Consultation Questionnaire Exemption No. 8(e)

Review of Exemption 8(e) "Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)"

Abbreviations and Definitions

HMP solder	high melting point solders, i.e. solders with a lead-content of 85 % by weight or more

Background

The Öko-Institut together with Fraunhofer IZM has been appointed by the European Commission within a framework contract[1] for the review of exemptions in Annex II of Directive 2000/53/EC (ELV Directive). The aim of this project is to evaluate whether the use of lead in the above mentioned exemption is still unavoidable and the continuation of the exemption is therefore justified in line with Art. (4)(2)(b)(ii) of the ELV Directive.

Annex II of the ELV Directive was reviewed in 2009/2010. It was assessed that at that time high melting point (HMP) solders were used in the following applications[2]:

1. Internal electrical interconnections in components
2. Die attach
3. Plastic overmoulding
4. Ceramic BGAs
5. High power applications
6. Hermetic sealings

In line with the Commission policies at that time, it was decided to transform the material specific exemption into an application specific one in a review in 2014, following the examples of other exemptions in Annex II of the ELV Directive.

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

[2] For details see the report of Öko-Institut (2010), pages 99 to 106

Questions

1. Please indicate whether there are any other applications where HMP lead-solders are used.

2. In 2009, the investigation and development of a few possible alternatives to the use of HMP solders was already underway[3], but it was not possible to identify applicable alternatives at the time. Please describe:

   a) in which applications the use of lead-containing HMP solders has become avoidable.

   b) the tests or other works that have been performed to this extent, and explain the results with respect to the applicability of lead-free solutions for one or more of the above applications of lead HMP solders.

3. For hermetic sealings, Swatch had applied for an exemption under the RoHS Directive for the use of lead used in hermetic sealings in quartz crystal resonators[4]. The exemption request was assessed and recommended not to be granted[5], as lead-free solutions were available[6]. The consultants therefore assume that at least in this application, the use of lead is avoidable. Please explain:

   a) whether and how far you agree with this conclusion. If you do not agree, please provide evidence that lead-free solutions offered, for example in Annex III in the report of Öko-Institut (2006), are not viable for hermetic sealings used in automotive applications.

   b) in which other hermetic sealings are lead HMP solders used, and whether and how far the above lead-free solution is transferable to these applications.

   c) whether there are any other solutions for hermetic sealings making the use of lead avoidable, if not yet explained under question 2.

[3] For details see Öko-Institut (2010), page 99

[4] For the application, see http://circa.europa.eu/Public/irc/env/dir_2002_95/library?l=/requests_exempions/resonator_electronics/a-1018_swatchpdf/_IT_1.0_&a=d

[5] See Öko-Institut (2006), pages 83 to 89

[6] See Annex III in Öko-Institut (2006)

4. Please indicate how much lead would be used under those applications in which the use of leaded HMP solders is unavoidable. Please substantiate the amount of lead with a calculation for vehicles put on the European market, and worldwide.

5. Please provide a roadmap towards ELV-compliance for those applications where the use of lead HMP solders is still unavoidable. Please break down the roadmap into steps to be performed and present and explain the related timelines.

2 References

Ökoinstitut 2010 — Stéphanie Zangl et al., Ökoinstitut; Otmar Deubzer, Fraunhofer IZM: Adaptation to scientific and technical progress of Annex II to Directive 2000/53/EC (ELV) and of the Annex to Directive 2002/95/EC (RoHS), final report; Freiburg, 28 July 2010; http://elv.exemptions.oeko.info/fileadmin/user_upload/Final_Report/Corr_Final_report_ELV_RoHS_28_07_2010.pdf, or https://circabc.europa.eu/sd/d/a4bca0a9-b6de-401d-beff-6d15bf423915/Corr_Final%20report_ELV_RoHS_28_07_2010.pdf; last accessed 4 September 2013

Öko-Institut 2006 — Carl-Otto Gensch, Joachim Lohse, Martin Möller, Stéphanie Zangl, Öko-Institut; Otmar Deubzer, Jutta Müller, Karsten Schischke, Fraunhofer IZM: Adaptation to scientific and technical progress under Directive 2002/95/EC, final report, Freiburg, 28 July 2006; retrievable from http://ec.europa.eu/environment/waste/pdf/rohs_report.pdf; last accessed 4 September 2013

Annex III — Annex III of Öko-Institut 2006, retrievable from http://ec.europa.eu/environment/waste/weee/pdf/annex3.pdf; last accessed 4 September 2013