

## Questionnaire

### Review of Exemption 31 Annex of Directive 2002/95/EC

**“Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting)”**

#### **Background**

Following Article 5 (1) (b) of the RoHS Directive (2002/95/EC), exemptions have to be reviewed at least every four years. **Exemption 31** is therefore now open to review with a view to adapt it to scientific and technical progress.

OSRAM and the European Lamp Companies Federation (ELCF) had applied for this exemption in 2006 (OSRAM et. al 2006). Öko-Institut e.V together with Fraunhofer IZM had recommended granting the exemption (Gensch et al. 2006). The exemption was consequently approved during the decision-making process and came into force in January 2008 without an expiry date with the following wording:

*“Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting)”*

#### **The applicant justified the exemption request with the following main arguments (Gensch et al. 2006):**

1. Technical: Mercury free flat panels without lead are not available. At present no lead-free glass solders/frits is available which can meet the process requirements. Development of lead free flat panel lamps could possibly be finished within a 2 year time frame, but the outcome of the lead-free frit development is not predictable.
2. Environment: The panels are the first generation of mercury free flat panels; in case of breakage or at end of life there is no impact of mercury like with usual flat panels. The lead used in glass solder and the solder itself are not available to the environment, because the system is closed and at end of life flat panels are recycled.

For further details, please refer to Gensch et al. (2006).

In case you wish to either support the continuation or the withdrawal of the current exemption 31, please answer the questions in the next section. We also welcome any additional information illustrating the use and possible substitution of the hazardous substance in this application.

## Questions

1. Please indicate the functionality and technical necessity of the lead in soldering material in mercury free flat fluorescent lamps and give examples of RoHS relevant applications for such lamps respectively list all relevant applications or group of applications that fall under the scope of the RoHS Directive.
2. Please describe where the lead-containing soldering materials are located in the following applications for mercury free flat fluorescent lamps and indicate the type and quantity of the lead in absolute numbers and in percentage by weight in homogenous material:
  - a) LCD monitors
  - b) Photo lighting equipment
  - c) Design lighting
  - d) Industrial lighting
  - e) Equipment for inspection of radiographies
  - f) Others

Please also provide an estimate of the annual quantities of the lead used in those particular applications put on the market in the EU27.

3. Please describe the possibilities and/or the status regarding the development of substitutes:
  - a) Are there currently alternative technologies or substitutes for above mentioned products which do not require the use of lead in soldering materials for mercury free flat fluorescent lamps or which have proved that the use of lead is still unavoidable? At the time of the last evaluation, four years ago, there were no lead free glass solders available. Please give an update on the current status quo in this respect. Please provide detailed and fact-based evidence on what research has been done and what the outcome was to support your argumentation.
  - b) Also, indicate what substitution efforts are planned in future: is there a timeline / roadmap for possible substitutes? What research efforts are being undertaken or are planned? What are economic implications related to substitution? Please provide detailed and fact-based evidence to support your argumentation.
4. Are there any other possibilities to manufacture displays (e.g. VFD = Vacuum Fluorescent Displays) without using lead in solders?
5. Please indicate if the negative environmental, health and/or consumer safety impacts caused by substitution are likely to outweigh the environmental, health and/or

consumer safety benefits. If existing, please refer to relevant studies on negative impacts caused by substitution.

6. In order to assess the environmental impact of the use of lead in mercury-free flat panel lamps, please explain how the mercury free flat panel recycling systems are set up in the EU, i.e. what happens to the lead which cannot be recycled.

Legal background information for stakeholders:

According to Article 5 (1) (b) RoHS Directive, exemptions can only be granted or continued if at least one of the following conditions applies:

- Substitution of concerned hazardous substances via materials and components not containing these is technically or scientifically either practicable or impracticable;
- Elimination or substitution of concerned hazardous substances via design changes is technically or scientifically either practicable or impracticable.
- The negative environmental, health and/or consumer safety impacts caused by substitution are likely to outweigh the environmental, health and/or consumer safety benefits thereof.

## References

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| OSRAM et. al 2006  | Stakeholder document submitted by OSRAM within the online stakeholder consultation on Adaptation to scientific and technical progress under Directive 2002/95/EC for the purpose of a possible amendment of the annex,<br><a href="http://circa.europa.eu/Public/irc/env/dir_2002_95/library?l=/requests_exemptions/15_mercury_panel&amp;vm=detailed&amp;sb=Title">http://circa.europa.eu/Public/irc/env/dir_2002_95/library?l=/requests_exemptions/15_mercury_panel&amp;vm=detailed&amp;sb=Title</a> . |
| Gensch et al. 2006 | Gensch, C.; Zangl, S.; Möller, M.; Lohse, J.; Müller, J.; Schischke, K.; Deubzer, O. Adaptation to Scientific and Technical Progress under Directive 2002/95/EC, Final Report, Freiburg, July 2006, page 127 ff;<br><a href="http://ec.europa.eu/environment/waste/wEEE/pdf/rohs_report.pdf">http://ec.europa.eu/environment/waste/wEEE/pdf/rohs_report.pdf</a> .   |