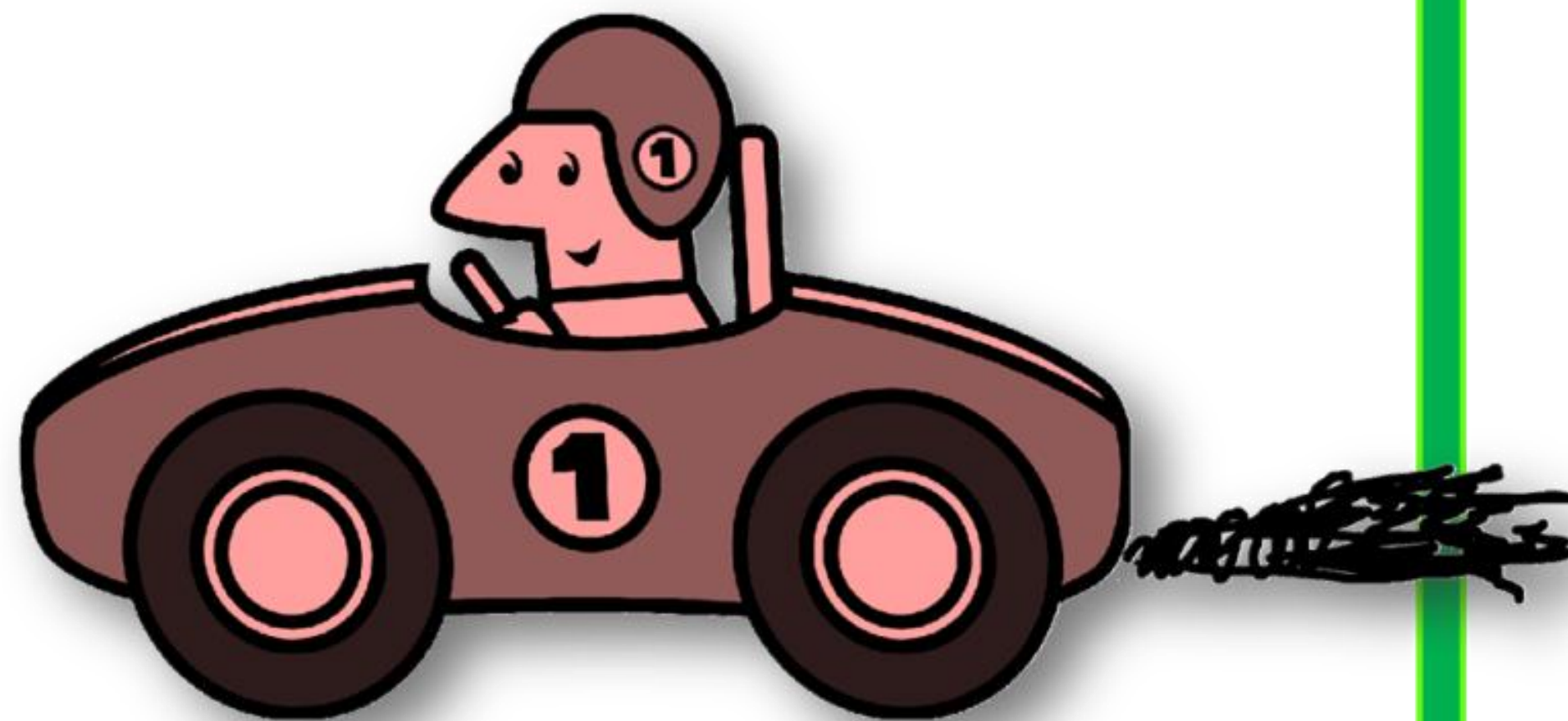
They do not require any maintenance and have negligible consumption, like a single bulb.

SAMOČISTÍCÍ FASÁDY + ČIŠTĚNÍ VZDUCHU SPOJENÍ EKONOMICKÉHO A EKOLOGICKÉHO ŘEŠENÍ



PŘÍKLAD AKTIVNÍ FASÁDY (650m²) ČIŠTĚNÍ VZDUCHU OD EXHALACÍ FOTOKATALYTICKÝM NÁTĚREM FN NANO[®]

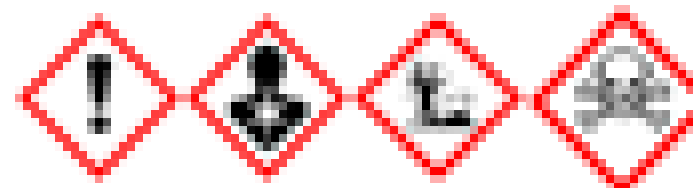
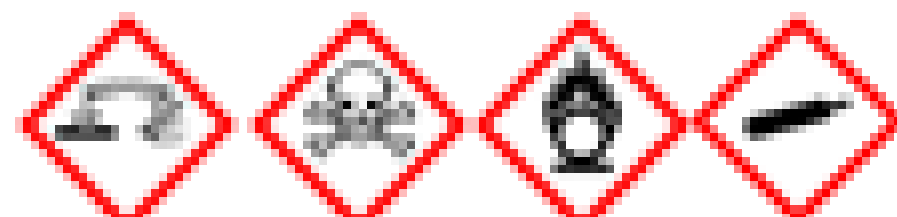
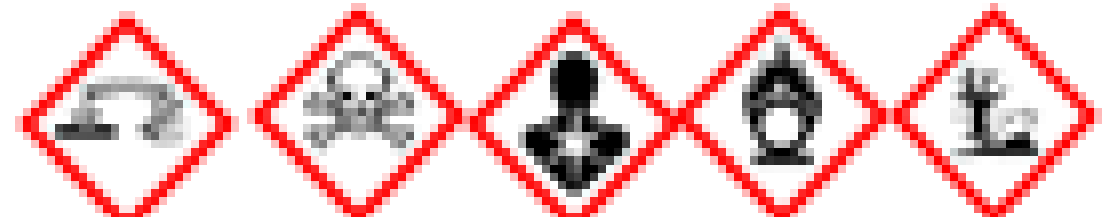
Vyčistí vzduch od emisí z 50 aut





650 m²

EKOLOGICKÝ PŘÍNOS

- BENZO(A)PYREN 
- NOx 
- OZÓN 
- VOC
- PM_{2,5}
- **650 m²**

5 let – fasáda se zaplatila ekologickým přínosem

~150 g 560 €

~750 Kg 4500 €

~ 50 Kg 5500 €

~200 Kg 1000 €

~ 25 Kg 875 €

Eco-costs of emissions (Virtual
Pollution Prevention Costs, VPPC)

>12 000 €

VÝROBA LITHIOVÝCH BATERÍ



Děkuji za pozornost

