

This initial feedback is submitted on behalf of participants in the Umbrella Project (“UP”)’s Exemption 6b technical Working Group (“WG”) (hereafter referred to as “UP Exemption 6b WG Participants”)

Clarification Questionnaire Exemption 6(b)-I

Exemption for “Lead as an alloying element in aluminium containing up to 0,4 % lead by weight, provided it stems from lead-bearing aluminium scrap recycling”

Abbreviations and Definitions

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| Al | Aluminium |
| EEE | Electrical and Electronic Equipment |
| Pb | Lead |
| RoHS | Directive 2011/65/EU on the Restriction of Hazardous Substances in Electrical and Electronic Equipment |
| UP | Umbrella Project |

Background

The Oeko-Institut has been appointed by the European Commission, within a framework contract¹, for the evaluation of applications for exemption from Directive 2011/65/EU (RoHS), to be listed in Annexes III and IV of the Directive.

Your organisations EU Aluminium and COCIR, HARTING Stiftung & Co and Pepperl + Fuchs AG on behalf of the “RoHS Umbrella Industry Project” (hereafter referred to as “Umbrella Project” or “UP”) have submitted a request for the renewal of the above-mentioned exemption, which has been subject to an initial evaluation. A summary of the main argumentation for justifying the request is provided below as a first basis to be used in the stakeholder consultation planned as part of this assessment.

Please review the summary of the argumentation provided to ensure that your line of argumentation has been understood correctly and provide answers to the questions that follow that are to address aspects requiring additional information and/or clarification.

1. Summary of argumentation of applicant on the justification of the exemption

1.1. Background

A renewal of exemption 6(b)-I is requested by both applicants for:

“Lead as an alloying element in aluminium containing up to 0,4 % lead by weight, provided it stems from lead-bearing aluminium scrap recycling”.

¹ The contract is implemented through Framework Contract No. ENV.B.3/FRA/2019/0017, led by Ramboll Deutschland GmbH.

In addition, the Umbrella Project applies for a renewal of exemption 6(b) for:

“Lead as an alloying element in aluminium containing up to 0,4 % lead by weight”.

Exemption 6(b) has been re-formulated following its last assessment in 2015/2016, which resulted in a split of 6(b)-I and 6(b)-II differentiating between applications of aluminium alloys where lead is unintentionally present and between applications where lead provides necessary properties. Exemption 6(b), however is still valid for categories 8 and 9 until July 2021 and will remain valid afterwards for category 8 in vitro diagnostic medical devices (21 July 2023), for category 9 industrial monitoring and control instruments and for category 11 (21 July 2024).

Applications covered under exemption 6(b) are assumed to cover the two main application areas covered under exemption 6(b)-I and exemption 6(b)-II. Therefore, the request for renewal of Ex 6(b) will not be followed up as a separate evaluation but rather considered in the course of the assessments of exemption 6(b)-I and exemption 6(b)-II, all the more so as the UP application for exemption 6(b)-II requests the exemption for EEE Cat. 1-10.

The following summary focuses on 6(b)-I.

EU Aluminium explains that *“there is less scrap available on the market today that contains lead”*, thus, in aluminium alloys where recycled lead-bearing aluminium scrap is the only source of lead the lead content is decreasing. Furthermore, the amendment of the EU Standard EN 1706 for Aluminium and Al alloys – Castings requires reducing the Pb content to 0,29% by weight. For those reasons, the threshold can be lowered to 0,3% by weight. Against this background, EU Aluminium proposes an adapted wording of the exemption:

Lead as an alloying element in aluminium casting alloys containing up to 0,3% lead by weight provided recycled lead-bearing aluminium scrap is the only source of the lead

The Umbrella Project states that *“there is no evidence that it would be possible to lower the limit from 0,4% for the time being”*. It is understood that the Umbrella Project was not aware of the timeline of the EU standards revision as they state that *“RoHS limits can be lowered only once new standards are in place and enough time has been granted [...]”* and *“RoHS limits cannot be changed before international standards are adopted and fully implemented”*.

The UP provides a non-exhaustive long list of applications (p. 7 of the application). The share of recycled Al from all Al used in EU end-use applications is estimated to have been 26 % in 2000 (EU Aluminium), 37% in 2013 (UP) and is estimated to reach 50% in 2050 (EU Aluminium). As for the amount of Pb entering the market through this exemption, both applicants state that it is not possible to derive the amount of lead through recycled aluminium.

EU Aluminium requests a duration of the exemption for 5 years for all EEE categories. The UP requests the maximum validity periods foreseen in the RoHS 2 Directive (which means 7 years for Cat. 8 and Cat. 9 EEE and 5 years for all other categories).

1.2. Applicant’s justification for the requested exemption

1.2.1. Availability of alternatives (Substitution or Elimination, roadmap to substitution, reliability of substitutes)

The substitution of unintentionally present lead in aluminium originating from Al scrap recycling is explained not to be appropriate. Technological alternatives for removing the lead in the melting and refining step of the Al recycling process have been tested in 2012 without finding a technically

feasible way. Both applicants refer to a study on 'Existing technologies for lead removal from Aluminium melts', carried out by MIMI Tech UG and finalized in June 2012. *The study shows that only few methods could be found and were assessed, i.e. Phase separation, Electrolysis and Vacuum distillation. These methods are either not approved above lab-scale or from an environmental/economical perspective are not feasible. The only alternative is to dilute the metal with primary aluminium. This would result in higher environmental impacts due to the fact that the production of primary aluminium is energy intensive*" (European Aluminium).

Both applicants state that a dilution of Pb takes place over time with no "new" Pb being added to the material stream as aluminium produced with primary material enters the waste phase and is recycled. They stress the environmental benefits of using recycled material as compared to virgin resource extraction.

The UP states that a closed loop system exists for Al as *"in 2017, collection rates for aluminium were over 95% for new scrap and 70% for old"*.

1.2.2. Environmental and health arguments (also LCA aspects)

The applicants argue that health and environmental impacts of recycled aluminium lead to a lower total impact than the use of primary aluminium. This is based on several LCA studies.

1.2.3. Socioeconomic impacts

The UP argue in favour of the exemption explaining that the decrease in recycling of aluminium scrap will impact the EU circular economy and limit economic growth and jobs. Whether aluminium scrap can be used or not (in light of lead impurities) also affects the dependency of the EU on primary aluminium for which imports remains very high.

2. Clarification Questions

To EU Aluminium:

1. You state that "in the EU Standard EN 1706 for Aluminium and aluminium alloys - Castings that should be submitted to the Formal Vote before 19 January 2020 the maximum limit for lead was reduced to 0,29 % (weight by weight)."

Please provide an update of this information on the outcome of the vote and the status of the standard.

To UP:

2. EU Aluminium has provided an exemption request proposing a different wording. Please provide your opinion based on the Article 5(1)(a) criteria of RoHS 2. In this respect please:
 - a) Refer to the limitation of the exemption to aluminium casting alloys;
 - b) Refer to the status of EU Standardisation Processes you are aware of and how they would affect your view of this proposal.
 - [Manufacturers of EEE buys components and parts made of aluminium, therefore they can accept any level \(up to the concentration limit of lead\) as delivered by aluminium and parts](#)

manufacturers as long as it is ensured that such levels are consistently achieved not only by EU aluminium manufacturers but also by the extra-EU manufacturers. The supply chain is global and EEE imported into the EU contains aluminium parts that have to meet RoHS restrictions as well as parts made using aluminium sourced from EU manufacturers.

- EEE manufacturers do not have governance over lead content in the variety of aluminium parts they purchase or import (individually, in parts or in EEE) as the only available information is that the actual RoHS level of exemption 6b/6bl is respected. EU importers of components, parts and EEE are informed by their suppliers only that the concentration of lead in aluminium is below 0,4% as permitted by 6b(l).
- UP Exemption 6b WG Participants have looked at the dossier submitted by EU Aluminium and have noted the lack of evidence behind a few claims (see below).
- It is not clear to us, up to now, if the proposed limit of 0,29% lead content is already achieved today by all aluminium manufacturers in the EU or if it is a target level that has been just introduced in a standard with a transition period (usually 3 years). If 0,29% is yet to be achieved, then 5 years is not enough as, after it is achieved by aluminium manufacturers, the whole supply chain will need to use and run out of the stocks of aluminium with higher content level. If it can be proven that already today 0,29% is consistently achieved by all aluminium manufacturers, then 5 years transition time could be reasonable even if the need for recertification and validation must be assessed, at least for certain sectors. An additional 1 to 2 years would be required for such sectors.
- However, the problem is still not solved for the global supply chain. The electronics industry uses very large numbers of components sourced from Asia, where different alloy standards are used. As stated in the dossier, it is also important to consider that aluminium parts are produced using different standards with many different countries having their own national standards that are not directly equivalent to each other. For castings, there are no international standards². As a result of this situation, global customer specifications cannot be changed unilaterally by European aluminium alloys suppliers. While a new threshold has been recently included in an EN Standard, no information is available about similar initiatives for global standards. We have no information about the capability of the extra-EU manufacturers to provide the global supply chain with a consistently compliant alloy with a lower lead content than 0.4%. Unless such assurance can be provided, we have to assume, to be safe, that the global manufacturing of aluminium is not yet able to deliver such a lower content of lead, that time will have to be granted to ensure the global supply chain is not hindered (time for reducing the level of lead to 0,29% + time needed for the global supply chain to exhaust the stock + time for recertification/re-validation).
- It seems that the way aluminium manufacturers are going to reduce the content of lead is by dilution with non-leaded aluminium. While it may be true that most of the unleaded aluminium used in EU for this purpose is secondary aluminium, it could be worth investigating if this is the case for extra-EU manufacturers. Otherwise, the new RoHS threshold would cause a negative environmental impact by forcing the use of virgin aluminium around the world.
- Even more important, as we stated in the dossier, the concentration of lead in recycled aluminium is going to keep decreasing year after year in the future, mainly due to the development of new lead-free aluminum machining alloys. A lower concentration limit at this stage will not bring any added value, will not contribute to significantly reduce the content of

² The Aluminium Association (based in the USA) publishes international composition standards for wrought alloys. Many leaded wrought alloys have limits of 0.4% (2015 revision) - <https://www.aluminum.org/sites/default/files/Teal%20Sheets.pdf>

lead actually in the recycling loop, but it will introduce more legal uncertainty for companies, more need for testing and will also force recyclers to dilute aluminum to lower the lead content with an increased environmental impact when lead-free scraps are not available.

To both:

3. If you think there is anything else that is relevant in addition to the questions above, please summarise it under this point;

EU Aluminium manufacturers are proposing another change in the text of the exemption in addition to the maximum tolerated concentration of lead:

*Lead as an alloying element **in aluminium casting alloys** containing up to 0,3 % lead by weight, provided recycled lead-bearing aluminium scrap is the only source of the lead*

Original wording:

*Lead as an alloying element in **aluminium** containing up to 0,4 % lead by weight, provided it stems from lead-bearing aluminium scrap recycling*

We have to note no explanation nor any clarification about of this change is reported in the EU Aluminium paper. We reserve to comment on this change, once clarification is available.

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 can contact you in case there are questions concerning your contribution.