Consultation Questionnaire Exemption Request No. 4(e)

"Mercury in metal halide lamps (MH)"

Abbreviations and Definitions

MH-lamps	Mercury in metal halide lamps
HID	High Intensity Discharge Lamps
LEU	Lightning Europe

Background

The Oeko-Institut and Fraunhofer IZM have been appointed within a framework contract[1] 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 (LEU) has submitted a request for the renewal of the above mentioned exemption, which 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:

http://rohs.exemptions.oeko.info/index.php?id=228.

The applicant applies for the renewal of Ex. 4(e) with the current wording formulation listed in Annex III of the RoHS Directive and requesting the maximum available duration allowed.

LEU explains that Ex. 4(e) covers High Intensity Discharge Lamps (HID) containing Metal Halides (MH) – both terms and abbreviations are used in the following to address lamps falling under this exemption.

According to the applicant metal halide (MH) lamps are designed for different purposes in the professional market with a great variety of technologies. LEU details different application areas like city lighting, shops, roads, theatres, disco's and sport-outdoor lighting. The shape and size varies widely as does the power rating extending from 20 Watt in shop lighting to above 2000 W in sports lighting and lighting stages for concerts. The efficiency of metal halide light sources also varies from good (80 lm/W) to highly efficient (120 lm /W). The installation of the lamps requires knowledge as to how to handle these lamps, which require special driving gear, including igniters that generate high voltage pulses. These lamps can produce UV radiation and the lamps become very hot during operation.

The metal halide lamps can only operate on designated control gear that switch the lamp on, and regulate its power. Lamps of different metal halide families preferably operate with their own, dedicated control gear.

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

The applicant states that LED solutions are replacing HID solutions. However, the biggest part of the market is the replacement of failed lamps in existing installations. The installed park of luminaires is large and the lifetime of these professional luminaires is long (15-25 years).

LEU explains that Hg is dosed in the discharge tube during lamp manufacturing as liquid metal. The amount of mercury dosed per lamp depends on aspects like lamp power, lamp types, colour temperatures and optical performance and usually varies between 3 and 30 mg but can be as high as 200 mg as in the case of soccer stadium applications. According to LEU the total amount of mercury entering the EU market is estimated to be around 16 Million lamps which correspond to 176 kg.

The applicant claims that LED alternatives cannot replace MH-lamps on a one to one replacement basis when a lamp has failed. Retrofit lamps of the same size as HID lamps cannot be manufactured at present, at least as long as the efficiency of the LED's is not much larger than that of the current metal halide lamps. LEU explains that a LED replacement bulb will need to be operated in the existing luminaire and needs to dispense of the excess heat as would a HID lamp. In LEUs opinion this is not possible with an LED of the same size, and LED also have heat flux 1.5 times higher than the HID lamps. Furthermore the applicant states that that replacing HID lamps with LED lamps, as a consequence requires the replacement of luminaires and drivers, resulting in high investments for customers and governments while the installed equipment can still be used for many years if replacement lamps are to remain available. The total installed number of luminaires with metal halide lamps installed is estimated to be 150 million in Europe and LEU estimates that the costs per LED luminaires are between 200 - 500€ for replacing.

Against this background, LEU does not expect LED alternatives to allow for a full phase-out of Ex. 4(e) lamps within the coming 5 years, and thus requests a renewal of the exemption.

For details, please check the applicant's exemption request at:
http://rohs.exemptions.oeko.info/index.php?id=238

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 (RoHS II), which can be found under:

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32011L0065:EN:NOT

If you would like to contribute to the stakeholder consultation, please answer the following questions:

Questions

1. The applicant has requested the renewal of Ex.4(e) with the current wording formulation:

   "Mercury in metal halide lamps (MH-lamps)"

   and with the maximum validity period possible.

   a. Do you agree with the scope of Ex. 4(e) as proposed by the applicant? To support your views, please provide detailed technical argumentation / evidence in line with the criteria in Art. 5(1)(a).

   b. Please suggest an alternative wording and explain your proposal, if you do not agree with the proposed exemption wording or with the wording of one or more of the entries.

2. Please describe the lamps and their uses, understood to be covered by this exemption. If possible specify relevant lamp sub-groups.

3. It is understood that mercury is used in all MH lamps (with ceramic, quartz, sodium etc.). If possible please provide an overview on Hg levels in the different MH lamp sub-groups, also referring to typical wattage range and their typical uses.

4. MH lamps are designed for different application and their characteristic parameters such as the shape, size and power wattage varies greatly.
    a. Please provide an overview of MH-lamp types comparing to LEDs for their key parameters, like luminous efficacy (lm/W), lamp life, CRI, average price, light fluxes, colour temperature etc.
    b. Please provide wattage rages, size ranges and common shapes and dimension ranges in respect with various sub-application groups.
    c. Please provide information and data concerning possible substitutes or developments that may enable reduction, substitution or elimination, in the present or in the future:
    d. Please also detail parallel parameters of the alternative applications such as LED and Xenon substitutes, so that comparison of the available substitutes with the product range is possible.
    e. Please clarify if the mentioned alternatives require the use of substances listed in Annex II of the Directive, and if relevant, provide data to allow comparability woth the Hg quantities in MH lamps.

    Data for these questions can be provided in table form.

5. LEU claims on the one hand that LED technology performance is developing and entering the market rapidly and on the other hand that there are no replacement lamps available for HID installations already on the market and in use.
    a. Please clarify if a renewal of the exemption could be limited to the application of Hg in lamps to be used in installations placed on the market in the past.
    b. If this is not possible at present, please specify if a short term transition period would enable such a change (for example, for lamps placed on the market before 2017).
    c. What stages are required to allow the phase-out of Ex. 4(e) lamps?

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.