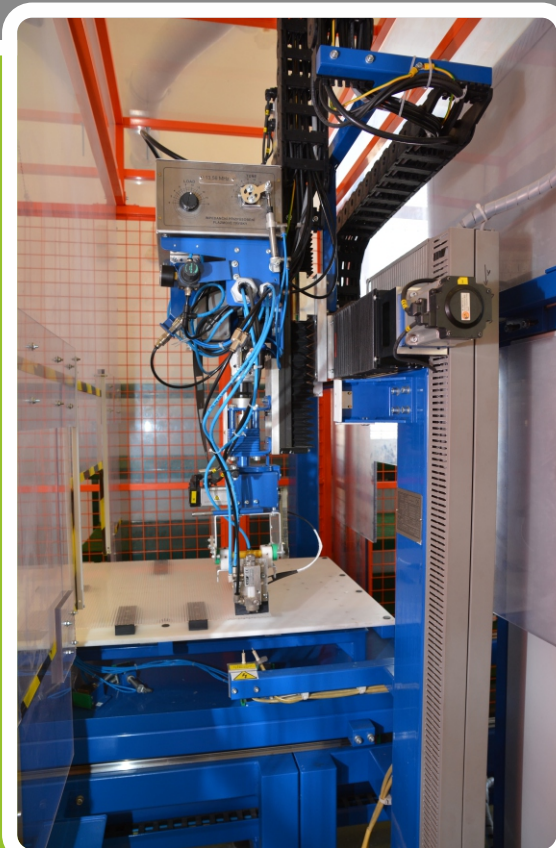


Dear Business Partners,

in the cooperation with the Technical University of Liberec in Czech Republic we have prepared a new nano-antibacterial protection BAC Protect of our lighting fixtures for you.



The treated lights are suitable for the provision of lighting in very clean areas such as laboratories, operating theatres, medical consulting rooms and food processing plants where a sterile environment is required.

The product is an organic-inorganic hybrid oligomer based on silicon, which contains  $Zn^{2+}$  ions or zinc oxide  $ZnO$  and traces of zinc nitrate  $Zn(NO_3)_2$ .

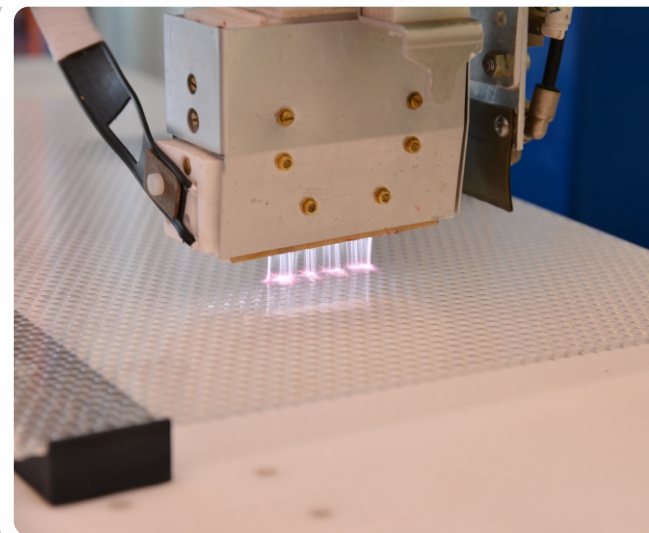
In the final sol (for the preparation of layers), the starting materials are pre-activated to yield an organic-inorganic hybrid oligomer, which effectively eliminates the risk factors of individual starting materials. The sol for the preparation of antibacterial layers can be considered as a diluted solution of a safe oligomer in isopropyl alcohol, where the concentrations of free components, such as zinc cations or nitric acid, are very low.

Thanks to this fact, the final protective antibacterial layer is harmless to the environment and stable (nothing evaporates any longer).

The hardness, stability and long durability of the final protective nanolayer result from the deactivation of non-regenerated double bonds in TMSPM.

The antibacterial effects of the protective nanolayer BAC Protect have been confirmed by a laboratory test report from the Technical University of Liberec. The antibacterial protective nanosurface is applicable to a wide range of materials such as glass, varnished sheet metal, aluminium or plastic. This allows us to apply the antibacterial layer to almost all products in our assortment and provide lighting for any area as required. The perfectly even dispersion of the protective antibacterial layer is achieved with a special automated application machine.

If you are interested in antibacterial nanosurfaces BAC Protect, please contact our Commercial Department



List of ingredients used for preparation of the concentrated sol solution:

- isopropyl alcohol (IPA)
- 3-(Trimethoxysilyl) propyl methacrylate (TMSPM)
- Deionised water  $H_2O$
- 2M nitric acid  $HNO_3$
- Zinc nitrate  $Zn(NO_3)_2$
- Dibenzoyl peroxide (Luperox, water content 25 %)