WELLBEING AND LIGHTING

The benefits of using UV-C disinfection to combat Covid-19

LightingEurope has called on European policy makers to actively support and stimulate the uptake of UV-C disinfection technologies, in particular as part of the EU Renovation Wave Initiative, and to ensure that EU and national financial instruments are available to support their installation.

UV-C is an established technology for disinfection. It has been applied extensively since 1910 when it was found to be an effective tool in preventing the spread of disease. Today, UV-C disinfection technologies are assisting the battle against the current pandemic, Covid-19. More generally, the technology has been proven to inactivate, without exception, all bacteria and viruses against which it has been tested, including those causing tuberculosis, influenza, the common cold and SARS.

The European lighting industry is a leader in producing high quality safe UV-C disinfection technologies and products (lamps, lighting fixtures, cabinets and connected systems). They are used to disinfect water, air, and surfaces in industrial, commercial, medical, public and residential environments. UV-C de-activates viruses and microorganisms such as bacteria, moulds, spore, fungi and yeasts by destroying their DNA/RNA.

Recent studies confirm that UV-C light is effective in inactivating and inhibiting the SARS-CoV-2 virus.[1]

Typical applications include:

Air – Trapped or recirculated indoor air may contain microorganisms and viruses that can infect building occupants. Applying UV-C germicidal irradiation can considerably reduce these contaminants and the associated airborne infections. Products used for air disinfection are typically found in commercial and public environments;

Water – Disinfecting drinking water (tap water, water coolers, dispensers, coffee machines), and disinfecting water from industrial processes, swimming pools, fishponds and aquariums, wastewater, etc;

Surfaces – In industrial and public environments, for example to disinfect trains, aircrafts, buses, food manufacturing sites, hotels, hospitals, etc.

The Global Lighting Association (GLA) has published an overview of the applications of UV-C disinfection technologies in its document *Germicidal UV-C Irradiation: Sources, Products and Applications.*

Safety is assured when products are manufactured, installed and used in accordance with existing standards and the Global Lighting Association's UV-C Safety Guidelines. In cases of high UV-C irradiance levels, direct exposure to UV-C is harmful to humans or animals. Standards and industry guidelines outline the information and safeguards manufacturers must provide to ensure peoples's safety, and to address foreseeable misuse.

UV-C key to safe spaces

The design of safe and healthy indoor environments that minimise transmission of infectious diseases encompasses many factors, including ventilation, design of traffic flows and physical touchpoints. While such design elements can greatly reduce transmission, they are limited by practical considerations and the desire to have productive and comfortable spaces where people can interact. UV-C disinfection is an important tool to realise such spaces.

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The GLA has also published UV-C safety guidelines providing advice on the safe use of UV-C products by means of technical safeguards (e.g. presence detection or access controls), and/or instructions and warning labels as needed and applicable. Standards also exist to avoid the chemical decomposition of products, e.g. the ozone layer, and these are outlined in the GLA safety guidelines. Annex I contains an overview of existing EU standards and legislation that apply to UV-C products.

LightingEurope is concerned at the proliferation of some categories of UV-C disinfection devices, particularly those offered via online channels and targeting individual consumers, which contain uncorroborated claims, inadequate safety features and inadequate safety instructions. Existing rules and standards must be adhered to by manufacturers and sellers. They must also be enforced by the appropriate authorities.

LightingEurope emphasises the importance of an integral design process where the design elements are considered together, rather than applying individual measures in isolation.

The European lighting industry has been producing high-quality, safe UV-C applications for many decades … the solutions exist and are already in use. To realise their full potential, LightingEurope says:

(1) The EU Renovation Wave must include the installation of UV-C disinfection technologies when referencing the design of safe indoor spaces, as a means not only to address the current Covid-19 pandemic, but also more generally and in the longer term to help ensure healthy indoor environments;

(2) Ensure that EU and national financial instruments support the installation of UV-C disinfection technologies, both in buildings linked to the Renovation Wave Initiative and in health, manufacturing and other commercial and industrial settings;

(3) Members State authorities to include the installation of UV-C disinfection technologies in their national renovation and climate plans;

(4) Market Surveillance Authorities must ensure existing rules are applied and enforced correctly. Non-compliant products should not be sold, either online or offline. Incidents of non-compliant products posing health risks have already been notified via RAPEX2. UV-C disinfecting technologies must be used according to the manufacturers' specifications to avoid risk of harm. LightingEurope wants authorities to increase the inspection of products, in particular products for the consumer market. In addition, sufficient resources must be allocated to the relevant authorities to enforce these rules;

(5) Banks and other financial institutions to ensure that any funding made available for renovation includes UV-C disinfection technologies;

(6) Specifiers to include UV-C disinfection applications in building fit-out design;

(7) Health authorities to promote the use of UV-C disinfection technologies. ■

References

1. Study performed by Bianco et al in Italy, Source: Global Lighting Association, Germicidal UV-C Irradiation: Sources, Products and Applications, link: https://www.globallightingassociation.org/images/files/GLA_-_Germicidal_UV C_Irradiation_Sources_Products_Applications.pdf.