

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 DVGW – GERMAN TECHNICAL AND SCIENTIFIC ASSOCIATION FOR GAS AND WATER

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).

DVGW supports the wording, scope and requested duration of the exemption required by Lightning Europe and VDMA with regards to the usage of UV-discharge lamps for drinking water disinfection.

According to the requirements of the European Drinking Water Directive (DIRECTIVE (EU) 2020/2184), drinking water has to be safe, wholesome and clean at the consumer's tap. Drinking water operators abstract raw water from groundwater and surface water resources. From case to case, it is necessary to disinfect drinking water. For this purpose, UV-disinfection is widely used in European countries.

A DVGW survey conducted in 2008 (1094 German Drinking Water suppliers replied) revealed UV-disinfection, using mercury-vapor discharge lamps, as the most relevant disinfection method – especially for small suppliers (< 0.3 Mio m³ per year). Beside this, large water utilities are using more and more UV-disinfection since the last 10 years, e. g. drinking water operators in Berlin (3.5 million residents), in Munich (1.5 million residents) and in the highly populated Ruhr region (approx. 2 million residents).

Within the frame of the national transposition of the EU-Drinking Water Directive to national law, Germany has established a whitelist of approved drinking water treatment and disinfection procedures. Only certified mercury-vapour discharge lamps are currently listed as UV disinfection sources (both low- and medium-pressure discharge lamps). This German approach with a clear legal framework for approved treatment techniques ("whitelist") is currently applied by a number of European countries (e. g. Austria, Slovenia).

The testing and subsequent certification of mercury-vapor discharge systems is based on Technical Rules and Standards elaborated and updated by DVGW to secure the safety and efficiency of mercury-vapor discharge lamps for drinking water treatment (DVGW W 294-2 (A) as well as DIN 19294-1, which is identical to ÖNORM M 5873-1). Certified UV disinfection systems, based on these standards, are widely applied in European countries.

- b. 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 of drinking 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.

Alternatives for Mercury-based UV lamps, such as UV LEDs, are so far only available in some industrial applications. For disinfection purposes in the drinking water sector at large scale, this technology is not yet mature, due to low efficiency, short lamp life and regulatory restrictions. We assume that at least another 5 to 10 years of development time will be needed for manufacturers to place LED lamps for this application area on the market.

To be clear, water services are looking forward to the LED-technology but there is today simply no alternative technology available. Besides this, standards to assess and monitor the performance of UV LED systems in drinking water disinfection applications still have to be developed. As a matter of example, DVGW currently supports the development of a DIN standard for UV LED based water disinfection devices. A first draft standard can be estimated to be published in 2024 – but this is only the starting point to establish a new technique.

Furthermore – in case UV LED technology will be available once in future for water services – it cannot simply be integrated in existing disinfection facilities at water works or wastewater treatment plants but needs an entire redesign of the disinfection unit due to totally different radiation patterns of LEDs in comparison with discharge lamps. In a nutshell: UV lamps cannot be just unscrewed and replaced by UV LED lamps.

- 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.

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 technologies for public drinking water disinfection, being a physical disinfection as well as being resource and energy efficient. Yet, further research, standardization and test protocols for this technology are still needed to introduce this new technique into practice.

- 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 minimum.

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?

This question cannot be answered by DVGW.

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: (...)

These questions cannot be answered by DVGW.

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

DVGW is in favour to establish an EU-wide mercury recycling strategy. For example, in Switzerland and Liechtenstein exists a recycling system which based on a fee, payable at the time of purchase, and refundable when recycled.

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