

Consultation Questionnaire Exemption No. 15 (renewal request)

Exemption for „Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages Cadmium and its compounds in electrical contacts“

Abbreviations and Definitions

FCOL	flip chip on lead ¹ frame
FCP	flip chip package
Pb	lead

Background

The Oeko-Institut and Fraunhofer IZM have been appointed within a framework contract² 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.¹

Intel et al. 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, to be made available on the request webpage of the stakeholder consultation (<http://rohs.exemptions.oeko.info/index.php?id=228>).

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 read the following summary of the exemption requests and answer the below questions:

Summary of Exemption Requests

The application was last reviewed in 2008/2009.³ It was recommended to continue the exemption without any changes as lead-free alternatives were not available to a degree that would have allowed the restriction or even revocation of the exemption.

¹ “lead” in this context does not stand for the metal Pb (lead).

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

³ For details see report of (Carl-Otto Gensch, Öko-Institut e. V., et al.), with the assistance of Stéphanie Zangl, Rita Groß, Anna Weber, Öko-Institut e. V., and Otmar Deubzer, Fraunhofer IZM (19 February 2009), page 175 et sqq.

Intel et al. now request the continuation of exemption 15 with changes in the scope restricting the exemption to larger and older FCP and to specific applications:

*Lead in solders to complete a viable electrical connection between **active component(s)** and the carrier within integrated circuit flip chip packages with at least one of the following characteristics:*

- Greater than or equal to 90 nm semiconductor technology node
- Die size greater than or equal to 300 mm² in any semiconductor technology/node including stacked die
- Stacked die packages using interposers greater than or equal to 300 mm²
- High current products rated at greater than or equal to 3 A that use smaller package designs (with die sizes less than 300mm²) incorporating the flip chip on lead-frame (FCOL) interconnect.

For details, please check the applicants' exemption request at:

<http://rohs.exemptions.oeko.info/index.php?id=250>

Questions

1. Intel et al. state that "*The remaining devices manufactured in leaded flip chip attach are expected to continue declining over the next 5 years as those products are replaced with newer technology.*" Intel et al. justify the continuation of the exemption with the problems related to a redesign of older lead-FCP series. A principle alternative would be to redesign the products that still use these older lead-FCP so that they can use newer lead-free ones.
 - a. Do you know of products that still use lead-FCP? Please detail such products as well as, and what kind of FCP is used?
 - b. Please explain the viability of this option taking into account that FCP with Pb could still be used for repair and upgrade of older products that were made available on the market prior to a potential (partial) expiry of exemption 15.

2. Intel et al. propose the above new wording for exemption 15 with a validity period of five years. Aside from older/larger FCP, the "*semiconductor die*" mentioned in the current wording was replaced by "*active component(s)*" in the proposed new wording (see bold parts in above Intel wording proposal).
 - a. Do you agree with the scope and proposed formulation of the exemption as proposed by the applicants? Please take into account the answers to question 1 and the replacement of "*semiconductor die*" by "*active components*".
 - 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 applicants' request or object to it. To support your views, please provide detailed technical argumentation / evidence in line with the criteria in RoHS Art. 5(1)(a).

In case parts of your contribution are confidential, please provide your contribution in two versions (public /confidential). Please also note, however, that requested exemptions cannot be granted based on confidential information!

Finally, please do not forget to provide your contact details (Name, Organisation, e-mail and phone number) so that Oeko-Institut/Fraunhofer IZM can contact you in case there are questions concerning your contribution.

References

(Carl-Otto Gensch, Oeko-Institut e. V., et al. 19 February 2009) *Adaptation to scientific and technical progress under Directive 2002/95/EC: Final Report*. With the assistance of Stéphanie Zangl, Rita Groß, Anna Weber, Öko-Institut e. V. and Otmar Deubzer, Fraunhofer IZM. Freiburg: . Accessed July 14, 2015.
http://ec.europa.eu/environment/waste/weee/pdf/final_reportl_rohs1_en.pdf;
http://ec.europa.eu/environment/waste/weee/pdf/report_2009.pdf.