

## Consultation Questionnaire Exemption No. 21 (renewal request)

### *Exemption for „Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses“*

#### Abbreviations and Definitions

Cd	Cadmium
EoL	End-of-life
LEU	Lighting Europe
Pb	Lead

#### 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 Annexes III of the new RoHS Directive 2011/65/EU (RoHS 2) by the European Commission.<sup>1</sup>

Lighting Europe (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 containing ink is used for marking lamps where the lamp stamp is located on the glass material (e.g. tube or bulb), such as:

- (non-) linear fluorescent lamps (e.g. T5, T8, T12);
- high pressure sodium lamps;
- Quartz Metal Halide (QMH) and Ceramic Metal Halide (CMH);
- PAR lamps and HID lamps like High Pressure Sodium (HPS);
- incandescent lamps for special purposes (exempted from 244/2009);
- halogen lamps (low and mains voltage)

*“Lead is one of the components in the low melting glass (enamel) which is in its turn a component in the ink. This enamel has a very low softening point due to the presence of lead, which is needed to adhere the pigment particles in the ink to the bulb glass of the lamp, without affecting the lamp bulb glass itself, during the fixation process of the marking to the lamp bulb glass at elevated temperatures. Furthermore it ensures that the marking will last on the lamp during life time of the lamp.”<sup>2</sup>*

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

<sup>2</sup> LEU (2015b), LightingEurope Answers to 1st Questionnaire Regarding Exemption No. 21 (renewal request), submitted per email on 10.8.2015

*“Lead is needed to make a mark on the soda lime glass that durably stays on the lamp throughout the lifetime of the lamp. Lead helps the marking ink to fuse into the glass surface. The ink has to adhere to the glass within a few seconds without being damaged in many factories. In the black ink a so called lead containing glass frit is used as adhesion compound to the glass. In the green (lead free) ink an aluminium phosphate is used for the adhesion to the glass.” LEU further explains that though lead free ink solutions have been found, at present, they cannot be effectively utilized in all situations with the required mark quality. Thus the extension of the exemption is requested.*<sup>3</sup>

*“LightingEurope is of the opinion that the question whether glass marked with pigment particles embedded in enamel is considered as homogeneous material is not resolved completely. Hence, since the marking cannot be removed by mechanical abrasive means LightingEurope considers the marked glass as homogenous material. This was the position of ELC some years ago when the exemption was extended from borosilicate glass to all type of (lamp) glasses. This exemption gave legal certainty to manufacturers, supply chain and authorities.”<sup>4</sup>*

The marking has several functions, during the various stages of the life cycle:

- to identify the producer (e.g., brand, country of origin, etc....),
- to identify lamp type and wattage, which is relevant for safety, correct lamp replacement and recycling,
- CE, WEEE marking.

Product identification is legally required for CE Marking according to the LVD Directive (2006/95/EC). A list of harmonized standards falling under this directive is published in OJEU as 2015/C 125/02. For instance, the marking requirement for linear fluorescent lamps is given in safety standard EN61195 in clause 2.2.1 (citing relevant text excerpts infringes with copyright of the standards, hence they are not provided in the answer). Moreover, marking of lamps at the end of life is also required by the WEEE Directive (2002/96/EC).

Regarding possible substitutes, LEU explain that marking the glass with etching/engraving does not seem to be technically feasible due to cracks. Additionally, marking on other than glass components in the relevant lamp types is also explained not to be possible for example on linear fluorescent lamps in lack of sufficient space and due to the regulated size of the required mark. Legibility of the mark needs to be ensured for the complete life-cycle of the product. “If a mark is not properly legible for the user, the user might place the wrong lamp into a luminaire with the consequence of a high safety risk. Maximum lamp temperatures may differ per lamp type and application.”. Readability of the marking may also be important well after the expected product life-time, as use may not be continuous and EoL products may arrive at recycling facilities long after they have been manufactured.

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

<http://rohs.exemptions.oeko.info/index.php?id=252>

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>

<sup>3</sup> LEU (2015a), Request to renew Exemption 21 under the RoHS Directive 2011/65/EU Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses, submitted by Lighting Europe to the EU Commission on 16.1.2015

<sup>4</sup> Op cit. LEU (2015b)

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

## Questions

1. The applicant originally applied for the same wording formulation of Ex. 21 as appears in Annex III of the Directive, however later proposed an alternative formulation, as it was apparent from the argumentation that Cd is no longer used in inks for marking glass of lamps. LEU propose the following wording:  
*“Lead in printing inks for the application of enamels on glasses”*
  - a. Do you agree with the scope of the exemption as proposed by the applicant?
  - b. Please suggest an alternative wording and explain your proposal, if you do not agree with the proposed exemption wording.
  - c. Please explain why you either support the applicant’s request or object to it. To support your views, please provide detailed technical argumentation / evidence in line with the criteria in Art. 5(1)(a) to support your statement.
  - d. Please state if the exemption could further be limited to use “in the marking of lighting equipment as required in the LVD Directive (2006/95/EC)”.
2. It is understood that Pb is used in inks for marking the glass of lamps, such as those listed above. Please comment as to the various lamp types, if some or all are in the process of phase-out in light of their replacement with other lamp types for which the exemption is not required (i.e., through transition to other technologies, change in future design etc.)
3. Please provide information concerning possible substitutes or developments that may enable reduction, substitution or elimination, at present or in the future, of lead in printing inks for enamels and glass of lamps and lighting equipment.;
  - a. In this regard, please provide information as to alternatives that may cover part or all of the applicability range of such printing inks;
  - b. Please provide quantitative data as to application specifications to support your view.
4. Please provide information as to research initiatives which are currently looking into the development of possible alternatives for some or all of the application range of lead in printing inks for enamels and glass of lamps and lighting equipment;
  - a. Please explain what part of the application range is of relevance for such initiatives (in what applications may substitution be possible in the future).
  - b. Please provide a roadmap of such on-going research (phases that are to be carried out), detailing the current status as well as the estimated time needed for further stages.

**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.**