Virus Disinfection with UV-C Light in Industrial Production

Case study of the upgrade of a ventilation system in clean rooms

Viruses, bacteria and other microorganisms spread through tiny water droplets in the air, so-called aerosols. They can survive there for a long time and are transmitted from host to host. The risk is particularly high in rooms with ventilation systems. Air circulation with only a small proportion of fresh air increases the risk of infection.

UV-C light is energy and very effective against viruses, bacteria and fungi. Viruses in particular, such as the SARS-CoV-2 virus and its mutations, are easily destroyed by it. They have only a thin lipid (fat) layer. This is easily penetrated by UV-C light and destroys the virus immediately.

At its site in Ulm, Germany, the Thales Group builds traveling wave tubes, i.e. components that are installed in satellite amplifiers. The production of such high-quality components for use on board satellites takes place in clean rooms, because the work area must be absolutely dust-free. The used air is cleaned in a recirculation system with fine dust filters. However, air circulation with only a small proportion of fresh air increases the risk of infection for employees, for example for SARS CoV-2 viruses. Thales Group invested in infection prevention for its employees early on, reducing the risk of a production shutdown. When investigating the various options for disinfecting the air, it quickly became apparent that installing HEPA filters at a high enough strength in the existing plant would not work. The ventilation system would not have enough capacity for the higher air resistance caused by the additional filters, and the plant's capacity would have to be doubled.

In the search for alternatives, Thales technicians, together with an external ventilation contractor and Heraeus Noblelight, examined whether disinfection with UV-C light could be considered. The UV experts calculated how large the UV unit should be for an additional system and finally provided the specific number of Soluva UV-C lamps that could be easily retrofitted into the existing ventilation system by the ventilation contractor. The lamps are controlled by Soluva D control cabinets and now enable effective disinfection of the air in the cleanrooms. **Kai Penkava, Maintenance Manager CCI at Thales Germany is convinced: "With the simple retrofit into the existing plant, we now not only have a dust-free production, but also protect our employees from viruses and other germs!"**

The renowned Fraunhofer Institute for Building Physics has for the first time confirmed the effectiveness of air disinfection by means of closed UV-C air purification devices under real conditions for a classroom on the basis of an elaborate scientific application test. Heraeus UV-C air purification devices can reduce the virus load in closed rooms by over 99%.
The disinfecting effect of UV-C light has been confirmed in further tests, e.g. with the Hygiene institut biotec or the University Hospital Tübingen.

Advantages of UV-C air purification with Heraeus Soluva equipment:

- ✓ free from chemicals
- ✓ without filter
- ✓ low maintenance requirements
- ✓ without ozone and by-products
- ✓ no uncontrolled excape of UV-C-light
- ✓ no germ resistance formation

Heraeus Noblelight GmbH
E-Mail: service@heraeus-soluva.com
www.heraeus-noblelight.com/soluva