

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

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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)

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## 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<sup>1</sup> 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<sup>2</sup> 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<sup>3</sup>.

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.<sup>4</sup>

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

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

<sup>2</sup> Exemption request available at [RoHS Annex III exemption evaluation - Stakeholder consultation \(biois.eu\)](https://biois.eu/rohs-annex-iii-exemption-evaluation-stakeholder-consultation)

<sup>3</sup> Clarification questionnaire available at [RoHS Annex III exemption evaluation - Stakeholder consultation \(biois.eu\)](https://biois.eu/rohs-annex-iii-exemption-evaluation-stakeholder-consultation)

<sup>4</sup> 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:
  - 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”

We; Naturel Foreign Trade Ltd. Co., which was established by Mechanical Engineer Mr. Tamer ATÇI, provide services in UV disinfection and UV-based drying fields in the Turkish market. With Covid pandemic in early 2020 , UV-C investments have considerably increased in Turkey. Behalf of the curing and/or disinfection machine itself Mercury UV lamps which are indispensable spare parts now and will be needed to operate the machines.

Considering the fact that the UV industry we are in is growing rapidly, it is essential to produce and supply these lamps required for disinfection and drying.

As Naturel, sales of spare parts UV lamps constitute the biggest part of our annual turnover.

## 2. QUESTIONS

1. VDMA and LightingEurope<sup>2</sup> 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<sup>4</sup> in Art. 5(1)(a).

**Since it is not technically possible to replace these products with alternative products, it will not be nice to inform customers who have just invested in the current technology about UV mercury lamps will no longer be used, both in terms of commercial ethics and in terms of trust in dealers like us.**

**There are many proved technical analysis of Mercury lamps which are efficient on the fields they are used. Furthermore, the reliability of substitutes is not ensured. With uninsured substitutes it may cause more dramatical negative impacts on environment, health and consumer safety.**

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

**Development of UV lights has been continuing since many years. From an industrial point of view, "mercury contain lights" technology has years of experience, technical analysis and proved effects on the field. It's a technology with technical knowhow with lots of applications. Substate development process will take much more time and investment costs. To start a development process for UV alternatives, the institutes have to have deep investigations for current applications which they did not present detailed investigation reports but only basic disadvantages of mercury lamps. Even if stopping mercury light production, there will no replacement lights in the market for current systems until all new development process to complete where there's no certain argument development timeline.**

**There's also no detailed information in this and other documents about why only specific mercury lights aimed but discharge lamps which contains also mercury and used for other special purposes.**

**UV lamps containing mercury with proven effectiveness in air/water/surface disinfection, specific curing processes, surface treatment and other special applications are indispensable for our applications.**

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.

**The physical properties of mercury make this material quite unique and ideally suited for discharge lamps. There are many scientific researches for replacing mercury with an alternative substance while maintaining the specific beneficial properties of mercury discharge lamps but all are failed. Thus, also confirms that there're no elements which can be an alternative to mercury in discharge lamps that would be 100% compatible replacement.**

**Mercury-free types of discharge lamps and other light sources like UV-LEDs are also used for similar applications with very strict limitations. As an example;**

**- Direct replacement is not possible**

**- Replacement of currently installed machines with new systems will need some extra procedures to follow like using of other substrates, redesign of machine equipment. This will also cause complications like cross-sensitivity to daylight and/or artificial lighting.**

- 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 our tests in field with our customers, replacement of existing UV lamp system with alternatives leads to a manifold of problems including quality issues, process downtime, productivity decrease, high investment costs, higher overall operational costs.**

- 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.

**As we mentioned before this renovation will need to complete the research and development process first, then it needs to prove the effectiveness. Also stopping the mercury lights production meantime will have a result of investment losses of the plants who are currently using them. Regarding to these reasons there's no logical roadmap to apply.**

**Again, as we mentioned above there are other technologies such as UV-LEDs with very strict limitations. Considering the number of facilities in all around the world using current technology, this replacement will cause loss of revenue for both production and consumer plants and will require an inadmissibly long time.**

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?

**There are some alternative products when some other peripherals used for inking, varnishing and pre-treatment which have comparable features. But since these are just for specific applications and for other applications none of them can reach specific mercury spectrum. All machines and peripherals are designed to work fully compatible with their very own devices and lamps. So, it's not possible to say that there's comparable product available in the market because of replacement is not fully available with current systems.**

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?

**In all around the world mercury UV lamp market is quite huge. For our customers in Turkey, we are providing thousand pieces of lamps per year**

- 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?

**When it's decided to remove UV lamps from market, this will just not cause UV lamp wastes but also cause their machines and peripherals will also should be treated as waste. In most cases it is not economically and technically feasible to retrofit existing UV system.**

**Stored UV materials, replacement lamps and machinery of a total value of thousands € would have to be scrap**

- 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.

**Stopping the production of UV lamps will lead to chain issues. All plant owners who have invested to UV machines will economically affected. This will result with dismissal of employees. The same problem will happen in factories which are producing and continuously needing UV lamps (power supply manufacturers, quartz suppliers, UV measuring device manufacturers, printers and coaters, and many more) too. Many of them will be closed and will not be exist anymore. Just in EU there are thousands of companies who are using UV technology.**

**Especialy disinfection (all water, air, surface, etc.), timber and printing sectors will become discontinue their business and/or move their locations outside the EU/EEA.**

- 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).

**There'll be unemployment costs for thousands of personnel,**

**New investment costs for us and for our customers to alternate but not effective (until it is going to be proved) systems.**

**Heavy investment costs for companies into new machinery / equipment (also costs for disposal of no longer usable machines and equipment),**

**Lack of product diversity because of technological and/or economic reasons.**

**Suspension of our business till cease to exist.**

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

**We believe that the authority who are pending mercury ban request is underestimating the global impact of mercury ban to industries, products, markets, employees and end users. Our industry is based on recycle of the mercury content can be reused for new lamps. Instead of applying a mercury ban, by subjecting all participants in the market to recycling regulations and applying the necessary sanctions for those who do not comply with will be much more cost effective against the investment of new system research, launch and all other income lacks of current producers/end users. This regulations and sanctions can be applied in closed-loop processes without damage or impact to the environment and personal health.**

**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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