

Questionnaire

Exemption request 1 under Directive 2002/95/EC

“Cadmium in photoresistors for analog optocouplers applied in professional audio equipment until 31 December 2013”

The applicant and stakeholders are invited to clarify the following questions as detailed as possible. In your contribution, please state which question number you are referring to. Before you answer the questions, please read the following background information: results of the former evaluation of exemption 35 of the RoHS Annex¹ under http://ec.europa.eu/environment/waste/rohs_7_consult.htm and http://circa.europa.eu/Public/irc/env/rohs_7/library?l=/&vm=detailed&sb=Title for the corresponding consultation and <http://rohs.exemptions.oeko.info/index.php?id=77> for the report containing the recommendation.

The original applicant of the former request claims that there are RoHS compliant alternatives to photo-resistors (namely Macron Opto-coupler devices) that could be used. Since the former evaluation came to the conclusion that the test reports submitted by Macron and Casco Silonex arrive at **contradicting statements on the RoHS-compliance of the Macron photoresistors and optocouplers**, the core question for this new evaluation is: how can the RoHS compliance or non-compliance of the Macron photoresistors and optocouplers finally be clarified?

As manufacturers are responsible to ensure the RoHS compliance of their products put onto the EU market, it is their duty to take the full responsibility if they declare their products to be compliant. The verification and enforcement is under the responsibility of Member States. Only in case of conflict will the European Court of Justice need to decide. **Please be aware that this present evaluation will not decide upon compliance or non-compliance of an alternative optical isolator!**

Against this background, please give your opinion on the use of Macron photoresistors and optocouplers as RoHS compliant alternative or any other alternative known to you (e.g. is Digital Signal Processing meanwhile a suitable alternative to replace analogue sound processing circuits? Can alternative optocouplers that work with photodiodes be used?).

¹ Cf. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:148:0027:0028:EN:PDF>

Questions

1. What is the current amount (in absolute number and in percentage by weight) of the cadmium in: i) the homogeneous material², ii) the photoresistor of the optocoupler and iii) total cadmium in the EU annually for RoHS relevant applications? Please also indicate the future trends of cadmium use in this application. Are there new developments for the application of cadmium in the photoresistors of optocouplers and its specific technical function?
2. Availability of substitutes: please provide sound data/evidence on why substitution/elimination is either practicable or impracticable (e.g. what research has been done, what was the outcome, is there a timeline for possible substitutes, why is the substance and its function in the application indispensable or not, etc.).
 - a. Are cadmium-free (less than 0.01 % weight by weight in the homogeneous materials) photoresistors available for optocouplers used in the professional audio industry? Please describe in detail the exact material and application of alternatives. State a date from which on such optical isolators can be put on the market.
 - b. Are alternative technologies available, which could eliminate the optocoupler technology, e. g. digital technology or others?
 - c. In case cadmium-free photosesistors or alternative technologies are not yet available, please provide a **roadmap** with activities, milestones and timelines towards the replacement of cadmium in photoresistors of optical isolators or for the replacement of optocouplers by alternative technologies.
3. Please state whether the current wording is still appropriate or provide an **exact wording proposal** for the requested exemption including a specification of the RoHS relevant applications to be covered and a proposal for an expiry date of the exemption.

Documentation provided by stakeholders including replies to the questions above should take the following points into consideration:

Please justify your contribution according to Article 5 (1) (b) RoHS Directive, i.e.

- Justification for exemption still given or not given anymore according to technical and scientific progress;
- 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.

² Please refer to the FAQ document on RoHS and WEEE Directives available at http://www.europa.eu.int/comm/environment/waste/weee_index.htm