

Consultation Questionnaire Exemption No. 6b (renewal request)

Exemption for „Lead as an alloying element in aluminium containing up to 0,4 % lead by weight“

Abbreviations and Definitions

Al	Aluminium
EAA	European Aluminium Association
EEE	Electrical and Electronic Equipment
Pb	Lead

Background

The Oeko-Institut and Fraunhofer IZM have been appointed within a framework contract¹ 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

The following applicants have submitted requests for the renewal of the above mentioned exemption.

The European Aluminium Association (EAA), Sensata Technologies and Dunkermotoren have applied for the renewal of Ex. 6b, requesting the current wording formulation of the exemption as appears in Annex III of the RoHS Directive.

The applications have been subject to a first completeness and plausibility check. The applicants have been requested to answer additional questions and to provide additional information, that shall be made available on the request webpage of the stakeholder consultation (<http://rohs.exemptions.oeko.info/index.php?id=228>).

According to EEA, the use of leaded Al alloys can be differentiated into:

- Al alloys containing unintentionally added lead (cast alloys), due to the use of Al scrap for the manufacture of such alloys. Relevant applications in which such alloys are used include e.g. frameworks of lamps and lights, heat sinks, electrical and electronic items in housings etc.
- Al alloys containing intentionally added lead (wrought alloys): In such cases lead is intentionally added as it is needed for improved machinability. Relevant applications where such alloys are used are not detailed. The functions of lead are indicated as lubrication, better chip fracturing, surface finish, higher cutting speed and longer tool life.

Dunkermotoren uses leaded Al alloys for geared parts (*„Verzahnungsteile“*) for engine and transmission components (*„Motoren- und Getriebeteile“*) and indicates an improved machinability that is achieved by lead.

Sensata Technologies did not specify components where leaded Al alloys are used. Sensata generally refers to the function of lead in all alloys covered under exemption 6 (steel, aluminium and copper)

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

such as improved “*micro-machining, electrical conductivity, galvanic corrosion resistance, mechanical relaxation, tribological behaviour etc.*”.

For details, please check the applicant’s exemption request at:

<http://rohs.exemptions.oeko.info/index.php?id=242>

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 answer the following questions:

Questions

1. The applicants have requested the renewal of Ex. 6b of Annex III, with the same wording formulation “*Lead as an alloying element in aluminium containing up to 0,4 % lead by weight*”:
 - a. Do you agree with the scope of the exemption as proposed by the applicant?
 - 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 applicant’s request or object to it. To support your views, please provide detailed technical argumentation / evidence in line with the criteria in Art. 5(1)(a) to support your statement.
2. Please describe in which applications aluminium alloys are used in EEE.
 - a. Please provide an exhaustive list of applications and describe their typical characterisations.
 - b. Please specify the functionality of lead in these applications (e.g. specific function and properties, performance criteria, etc.).
 - c. Please specify if the applications make use of wrought alloys (in cases where lead is intentionally added for reasons of better machinability or for other reasons) and in which components use of cast alloys is made (where lead is unintentionally present due to the use of Al scrap/ recyclate).
3. Please indicate how much lead would be used under this exemption per annum. If data is not available, please explain the lack of data and provide estimations.
4. Please provide information concerning possible substitutes or developments that may enable reduction, substitution or elimination, at present or in the future, of leaded Al alloys:
 - a. In this regard, please provide information as to alternatives that may cover part or all of the applicability range of leaded Al alloys e.g. AlEco62Sn or AA 6023.
 - b. Please provide quantitative data as to application specifications to support your view.
5. Please provide information as to research initiatives which are currently looking into the development of possible alternatives for some or all of the application range of leaded Al alloys:

- a. Please explain what part of the application range is of relevance for such initiatives (in what applications may substitution be possible in the future?).
 - b. Please provide a roadmap of such on-going research (phases that are to be carried out), detailing the current status as well as the estimated time needed for further stages.
6. From the available information it is observed that there are differences related to the function of Pb and the reason for its presence, in Al alloys where lead is added intentionally and Al alloys where it is not. A split of the exemption is thus to be considered, differentiating between aluminium alloys where lead is not intentionally introduced and between aluminium alloys where lead is added to obtain certain properties:
- a. Do you agree with such a split of the exemption? Please explain why you either support or reject it. To support your views, please provide detailed technical argumentation / evidence in line with the criteria in Art. 5(1)(a) to support your statement.
 - b. Can you provide information on the further development of the lead content in Al scrap intended for use in EEE over the next 5 years?
 - c. The following properties have been identified as properties obtained through the addition of lead:
 - Corrosion resistance of manufactured articles;
 - Lubrication effect in manufactured articles;
 - Better chip fracturing in manufactured articles;
 - Surface finish of manufactured articles;
 - Enabled cutting speeds of manufacturing tools;
 - Enabled longer life of manufacturing tools;
 - i. Please confirm if this list is exhaustive, or alternatively detail what other properties are of relevance;
 - ii. For each of the properties, please explain what performance indicators are used to establish that alloys reach the minimum required performance;
 - iii. For each of the properties, please detail what range of performance is required in Al alloys used in EEE, allowing the comparison of lead based and lead free alloys;
 - d. Could the exemption on the intentionally added lead in aluminium alloys be further specified by adding a specification for the various properties of relevance? e.g. the range of performance required?
7. Are there any other aspects you deem to be of importance for the requested exemption?

In case parts of your contribution are confidential, please clearly mark relevant text excerpts or provide your contribution in two versions (public /confidential).

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. Please also note, however, that requested exemptions cannot be granted based on confidential information!