

# LightingEurope Position Paper on the benefits of using UV-C disinfection to combat COVID-19

LightingEurope calls 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 disinfection technology is an effective tool in combating micro-organisms and viruses, including SaRS-CoV-2**

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. More generally, the technology has been proven to inactivate, without exception, all bacteria and viruses against which it has been tested including among others 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).

## **UV-C is a broadly employed disinfection technology**

UV-C is 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.<sup>1</sup>

Examples of typical applications are:

- **Water:** disinfecting drinking water (tap water, water coolers, dispensers, coffee machines), disinfecting water from industrial processes, swimming pools, fishponds and aquariums, wastewater, etc.
- **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 - for example in offices buildings, cruise ships, hotels and apartment buildings.

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<sup>1</sup> 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](https://www.globallightingassociation.org/images/files/GLA_-_Germicidal_UV-C_Irradiation_Sources_Products_Applications.pdf)

- **Surfaces:** in industrial and public environments - for example, to disinfect trains, aircrafts, buses, food manufacturing sites, hotels, hospitals, etc.

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

**Safety is ensured when products are manufactured, installed and used in accordance with existing standards and the Global Lighting Association's UV-C Safety Guidelines**

In case 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 people's safety and address foreseeable misuse. The Global Lighting Association has published and widely disseminated [UV-C Safety Guidelines](#) providing guidance 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 chemical decomposition product, e.g. ozone - 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 being 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 and enforced by the appropriate authorities.

**UV-C is a key element in the design of safe spaces**

The design of safe and healthy indoor environments that minimize 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 realize such spaces. We emphasize the importance of an integral design process where the design elements are considered together rather than applying individual measures in isolation.

**Europe must invest in the installation and widespread use of UV-C disinfection technologies**

**The European lighting industry** has been a leader in producing high quality, safe UV-C applications for many decades – the solutions exist and are already in use. To realize their full potential, we call on:

√ **The European Commission** to

- include in the EU Renovation Wave a clear reference to the design of safe indoor spaces including the installation of UV-C disinfection technologies, 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,
- 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.

√ **Members State authorities** to include in their national renovation and climate plans the installation of UV-C disinfection technologies.

- √ **Market Surveillance Authorities** to ensure existing rules are applied and enforced correctly:
  - Non-compliant products should not be sold - neither online nor offline. Incidents of non-compliant products posing health risks have already been notified via RAPEX<sup>2</sup>. UV-C disinfecting technologies must be used according to the manufacturers' specifications to avoid risk of harm. We ask authorities to increase the inspection of products, in particular products for the consumer market.
  - Sufficient resources must be allocated to the relevant authorities to enforce these rules.
- √ **Banks and other financial institutions** to ensure that any funding made available for renovation includes UV-C disinfection technologies.
- √ **Specifiers to** include UV-C disinfection applications in building fitout design.
- √ **Health authorities** to promote the use of UV-C disinfection technologies.

## Contact

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LightingEurope is the voice of the lighting industry, based in Brussels and representing 33 companies and national associations. Together these members account for over 1,000 European companies, a majority of which are small or medium-sized. They represent a total European workforce of over 100,000 people and an annual turnover exceeding 20 billion euro. LightingEurope is committed to promoting efficient lighting that benefits human comfort, safety and well-being, and the environment. LightingEurope advocates a positive business and regulatory environment to foster fair competition and growth for the European lighting industry. More information is available at [www.lightingeurope.org](http://www.lightingeurope.org).

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<sup>2</sup>Link to RAPEX:

[https://ec.europa.eu/consumers/consumers\\_safety/safety\\_products/rapex/alerts/?event=viewProduct&reference=A12/00969/20&lng=en](https://ec.europa.eu/consumers/consumers_safety/safety_products/rapex/alerts/?event=viewProduct&reference=A12/00969/20&lng=en)

# Annex I – Overview of Existing European Standards and Legislation Applicable to UV-C Lighting

## Standards:

- EN 62471:2008 Photobiological safety of lamps and lamp systems
- EN 60598-1:2015/A1:2018 Luminaires - Part 1: General requirements and tests (EN 60598 series may be used as the basis for risk assessment considering mechanical, electrical and thermal safety)
- EN 14255-1:2005 Measurement and assessment of personal exposures to incoherent optical radiation - Part 1: Ultraviolet radiation emitted by artificial sources in the workplace
- EN 14255-4:2006 - Measurement and assessment of personal exposures to incoherent optical radiation - Part 4: Terminology and quantities used in UV-, visible and IR-exposure measurements
- ISO 12609-2 - Eyewear for protection against intense light sources used on humans and animals for cosmetic and medical applications - Part 2: Guidance for use
- ISO 15858:2016 UV-C Devices — Safety information — Permissible human exposure
- ISO 15714:2019-07 - Method of evaluating the UV dose to airborne microorganisms transiting in-duct ultraviolet germicidal irradiation devices

## EU Legislation:

- DIRECTIVE 2006/25/EC on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation)<sup>3</sup>
- DIRECTIVE 2014/35/EU on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits<sup>4</sup>
- DIRECTIVE 2001/95/EU on general product safety<sup>5</sup>

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<sup>3</sup> Link: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006L0025&from=EN>

<sup>4</sup> Link: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0035&from=EN>

<sup>5</sup> Link: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32001L0095&from=EN>