

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 appointed¹ 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 requests² for the renewal of the above-mentioned exemption. The request has been subject to a first completeness and plausibility check. The applicant has been re-requested to answer additional questions and to provide additional information, available on the request webpage of the stakeholder consultation³.

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.

1.2. 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),*

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 \(biois.eu\)](http://biois.eu)

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

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

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:
 - o For new equipment for certain applications where no functionally suitable alternatives are available
 - o As spare parts for in-use equipment as replacing end-of-life lamps avoids having equipment become electronic waste before due time”

General statement:

We, NARVA G.L.E. - Gesellschaft für lichttechnische Erzeugnisse mbH, are a German company located in Berlin and have been developing and producing a wide variety of high-pressure discharge lamps at our site since 1994. Our product portfolio covers a wide range of application areas - from professional lamps for street and industrial plant lighting to need-based developments for horticulture lighting and highly specialized solutions for the medical, technical (UV-curing and UVC-disinfection) and analytical sectors.

Our lamp portfolio continues to be required by a large number of customers for a wide range of specific applications. We are firmly convinced that, taking into account all the advantages and disadvantages, there will hardly be any relevant alternative products in the foreseeable future that can be a sensible substitute in terms of a combination of economy, socioeconomics, efficiency and reliability.

Our experience with alternative products generally shows that they are often less efficient and reliable and have limited compatibility with existing equipment and luminaires.

2. QUESTIONS

1. VDMA and LightingEurope² 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 re-requested duration of the exemption. To support your views, please provide detailed technical argumentation / evidence in line with the criteria⁴ in Art. 5(1)(a).

We support the wording, scope and re-requested duration (at least until 2026 and beyond) of the Exemption No. 4(f) of RoHS Annex III due to the following reason:

The advantages of the established products covered by the relevant exemption 4(f) far outweigh their disadvantages in terms of possible alternatives.

In our view, there are currently no really practicable and technical solutions for eliminating or substituting the necessary amount of mercury in the products concerned, either through design changes or material replacements.

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

A further reduction of the validity period does not appear beneficial, since the development of sensible alternatives based on UV LEDs is complex and requires corresponding development time. UVC applications in particular still face enormous research challenges.

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.

LED applications can be an alternative option in some circumstances depending on the situation, e.g. for planning new installations of horticulture lighting (grow light).

It may be difficult or impossible to directly replace existing systems, either for technical or financial reasons. Often, it is simply not possible to replicate the special spectrum requirements or other properties of the light source with mercury-free 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.

It is difficult for us to make a well-founded statement on this. This question should rather be addressed to specialized research institutes.

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 are a medium-sized manufacturer and see ourselves unable to present a detailed roadmap of such substitution or elimination researches in the short time available. Basic researchers, who are familiar with possible alternatives, should be able to make clearly detailed statements here.

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?

In the meantime, there is a considerable selection of suppliers of grow light and UV LEDs. However, it should be noted that it may not be possible to simply replace UV / grow light lamps with mercury-free products. It depends on the respective applications whether alternative systems can be used and which changes have to be made to the process and the design of the overall systems.

Especially with regard to UVC-LEDs, there still seems to be serious problems in terms of material durability, service life and performance.

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 are not aware of any sighted statistical data that accurately describes the total market for exemption 4(f) products.

For our company, we can estimate that there is an annual demand from our customers of about 155.000 per year for lamps regarding this exemption request.

- 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?

It can be assumed that due to the often limited compatibility of alternative, mercury-free replacement lamps / retrofits, many specially adapted processes will no longer function adequately and therefore entire plants will have to be decommissioned and replaced.

- 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, re-tail, users of MRI devices, etc.

If UV lamps that fall under exemption 4(f) are no longer available, various processes of our customers and even entire systems could no longer be usable since it is technically and/or financially nonsensical to replace the existing systems with ineffective or incompatible mercury-free retrofits.

Furthermore, the discontinuation of this product portfolio would mean massive economic and personnel cuts for our company.

There is still a threat of production relocating outside the EU, as the market continues to need corresponding special products.

- 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).

As we are a manufacturer, a de facto ban on the lamps in question by not renewing this exemption would have drastic consequences for our company, ranging from the closure of dedicated departments to the continued existence of the entire company.

As there will probably be no adequate alternatives for some applications of the current exemption in the foreseeable future, an impending ban could also have a negative impact on the users of these special lamps.

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

From our point of view, a non-renewal of the exemption 4(f) is very problematic for the European Economic Area due to the partly unsuitable alternatives (both technically and economically).

There is a concrete risk that the production of the corresponding products will be relocated outside the EU and the end consumers of these highly specialised products will lose their competitiveness due to a lack of viable and affordable alternatives.

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.



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