

Response To Öko-Institut

regarding the

1st Questionnaire Exemption No. 4a (renewal request)

Exemption for “Mercury in other low pressure discharge lamps (per lamp) - 15 mg may be used per lamp after 31 December 2011”

Date of submission: September 15, 2015

Name and contact details

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Abbreviations and Definitions

Hg Mercury

LEU LightingEurope

Background

The Oeko-Institut and Fraunhofer IZM have been appointed within a framework contract¹ for the evaluation of applications for the renewal of exemptions currently listed in Annexes III of the new RoHS Directive 2011/65/EU (RoHS 2) by the European Commission.¹

LightingEurope has submitted a request for the renewal of the above mentioned exemption, which has been subject to a first evaluation. The information you have referred has been reviewed and as

¹ Contract is implemented through Framework Contract No. ENV.C.2/FRA/2011/0020 led by Eunomia

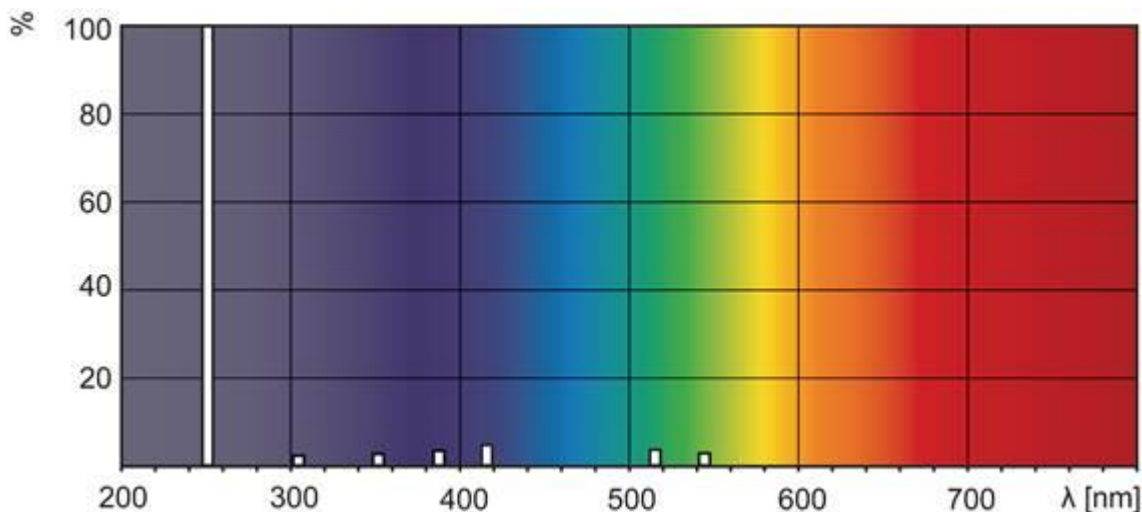
a result we have identified that there is some information missing and have formulated a few questions to clarify some aspects concerning your request.

Questions

1. LUE proposes an amendment of the current wording to limit the scope of the exemption to low pressure discharge lamps that are not phosphor coated. The information provided by LEU however, also clarifies that lamps benefiting from this exemption and respectively placed on the EU market by LEU members can further be defined as lamps that transmit in the 185-254nm range of the UVC spectrum.
 - a. Please clarify if the exemption formulation could further be amended in this respect and provide a proposal for a formulation that addresses both the lack of phosphor coating and the typical spectral range of lamps covered under Ex. 4a.

Answer of LightingEurope: *LightingEurope does not agree that we can further limit the scope of the exemption request. As lamps with fluorescent material for special purposes are covered in exemptions 1(f) and 2(b)(4) the interpretation of LightingEurope is that 4a covers low pressure mercury lamps without phosphors. Although the definition of UV-C is the range between 200-280 nm, the typical mercury lines at 184.95, 253.65, 296.73 and 365.02 nm may also be transmitted in these lamps so the further limitation of the scope is not supported by Lighting Europe.*

Figure 1 Example spectrum of a low pressure mercury discharge



- b. If you do not support this further narrowing please explain why and provide additional argumentation for low pressure discharge lamps that do not have phosphor coating and that transmit beyond the 185-254nm range of the UVC spectrum.

Answer of LightingEurope: *The interpretation of the scope of the exemption as understood by LightingEurope is that all low pressure mercury lamps without phosphor fall under exemption 4a. Although the definition of UV-C is the range between 200-280 nm, the typical mercury lines at*

184.95, 253.65, 296.73 and 365.02 nm may also be transmitted in these lamps so the further limitation of the scope is not supported by Lighting Europe. See also figure 1.

- On page 4 it is stated “It is estimated by the LED manufacturers that deep UVC LEDs will not be available for five to ten years due to the high power and long life-time requirements that are available with low pressure gas discharge lamps.” Please clarify the reference to the performance requirements high power and long life requirements in terms of the levels of performance that are required. If relevant please refer to differences in required performance in relation to the range of articles lamps by Ex. 4a.

Answer of LightingEurope: The lamp range represented in 4a is approximately 5W to 1000W electrical power with an average efficiency of UVC watts/electrical watts of 24% to 40%. The rated life of these lamps is 6,000 to 16,000 hours at which time the UVC output will be 60%- 80% of output at 100 hours. The lamps may be used for air and water treatment for residential products which require a single lamp to large scale multiple lamps and multiple bank systems for municipal, industrial and commercial applications. These larger installations are using comparatively higher power lamps today than in the past to provide higher UVC dosage for the required treatment processes such as destruction of DNA in the microorganisms, ozone generation and/or maintaining advanced oxidation processes. We made a performance comparison in the table below between UVC LED’s and conventional UVC sources. The available power range of UVC LEDs as indicated below does not lend itself to today’s typical applications for UVC lamps. The comparison was made for a Residential water purification and for a Municipal / industrial water purification.in the table below.

Table 1: Comparison discharge lamps with LED lamps

	Example 1 : Residential purification		Example 2 : Municipal purification	
	residential Hg lamp	typical UVC LED	municipal Hg amalgam lamp	typical UVC LED
input power (W)	9	0.1	325	0.1
output power (UVC W)	2.2	0.002	115	0.002
efficiency	24%	2%	35%	2%
price (Euro)	5.00	10.00	100.00	10.00
lifetime (h)	9000	3000	9000	3000
total nr of units	1	3300	1	172500
total price (Euro)	5.00	33000.	100.00	1725000
total input power (W)	9	110	325	5750

3. On page 1 it is stated “Please note that exempted applications for categories 8 and 9 will be reviewed in 2021 at earliest, and are not covered in the current review for other categories, although these applications will continue to need these lamps after July 2016.” In parallel, the request proposes a change of the exemption formulation. If granted, this proposal shall either require a split of the exemption (so as not to change the validity of the original exemption to Cat. 8 and Cat 9 applications) or shall change the scope of the initial exemption, possibly excluding products newly in scope which fall under the current scope of Ex. 4a.
- a. Please clarify if an effort has been made to contact possible associations and manufacturers of relevant Cat. 8 and Cat. 9 applications in this regard.

Answer of LightingEurope: LightingEurope members do not know any medical or measuring instrument usage of the lamps requested under exemption 4a. LightingEurope did not contact other associations or manufacturers of the lamps falling under Cat. 8 or 9. As new applications for these lamps are being developed we should not exclude their potential future use in categories 8 and 9.

Are you aware of companies that could provide input as to the acceptance of the wording formulation in the relevant EEE sectors?

Answer of LightingEurope: LightingEurope has no knowledge of companies that use UV-C lamps from exemption 4a in medical applications falling under Cat.8.9.

4. The title of Table 3 clarifies that it represents the number of lamps placed on the market and average as well as total mercury content for various lamps falling under exemptions 1(e), 2(b)(2), 2(b3), 2(b)(4) and 4(a). Figure 6 provides similar data, also on the basis of all exempted lamps falling under exemptions 1(e), 2(b)(2), 2(b3), 2(b)(4) and 4(a). Can LEU provide a rough estimation how these estimations can be broken-down to represent the share related to the range of lamps falling under each of the exemptions specified (possibly on the basis of the total market shares of LEU members for the various lamps in question)?

Answer of LightingEurope: In the text of the exemption renewal request for exemption 4a the link with the reference in table 3 is broken. The indicated reference 14 is missing. The reference should be:

14 „Preparatory Study on Light Sources for Ecodesign and/or Energy Labelling Requirements (‘Lot 8/9/19) Draft Interim Report, Task 2, Nov.2014, VITO, VHK table 2 page 2-14.“

Market information is not published nor known to LightingEurope as many suppliers are based outside the EU. The information on market size is not available at LightingEurope.

Please note that answers to these questions are to be published as part of the available information relevant for the stakeholder consultation to be carried out as 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.