

Questionnaire Exemption Request No. 14

“Lead in alloys as a superconductor and thermal conductor in devices that depend on superconductivity for their operation”

Background

Test & Measurement Coalition (TMC) applies for an exemption for “Lead in alloys as a superconductor and thermal conductor in devices that depend on superconductivity for their operation”.

A very similar exemption was reviewed in 2008 resulting in its inclusion into Annex III of RoHS II (exemption 12):

“Lead in alloys as a superconductor and thermal conductor in MRI”. The relevant excerpt of the final report is available on the project website at <http://rohs.exemptions.oeko.info/index.php?id=120>.

Category 9 equipment will be included into the scope of the RoHS Directive starting on 22 July 2014 and 22 July 2017 respectively for industrial monitoring and control instruments. If the requested exemption were to be adopted, it would be included into Annex IV of RoHS II and expire on 22 July 2021¹, unless an earlier expiry date is set.

The applicant puts forward the following main arguments: Refrigeration unit (cryo-cooler) equipment in NMR (nuclear magnetic resonance), MRI (magnetic resonance imaging) etc. is used to cool powerful superconducting magnets and thermal conductors which are cooled to 4K in liquid helium. Lead is used as a heat sink to cool the helium and is chosen as most other metals become brittle at these extremely low temperatures.

For details, please check the applicant’s exemption request at <http://rohs.exemptions.oeko.info/index.php?id=120>. This exemption request has been subject to a first completeness and plausibility check. The applicant has been requested to answer additional questions and to provide additional information (c.f. link above).

Due to a standard 7 year validity period for category 9 exemptions as stated in Article 5 (2) of Directive 2011/65/EU

In the document "[General comments to Oeko s questions.docx](#)", TMC justifies the exemption request with formal and procedural arguments. Such formal and procedural arguments cannot be taken into account during the evaluation by Öko-Institut and Fraunhofer IZM. Rather, 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 you can download from here:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32011L0065:EN:NOT>.

If you would like to contribute to the stakeholder consultation, please answer the following questions:

Questions

1. The wording suggested by the applicant for this new exemption is ***“Lead in alloys as a superconductor and thermal conductor in devices that depend on superconductivity for their operation”***.

- a. Do you agree with the scope of the exemption as proposed by the applicant? Please suggest an alternative wording and explain your proposal, if you do not agree with the proposed exemption wording.

Yes, we agree with the scope of exemption which the applicant proposed.

- b. Please state whether you either support the applicant's request or whether you would like to provide argumentation against the applicant's request. In both cases provide detailed functionality and technical argumentation / evidence in line with the criteria in Art. 5 (1) (a) to support your statement.

We support the applicant's request.

2. The applicant refers to the "[ERA study final report](#)" where in section 10.11.4 it is reported that substitutes are only possible with rare earth metals being difficult to manufacture and to recycle but no success is guaranteed.

- a. Is there any supporting / contradicting evidence that you can provide? If yes, please give information on current research activities on substitutions for lead alloys used in superconductor and thermal conductor. Please refer to relevant studies.

No, we do not have any other supporting / contradicting evidence.

- b. Is there a timeline for the next ten years for possible substitutes? (It is clear that you cannot give perfect forecast for the technical and market developments for the next ten years. Nevertheless, a sound and justified outlook could help in the evaluation).

We continue to survey other materials having similar properties. Hopefully within ten years, such materials shall be found.

- 3 The applicant proposes for the exemption a maximum validity until 2021. Do you agree with this expiry date, or would an earlier expiry be feasible against the background of upcoming lead free alloys?

For development target, we think 2021 is reasonable.

- 4 Do you have further comments on this exemption request, which have not yet been taken into account

None.

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

Hiroto Suematsu

General Manager
Engineering Division

JEOL RESONANCE Inc.
3-1-2 Musashino Akisima Tokyo 196-8558 JAPAN
TEL:+81-42-542-2236
E-mail:suematsu@jeol.co.jp