

Consultation Questionnaire Exemption No. 4(f) of RoHS Annex III

Current wording of the exemption:

Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex

Requested validity period: Maximum (5 years and 7 years (cat. 8 and 9) respectively)

POSITION OF EurEau – EUROPEAN ASSOCIATION OF WATER SERVICES

1. VDMA and LightingEurope requested the renewal of the above exemption for the maximum validity periods with the same scope and wording for all EEE of cat. 3 and 5 (VDMA) and cat. 1-10 (LEU).
 - a. Please let us know whether you support or disagree with the wording, scope and requested duration of the exemption. To support your views, please provide detailed technical argumentation / evidence in line with the criteria in Art. 5(1)(a).

EurEau supports the wording, scope and demanded duration of the exemption requested by Lighting Europe and VDMA with regards to the usage of UV-discharge lamps for drinking water disinfection and treatment and for waste water disinfection.

Mercury-based UV low pressure and medium pressure discharge lamps are widely used across Europe for disinfection purposes, both for drinking water to comply with the Drinking Water Directive (2184/2020/EU) and for waste water under the Water Framework Directive 2000/60/EC, the Bathing Water Directive 2006/7/EC and the Water Reuse Regulation 2020/741.

Disinfection of potable drinking water is essential for the protection of public health (for the inactivation of Protozoa such as Cryptosporidium and viruses such as Adenovirus), and as set out below, no commercially viable alternative is available today. The ongoing Covid-19 pandemic has also demonstrated the critical importance of adequately disinfected drinking water.

The characteristics of these lamps are unique, efficiently delivering the correct wavelength of UV light which denatures the DNA, damaging the genetic material of target microorganisms and protozoa which, if untreated, can harm human health. UV disinfection technology is chemical-free and easy to operate, it is suitable for small and large utilities, and has relatively low energy consumption and produces an insignificant amount to none disinfection by-products.

To illustrate the prevalence of this technology, 75% of Finish drinking water is treated with UV disinfection. Other countries rely mainly on this technology, i.e. Luxembourg and Austria. In Germany, a survey shows that drinking water suppliers are using mostly UV-disinfection in their drinking water treatment plants, and this trend is currently intensifying.

If applicable, please suggest an alternative wording and duration and explain your proposal.

If Annex III, Exemption 4 (f) is going to be subdivided, like suggested in the *“Study to assess socioeconomic impact of substitution of certain mercury-based lamps currently benefitting of RoHS 2 exemptions in Annex III – Final Version”*, July 2019, Öko-Institut e. V., we advocate the wording 4(f), VII, *“Mercury in low pressure and medium pressure discharge lamps emitting light mainly in the ultraviolet spectrum for disinfection and treatment of drinking water and for disinfection of waste water”*.

2. Please provide information concerning possible substitutes or elimination possibilities at present or in the future so that the requested exemption could be restricted or revoked.
 - a. Please explain substitution and elimination possibilities and for which part of the applications in the scope of the requested exemption they are relevant.

Research and innovation activities for non-mercury based UV alternatives are ongoing but they are not commercially viable yet.

Alternatives for Mercury-based UV lamps based on LED technology are so far only available for some industrial applications. For disinfection in the water sector, this technology is not sufficiently developed, due to poor performance and problems with the emitted spectrum.

To be clear, water services are looking forward to LED-technology or other viable non-mercury alternatives.

- b. Please provide information as to research to find alternatives that do not rely on the exemption under review (substitution or elimination), and which may cover part or all of the applications in the scope of the exemption request.

For example, one of EurEau’s German members, DVGW, currently co-funds a standardization and research project of UV LED technology for public drinking water supply disinfection. DVGW assesses LEDs as one of the future feasible drinking water disinfection methods, meeting resource and energy efficiency requirements.

- c. Please provide a roadmap of such on-going substitution/elimination and research (phases that are to be carried out), detailing the current status as well as the estimated time needed for further stages.

The DVGW co-funded UV LED research project mentioned above started in 2021 and will likely terminate in 2023. A first draft standard can be estimated to be published in 2024. Starting from there, the deployment of LED based UV disinfection technology will most likely take about 5 to 10 years at least to achieve the same level of reliability, performance, and cost effectiveness as Mercury-based UV lamps.

In addition, it must be taken into account that when UV LED technology becomes available once in the future for water services, it cannot simply be integrated in existing disinfection facilities at water works or waste water treatment plants but needs an entire redesign of the disinfection unit. In a nutshell: UV lamps cannot be just unscrewed and replaced by UV LED lamps.

3. Do you know of other manufacturers producing devices of comparable features and performance like the ones in the scope of this exemption request that do not depend on RoHS-restricted substances, or use smaller amounts of these substances compared to the applications in the scope of this exemption?

No.

4. As part of the evaluation, socio-economic impacts shall also be compiled and evaluated. For this purpose, if you have information on socioeconomic aspects, please provide details in respect of the following:

We repeat that it must be taken into account that when UV LED technology becomes available once in the future for water services, it cannot simply be integrated in existing disinfection facilities at water works or waste water treatment plants but needs an entire redesign of the disinfection unit. In a nutshell: UV lamps cannot be just unscrewed and replaced by UV LED lamps.

5. Any additional information which you would like to provide?

EurEau is in favour to establish an EU-wide mercury recycling strategy. There is already a manufacturer strive for closed product life cycles for Mercury-containing products.

With regards to the disposal and recycling of end-of-life UV lamps, our members tell us that these lamps are taken back and recycled by the manufacturers as part of the service contract or as part of the UV lamp device certification scheme, e.g. Austria, Switzerland and Liechtenstein. A closed cycle without any environmental pollution is thus possible.

In other countries, UV lamps are safely disposed in compliance with Waste Electrical and Electronic Equipment Directive and hazardous waste regulations.

Please do not forget to provide your contact details (Name, Organisation, e-mail and phone number) so that the project team can contact you in case there are questions concerning your contribution.

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