

Consultation Questionnaire Exemption 7(c)(I) of RoHS Annex III

Answers to the questions prepared and provided by the Umbrella Project (UP) Technical WG 7(c)-I

Submitted by the Co-Chairs on behalf of the technical working group.

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1) *Werfen confirm that exemption 7(d)(VI)(1) covers their application, and they request the 2026 expiry date recommended by Baron et al. (2022) to be extended to 2030 (= 2023 + 7).*

- a. Do you agree that exemption 7(c)(VI)(1) fully covers the uses of lead in cat. 8 IVDs for the analyses of whole blood that are currently covered by exemption 7(c)(I)?

Answer by Umbrella Project (UP) Technical WG 7(c)-I

- No, the exemption 7(c)-VI covers by far not all applications in IVDs and all cat. 8 applications. Lead containing piezoelectric material is essential for nearly all electronic equipment.
 - Lead Zirconate Titanate (PZT) is just one out of a variety of lead containing piezoelectric materials.
 - Remark: A long, but still not exhaustive list of uses that are critical for cat.8 (medical device and IVD) could be provided on request for further illustration. In addition the term “ceramic” does not cover all variants of piezoelectric materials used in those applications. It is more correct to use the term “piezoelectric materials” instead of “ceramics.”
- b. Would exemptions 7(c)(V) and 7(c)(VI) cover all uses of lead in the scope of exemption 7(a) in cat. 8 IVDs for the analyses of whole blood?

We suppose that b. addresses exemption 7(c)-I, not 7(a).

UP Technical WG 7(c)-I strongly expresses, that the applications listed in 7(c)-V and 7(c)-VI are the ones provided in the exemption request issued by the UP in

2020 as **illustrative non-exhaustive examples** to explain, why lead is essential to achieve the required properties and performance of the material. By no means it covers all applications and relevant components within the scope of 7(c)-I.

If the use of these materials is further restricted in the future, then this will have an impact on the availability of raw materials in this area, including for applications where there is no viable alternative.

2) *EUROMOT state in their answers to the clarification questionnaire that the scopes of exemptions 7(c)(V) and 7(c)(VI) are likely to be too restrictive for their members' uses in EEE of cat. 11. EUROMOT members are not able to determine whether these renewed exemptions would cover all uses of lead in the scope of the current exemption 7(c)(I) as they use a wide variety of electronic components utilising exemption 7(a). Electronics suppliers do not provide information as to whether these would be covered by exemptions 7(c)(V) and 7(c)(VI). EUROMOT therefore request the renewal of exemption 7(c)(I) for five years.*

a. Do you agree to the above reasoning?

Umbrella Project (UP) Technical WG 7(c)-I fully agrees.

7(c)-I is essential to the functioning of a variety of electronic components. Exemptions 7(c)-V and 7(c)-VI do not cover the wide variety of materials and applications where lead is essential to achieve the required properties and performance.

b. The proposed exemptions 7(c)(V) and 7(c)(VI) are not intended to restrict the scope compared to exemption 7(c)(I) where lead-free alternatives are not available, but to specify the applications that are currently in the scope of exemption 7(c)(I).

Do you know of any applications in cat 11 which were covered by exemption 7(c)(I) but would not be in the scopes of exemptions 7(c)(V) and 7(c)(VI)?

UP Technical WG 7(c)-I confirms, not only for cat.11 but for all categories, that 7(c)-V and 7(c)-VI just list some illustrative examples and by no means cover all applications within the scope of 7(c)-I. A large number of materials within the scope of 7(c)-I exists and cannot be substituted by lead-free materials or alternative technologies, as it had been confirmed in the report by Baron et al (2022).

3) *TMC do not agree with the recommendation presented in **Error! Reference source not found.** for cat. 9 IMCI. Exemption 7(c)-I is the most frequently used exemption in cat. 9 industrial monitoring and control instrumentstest; most electronic products contain this exemption because of the broad range of applications. There is no single substitute available that would be suitable to all the applications identified. TMC therefore applies for a renewal of exemption 7(c)(I) for the maximum validity period, as it considers the criteria of RoHS art. 5(1)(a) are met.*

a. Do you agree to the above reasoning?

Umbrella Project (UP) Technical WG 7(c)-I fully agrees, not only for cat.9, but also for all other categories. As explained in the 2020 submission (starting page 8) industry has made efforts to substitute lead, however, despite these efforts, we still need to use this exemption as no substitute is available for all the applications identified.

- b. The proposed exemptions 7(c)(V) and 7(c)(VI) are not intended to restrict the scope compared to exemption 7(c)(I) but to specify the applications that are currently in the scope of exemption 7(c)(I).

Do you know of any applications in cat. 9 monitoring and control instruments which were covered by exemption 7(c)(I) but would not be in the scopes of exemptions 7(c)(V) and 7(c)(VI)?

UP Technical WG 7(c)-I confirms, not only for cat.9 but for all categories, that 7(c)-V and 7(c)-VI just lists some illustrative examples and by no means covers all applications within the scope of 7(c)-I.

Please see the answer to question 4) for further details of argumentation, why splitting and the proposed wording is not a feasible solution,

- 4) Looking at all categories of EEE (1 to 11): Are you aware of any applications of lead in the scope of the current exemption 7(c)(I) that require the use of lead but would not be covered by the scopes of the recommended exemptions 7(c)(V) or 7(c)(VI)?

UP Technical WG 7(c)-I confirms for all categories, that 7(c)-V and 7(c)-VI just list some illustrative examples and by no means cover all applications within the scope of 7(c)-I.

Splitting the exemption as proposed is not a feasible solution and would create more work for the EU as applications that are not covered by the proposed split/wording would force requests for additional exemptions to be raised.

Lead is an essential element in an uncountable scope of any electrical and electronic equipment's application domain in realizing its functions, applications and related performance requirements in glass and ceramics and their matrix compounds in electrical and electronic components. Therefore, we believe that it is almost unrealistic to provide an exhaustive list that identifies the application categories in which lead is essential.

Even if the applications could be categorized and split scientifically and technically correct, the number of different scopes is unpredictable, with some in industry predicting that the number will exceed 100. A technical assessment of such a large number of applications and related renewal requests would not be feasible and would cause extreme administrative burden without measurable benefit to the environment.

Inapplicable wording of exemptions 7(c)-V and 7(c)-VI as recommended in the final report by Oeko Institute

Considering the above, industry would like to reiterate that the recommended wording of exemptions 7(c)-V and 7(c)-VI is not fully developed to cover both the European market and the global supply chain.

- Important materials for relevant applications are missing. The recommended wording merely lists examples of applications provided as "some non-exhaustive examples" by the applicants of the exemption extension request in 2020, and fails to cover many of the essential applications for which lead is necessary and which are exempt under the current wording of 7(c)-I.
- The adoption of this wording would prevent an unpredictable range of electrical and electronic equipment essential to society, such as medical equipment, from being placed on the European market, contrary to the intent of Article 5-1 of the RoHS Directive.
- Communication along the global supply chain would become impossible. The criteria for applications indicated in 7(c)-V and 7(c)-VI are an arbitrary mixture of materials, process parameters and products, which cannot be related to actual electrical and electronic components as well as the equipment using them in terms of physical properties, electrical properties, and applications, and their proper classification and information.
- The supply chain of EEE is highly complex and multilayered and is dependent on the supply of components.

5) As part of the evaluation, socio-economic impacts shall also be compiled and evaluated. For this purpose, if you have additional information on socioeconomic aspects that are expected to arise if the exemptions are not granted as requested by Werfen and EUROMOT, please provide details in respect of the following and specifying whether you refer to the Werfen or EUROMOT request:

- a. What are the volumes of EEE in the scope of the requested exemptions which are placed on the market per year?
- b. What are the volumes of additional waste to be generated should the requested ex-emption not be renewed or not be renewed for the requested duration?
- c. What are estimated impacts on employment in total, in the EU and outside the EU, should the requested exemption not be renewed or be renewed for less than the re-quested time period? Please detail the main sectors in which possible impacts are expected – manufacturers of equipment in the scope of the exemption, suppliers, re-tail, users of MRI devices, etc.
- d. Please estimate additional costs associated should the requested exemption not be renewed, and how this is divided between various sectors (e.g. private, public, industry: manufacturers, suppliers, retailers).

It is not possible to give representative feedback to the above questions. The total EEE market would be adversely affected (manufacturers, importers and users of EEE, including important tools for semiconductor manufacturing industry like Lithography tools).

6) TMC provided a socioeconomic analysis related to the above exemption request. The document is available online in the consultation folder for this exemption.

Do you agree with the underlying method, data and conclusions?

The SEA document is not available at the Website, thus this question cannot be answered.

7) Any additional information which you would like to provide?

In the final report on Pack 22 at various positions the consultants concluded that lead cannot be substituted:

“Overall, the consultants conclude that the exemption is justified as available substitutes are either not suitable and cannot be fabricated into lead-free components that could be used in the same applications, or such components provide an inferior reliability leading to malfunctions that would not be acceptable in the respective EEE.” [P.178]

But the recommendation to restrict the scope of 7(c)-I to such applications, where lead cannot be substituted and to assess those on a case-by-case basis ignores the complex reality and is practically impossible.

“An application specific assessment would allow a stronger focus on each of the applications and its specific obstacles to substitution. Specifying the exemption to a confined set of application would allow a more detailed assessment in the future and shall also add certainty to market surveillance in considering in which cases the exemption is applied properly.” [P.178].

Thus, industry recommends continuing the current approach in 7(c) to identify and list such applications, where lead-free alternatives or advanced technologies can become available to replace the current lead containing materials, as is visible in the current exemptions 7(c)-III and 7(c)-IV, which already have expired.

Please note that answers to these questions can be published on the stakeholder consultation website and in the review report. If your answers contain confidential information, please provide a version that can be made public along with a confidential version, in which proprietary information is clearly marked.

Please do not forget to provide your contact details (Name, Organisation, e-mail and phone number) so that the project team can contact you in case there are questions concerning your contribution.

It would be helpful for the review process if you could kindly provide the information in formats that allow copying text, figures and tables to be included in the review report.