

## Consultation Questionnaire Annex IV Ex. No. 37 (renewal request)

### **Exemption for „ Lead in platinized platinum electrodes used for conductivity measurements where at least one of the following conditions applies:**

*(a) wide-range measurements with a conductivity range covering more than 1 order of magnitude (e.g. range between 0.1 mS/m and 5 mS/m) in laboratory applications for unknown concentrations;*

*(b) measurements of solutions where an accuracy of +/- 1 % of the sample range and where high corrosion resistance of the electrode are required for any of the following:*

*(i) solutions with an acidity < pH 1;*

*(ii) solutions with an alkalinity > pH 13;*

*(iii) corrosive solutions containing halogen gas;*

*(c) measurements of conductivities above 100 mS/m that must be performed with portable instruments”, to expire 31 July 2018“*

### Abbreviations and Definitions

JBCE	The Japan Business Council in Europe
Pb	Lead
PPE	Platinized platinum electrode

### Background

The Oeko-Institut and Fraunhofer IZM have been appointed by the European Commission, within a framework contract<sup>1</sup>, for the evaluation of applications for exemption from Directive 2011/65/EU (RoHS 2), to be listed in Annexes III and IV of the Directive.<sup>1</sup>

The Japan Business Council in Europe (JBCE) has submitted a request for the above mentioned exemption, which has been subject to a first completeness and plausibility check. The applicant has been requested to answer additional questions and to provide additional information, available on the request webpage of the stakeholder consultation (<http://rohs.exemptions.oeko.info/index.php?id=286>).

According to the applicant platinized platinum electrodes (PPE) are used in measurement instruments “for the measurement of wide range/ high accuracy/ high reliability for high concentration of acid and alkali”. The standard hydrogen electrode is one of the applications of the platinized platinum electrodes.

Platinum black electrodeposition is done to enlarge the surface area of metal electrodes. This process enables an enlargement of the surface area of the electrode of about 1,000 times that of flat electrodes without platinum black plating. The platinization process is conducted with hydrogen hexachloroplatinate(IV) hexahydrate (CAS#:18497-13-7) and 0.25g/L of lead(II) acetate trihydrate (CAS#:6080-56-4). The lead used for this process results in a small amount remaining in the final

<sup>1</sup> The contract is implemented through Framework Contract No. FWC ENV.A.2/FRA/2015/0008 of 27/03/2015, led by Oeko-Institut e.V.

platinum black layer. The % weight of Pb depends on the type of electrodes. In total, less than 1 gram is placed on the EU market per year through this application.

The exemption was initially reviewed in 2012. At the time it could be understood from JBCE that possible technological alternatives were available and could be used in some cases to eliminate the need for lead in this application. However it was also indicated that in some application areas, such elimination was not yet possible. The current formulation of the exemption was recommended in order to allow the use of lead only in such application areas, where it was established that elimination was not yet possible. A reference was also made to a 1970 publication of the work of Feltham & Spiro<sup>2</sup> that mentions some possible candidates for possible substitution, including mercury, thallium, copper and gold. Available information did not allow a comparison between the performance of PPEs platinized with lead acetate and PPEs platinized with alternative additives at the time, and the consultants could not verify the potential of such additives to substitute the use of lead acetate in the platinization process.

The exemption is currently valid until 31 December 2018. JBCE requests a renewal for 7 years.

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

<http://rohs.exemptions.oeko.info/index.php?id=286>

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 applicant has requested a renewal of exemption 37 of Annex IV of the RoHS Directive, with the existing wording as specified above.
  - 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. In this respect, please refer to alternative measuring technologies that can be used to cover part or all of the application scope of the platinized platinum electrodes, and that would make the exemption and/or its parts obsolete.
  - d. 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. Feltham and Spiro (1970) specify possible candidates that had been identified at the time as potential substance substitutes for the platinization process. Restrictions on the use of lead in EEE were not of relevance at the time of the research and little data was available during the first evaluation of this exemption as to the possible potential of mentioned candidates: mercury, thallium and particularly gold and copper. Since the candidates were

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<sup>2</sup> Feltham, A. M. & Spiro, M. (1970), "Platinized Platinum Electrodes", Chemical Reviews, 1971, Vol. 71, No. 2

identified in the 2012 review it would be expected that research into their potential use as substitutes would at least have been embarked on.

- a. 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 lead in platinized platinum electrodes used for conductivity measurements, including in relation to the candidate mentioned above.
    - i. Please explain what part of the application range is of relevance for such initiatives (in what applications substitution may be possible in the future).
    - ii. 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.
  - b. Please provide quantitative data as to application specifications to support your view.
3. JBCE has specified that the platinized platinum electrodes (PPE) are manufactured among others by YOKOGAWA, DKK-TOA and HORIBA. Please specify other manufacturers of the PPE or of equipment in which it is used.
4. JBCE has assumed that less than 1 gram of lead is placed on the market through this exemption per annum. It is assumed that this estimation is based on manufacture of JBCE members. Please specify whether you agree with this estimation and whether it is relevant only for manufacture of JBCE members or for all manufacturers.
5. As part of the evaluation, socio-economic impacts shall also be compiled and evaluated. For this purpose, please provide details in respect of the following:
- a. The volume of platinized platinum electrodes, placed on the market in the EU and globally;
  - b. The amount of lead to be avoided should the exemption not be granted (in the EU);
  - c. Estimations as to possible additional waste to be generated through a forced phase-out (should the exemption not be renewed);
  - a. Estimations of impacts on employment in total, in the EU and outside the EU, should the exemption not be granted. Please detail the main sectors in which possible impacts are expected – PPE manufacturers, manufacturers of respective equipment, supply chain, retail, etc.
  - d. Please estimate additional costs associated with a forced substitution should the exemption not be granted, and how this is divided between various sectors (e.g. private, public, industry: manufacturers, suppliers, retailers).

**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/Fraunhofer IZM can contact you in case there are questions concerning your contribution.**