

## Consultation Questionnaire Exemption No. 5(b) (renewal request)

### *Exemption for „Lead in glass of fluorescent tubes not exceeding 0.2 % by weight“*

#### Abbreviations and Definitions

LEU	LightingEurope
PB	Lead
PbO	Lead oxide

#### Background

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

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>).

According to the applicant, lead was used in the past in the glass of fluorescent lamp tubes. Fluorescent lamps are low-pressure discharge lamps. In such lamps, UV radiation is produced by excitation of mercury atoms, and is then converted into visible light through the fluorescent coating on the internal surface of the glass tube of the lamp bulb. The composition of the coating determines the light colour and colour rendering of the lamp. The lamp glass used in low pressure discharge lamps is mainly soda-lime glass (soft glass) and, as a standard technology, was produced in the past with the use of lead. However, lead in the glass of fluorescent tubes has successfully been phased out by manufacturers and is no longer added intentionally.

Nonetheless, recycled glass originating from lamps is often used as a raw material for the manufacture of new glass tubes and may contain lead. From LEU's application it is understood that the lead is fused in the glass matrix and thus safe in terms of possible emissions. Among others, in support of the extension of the exemption, the use of recycled glass is also said to decrease the energy consumption related to the manufacture of new glass tubes.

LEU explain that in the past, Pb was present at a share of app. 20 % in glass tubes, added in the form of PbO in the production process. Leaded glass was much easier to process at all phases of glass smelting and glass soldering, leading to lower failure amounts during manufacture. Due to changes in the production processes it was possible to phase-out lead in glass over the last 4-8 years. However, since fluorescent tubes have a relatively long service life and since the use of lead in glass tubes was allowed in the EU until 2010<sup>2</sup> and is still allowed outside the EU, it is to be

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

<sup>2</sup> Reference is made in the application to Commission Decision 2010/571/EU of 24 September 2010

expected that “*lead containing recycling glass will be available for a foreseeable long term, probably decades. This is especially valid if the lamp glass is produced outside EU.*”

LEU claims that “*this glass can contain differing amounts of lead - a maximum content of 0.2 wt% lead can be contained in glass of fluorescent lamps. According internal measurements by far most lamps do not exceed the threshold of 0.1% in glass.*” On this basis LEU request an extension of the current exemption. However Pb has no intended or unintended function in the tube of these lamps and is said to be a result of the presence of lead in recycled glass originating from lamps at end-of-life as a contaminant.

For details, please check the applicant’s exemption request at:

<http://rohs.exemptions.oeko.info/index.php?id=240>

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. Is it possible to provide data regarding the amount of lead entering the EU per year through this application? If possible, please estimate how the annual amount is expected to change with respect to changes in the market share of fluorescent lamps as a result of an increased market uptake of other lamp technologies.
2. The application explains that the use of lead in the manufacture of fluorescent tube glass is not prohibited in countries outside the EU.
  - a. Can you explain how it can be ensured that the presence of unintentional Pb in lamps manufactured with non-EU glass lamp recyclate is equivalent to levels in glass tube manufactured with EU recyclate, or at least below the threshold specified in Ex. 5(b)?
  - b. Do you have any knowledge on the amount of Pb, annually placed on the EU market resulting from the use of EoL fluorescent lamp glass recyclate in the manufacture of new lamp glass, the EoL fluorescent lamp glass having either been collected and recycled in EU countries or in non-EU countries;
3. Regarding the share of lead in glass tubes and the amount of recyclate used for manufacture:
  - a. Can a change in trend be observed/estimated regarding the presence of Pb in fluorescent lamp tube glass since 2006?
  - b. On this basis, when do you expect that the share of Pb as an impurity will be in compliance with the RoHS Annex II threshold (i.e., without an exemption), or why is this trend not expected to change in the short or medium term?

4. An OSRAM facility is mentioned where, for the manufacture of glass tubes, “30 - 40 % recycling glass is used. Technically (theoretically) up to 80% is estimated to be possible... Source for the recycling glass... mainly glass from lamp recycling. ”
- a. Is the remaining share of glass used for the manufacture of new glass tubes “newly manufactured glass” (i.e. use of virgin raw material) or are, in some cases, other types of recycled glass, aside from recycled lamp glass, used as additional sources for the manufacture of glass tubes?
  - b. Are there any additional reasons for limiting the use of recycled glass in manufacture, aside from compliance with the threshold of the current exemption (e.g. impacts on the performance requirements of the glass tube)?
5. “Limitation of the use of recycling glass for lamp glass production” is mentioned as a possible measure, understood to be aimed at ensuring that the presence of lead in lamps of different origin will be at a similar level (e.g., Pb level in EU manufactured lamps and in imported lamps). Can you provide estimations as to the ranges of different glass types typically used to manufacture glass (i.e. shares of recyclate from EoL fluorescent lamp glass of varying origin: other recyclate: newly manufactured glass: other materials) and the subsequent amount (range) of Pb present in tube glass in the cases specified? Have you observed any differences between different countries or regions (e.g. EU / non EU) in this respect?

**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.**