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)

ACRONYMS AND DEFINITIONS

UV	Ultra Violet
LED	Light-Emitting-Diode
Hg	Mercury
LEU	LightingEurope

1. INTRODUCTION

1.1. Background

Bio Innovation Service, UNITAR and Fraunhofer IZM have been appointed[1] by the European Commission through for the evaluation of applications for the review of requests for new exemptions and the renewal of exemptions currently listed in Annexes III and IV of the RoHS Directive 2011/65/EU.

VDMA and Lighting Europe submitted requests[2] for the renewal of the above-mentioned exemption. The request has been subject to a first completeness and plausibility check. The applicant has been requested to answer additional questions and to provide additional information, available on the request webpage of the stakeholder consultation[3].

The stakeholder consultation is part of the review process for the request at hand. The objective of this consultation and the review process is to collect and to evaluate information and evidence according to the criteria listed in Art. 5(1)(a) of Directive 2011/65/EU.[4]

To contribute to this stakeholder consultation, please answer the below questions until the 27th of May 2021.

[1] It is implemented through the specific contract 070201/2020/832829/ENV.B.3 under the Framework contract ENV.B.3/FRA/2019/0017

[2] Exemption request available at RoHS Annex III exemption evaluation - Stakeholder consultation (biois.eu)

[3] Clarification questionnaire available at RoHS Annex III exemption evaluation - Stakeholder consultation (biois.eu)

[4] Directive 2011/65/EU (RoHS) available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32011L0065:EN:NOT

1.2. Summary of the Exemption Request

According to VDMA: "*The application for prolongation of the existing exemption refers to mercury-containing UV discharge lamps which are used for curing (e.g. of layers of inks and coatings, adhesives and sealants), for disinfection (e.g. of water, surfaces and air) and for other industrial applications (surface modification, surface activation) The application includes the following lamp types:*

- ***UV medium-pressure discharge lamps (MPL) for curing, disinfection and other industrial applications*** *(internal operating pressure > 100 mbar). The UV medium-pressure lamps can be doped with iron, gallium or lead in addition to the mercury they contain.*
- ***UV low-pressure discharge lamps for special purposes*** *in the high power range. […]*

Typical applications to be covered by this application include curing, e.g. of inks and coatings, disinfection of water etc., and other industrial applications like surface activation and cleaning.

It is technically not possible to replace mercury in special UV lamps with other materials/chemicals in order to achieve the same widespread radiation distribution. LED-based technologies are increasingly being used, which in certain applications (e.g. curing) also offer many advantages over mercury-containing UV lamps. Nevertheless, LED technologies cannot be used as an equivalent replacement in many applications. "

According to LightingEurope, *"[…]* The renewal application concerns lamps and UV light sources defined as:

- High Pressure Sodium (vapour) lamps (HPS) for horticulture lighting,
- Medium and high-pressure UV lamps for curing, disinfection of water and surfaces, day simulation for zoo animals, etc…
- Short-arc Hg lamps for projection, studio, stage lighting, microlithography for semiconductor production, etc…

Replacement of mercury and mercury containing lamps is impracticable:

- *The lamps covered by exemption 4(f) must remain available on the EU market:*
  - *For new equipment for certain applications where no functionally suitable alternatives are available*
  - *As spare parts for in-use equipment as replacing end-of-life lamps avoids having equipment become electronic waste before due time"*

OHRATRAX ENGINEERING & CONSTRUCTION GMBH is a technical full-service company specialising in temporary special solutions and industrial services based in Leverkusen.
We use UV-lamps for the disinfection of drinking water in order to always be able to offer solutions that conform to drinking water standards.
The proportion of UV lamps used in our product range is about 50. We work with specially equipped and constructed drinking-water-containers in which corresponding drinking water storage tanks are installed.
In order to guarantee the drinking water quality in these reservoirs, we use the technology of UV-disinfection. We work partly with immersion-UV-lamps and also with flow-through UVs.

2. QUESTIONS

1. VDMA and LightingEurope[2] 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[4] in Art. 5(1)(a).

The wording, the scope and the duration requested should be extended, as there is currently no product on the market that could be replaced by the current one. Reference to RoHS Art. 5(1)(a): Exemptions for materials and components may be considered if: - "the reliability of substitute materials is not assured" Our company has often been involved in the search for alternative products. Currently, there is no provider on the market, either on the national market or the international market, that offers an alternative for this.

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

A shortening makes no sense in the industry at the present time. A lot of time and experience is still needed for the development of corresponding technical products with the same benefits. We have not yet come across a variant for disinfection with UV light for drinking water in the form we need. Therefore, it can be assumed that the development of an alternative cannot proceed as quickly as would be desirable. For our company, an extension is necessary in order to be able to continue to exist on the market. Without the currently existing UV lamps, we would not be able to continue offering our services.

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.

Unfortunately, there is no substitute for mercury that would be sufficiently compatible to guarantee the current performance of the UV lamps. Thus, in our case, there is no substitute available.

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.

As there are no alternative products to the UV immersion lamps and flow-through UVs we use, we have not yet been able to make any experiences in this area.

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.

We as a company cannot answer this question, as this is the task and field of the research institutes.

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?

So far, we are not aware of any manufacturer who offers UV immersion or flow-through UVs that have a significantly lower mercury content. With the UV-LED variant, we do not achieve the same degree of disinfection as required. Therefore, this variant is unfortunately not an alternative for us.

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:

a. What are the volumes of EEE in the scope of the requested exemptions which are placed on the market per year?

We cannot give an answer to this question because we do not have any studies and our statement would be based on purely estimated values.

b. What are the volumes of additional waste to be generated should the requested exemption not be renewed or not be renewed for the requested duration?

If UV lamps were no longer available, our company would no longer be able to use any of the constructed systems and would either have to use them elsewhere or they would no longer be used at all. The quantity of UV lamps in our inventory would then all have to be scrapped.

c. What are estimated impacts on employment in total, in the EU and outside the EU, should the requested exemption not be renewed or be renewed for less than the requested time period? Please detail the main sectors in which possible impacts are expected – manufacturers of equipment in the scope of the exemption, suppliers, retail, users of MRI devices, etc.

If the exemption were to be removed, this would have devastating consequences for our company. Our main business is the rental of drinking water supply systems with UV disinfection. If we could no longer serve the market and had no more orders, we would have to lay off employees because salaries could no longer be paid. The company would have to be completely restructured or dissolved. This would increase the number of unemployed, which in turn would lead to additional costs for the state.

d. Please estimate additional costs associated should the requested exemption not be renewed, and how this is divided between various sectors (e.g. private, public, industry: manufacturers, suppliers, retailers).

In general, the unemployment rate would increase drastically. This would result in enormous costs for unemployment benefits. This would not only mean the collapse of producers, but also of logisticians, buyers and consumers.

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

Please note that answers to these questions can be published in the stakeholder consultation, which is part of the evaluation of this request. If your answers contain confidential information, please provide a version that can be made public along with a confidential version, in which proprietary information is clearly marked.

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.