

Adaption to Scientific and Technical Progress under Directive 2002/95/EC

Results previous evaluation

Exemption 31 under 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)”

(Excerpt from Öko-Institut report 2006)

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- Due to the short time period left between end of the stakeholder consultation and drafting of the final report, no further investigation could take place concerning this exemption request.
- Questions that could not be fully clarified are:
 - Detailed description of (technical specifications) of the application in which solenoid valves are needed and declaration whether these applications fall under the scope of the RoHS Directive.
 - Function of lead in this application
 - Proposal of new wording and agreement to it.
 - Availability of such valves in RoHS compliant form.
 - Asking applicant for providing evidence on supplier problems and roadmap of R&D efforts.

6.32.3 Final recommendation

With regard to the above mentioned arguments no founded exemption can be given at this point. An additional round of questions to the applicant and stakeholders would be necessary to give a justifiable recommendation. The time span necessary for this exceeds duration of the contract.

Should a decision be taken on the grounds of the available documentation it is recommended not to grant the exemption due to the missing information – there is no founded justification in line with Article 5 (1) (b).

6.33 Mercury free flat panel lamp – Osram (request set 4 No. 15)

6.33.1 Requested exemption

Osram and the European Lamp Companies Federation (ELCF) request an exemption for mercury free flat panel lamps (type PLANON®). The lead containing glass solder is used to assemble the flat-panel glass envelope. The specific function of the glass solder is described by the applicant as follows:

“Since PLANON lamps do not use exhaust tubes, an especially designed pump-fill-process that takes place within a vacuum oven has to be used. This process includes the use of a variety of gas atmospheres and related partial gas pressures. The result is a complex interaction between the dielectric layers, the glass spacers and the glass solder/frit. During the pumping process at a certain temperature, the spacers must provide a sufficiently large gap between the bottom and the top glass of the lamp. When the temperature is increased, the top glass must sink toward the bottom glass in such a manner that ensures a good connection between top and bottom glass and simultaneously a tight connection between top

glass and the individual spacers. During this process, the dielectric layers must not build any foam. The temperature dependence of the viscosity of the three lead-containing glass solders/frits has to be such that it supports - for a given amount and form of spacers and thickness of the used sealing frit - the time, temperature, and pressure requirements of the sealing process. The temperature dependence of the three glass solders/frits needs to support the limitations that the sealing process imposes on the amount and thickness of the used frit materials.”

The flat panel lamps are used as a light source for several products, e.g.

- LCD monitors
- Photo lighting equipment
- Design luminaire
- Equipment for inspection of radiographies

The total annual amount of lead in this application is about 60 kg (total EU market).

The ELCF suggests the wording for the exemption as follows: “Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for Liquid Crystal displays, design or industrial lighting)”.

6.33.2 Summary of justification for exemption

The applicant justifies the request for exemption considering several criteria:

- Technically: 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.
- 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.

On inquiry the applicant could provide further information on advantages of mercury free flat panel lamps in comparison to conventional ones being the size (flat lamp), the absence of mercury and the very long lamp life time.

A critical review of the documents made available by the applicant and of further data and information given by other parties lead to the following observations and conclusions:

- Data and information given by the applicant are complete and comprehensible. Basically this exemption request should be granted as at the moment no substitutes are existent providing the functionality of the seal frit adequately.
- The requested exemption is similar to a former request (set 2 No. 16); due to not fully comprehensible and complete information the consultants at that time recommended to

grant the former exemption request but using a wording restricting the exemption to a specific application (backlight unit for LCD).

- Taking into account information now available the formerly recommended restricted wording is seen as obsolete.

6.33.3 Final recommendation

With regard to the above mentioned arguments it is recommended to grant this request for exemption. According to the proposal of the applicant the following wording is considered as appropriate: “Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting)”.

6.34 Electronic equipment where the reliability, durability and longevity of the equipment is paramount – Pulsar Light of Cambridge (request set 4 No. 16)

6.34.1 Requested exemption

Pulsar Light of Cambridge Ltd. requests the exemption of Tin-Lead 60-40 solder. The applicant does not narrow his request to specific application(s) but states that this solder is used in every application.

The applicant states that 325.000 tons of lead is used annually in the UK by all industries but only 1% i.e. 3.250 tons of this lead is used in the electronic and electrical industries under RoHS, mainly in solder.

Even upon inquiry the applicant was not able to specify his request; the consultants interpret the request with a wording as follows: “Use of tin-lead solder for the production of electronic equipment where the reliability, durability and longevity of the equipment is paramount.”

6.34.2 Summary of justification for exemption

The applicant justifies his request for exemption with technical, health impacts, environmental and economic arguments:

- The replacement with lead-free solder does not work reliably, while existing tin-lead solder work exceedingly well.
- The replacement with lead-free solders would have no advantages and many defects which will damage the reliability of the applicant’s products.
- Reduced reliability, durability and longevity of products would increase the amount of products scrapped and the amount of waste produced.
- Furthermore the applicant argues that there would not be a health issue to solve. Since red and white lead oxides were removed from paint and since lead has been