Consultation Questionnaire Exemption Request No. 2014-1

Exemption for „Cadmium Anodes in Hersch cells for high-sensitivity oxygen sensors “

Abbreviations and Definitions

Cd Cadmium

Background

The Oeko-Institut and Fraunhofer IZM have been appointed within a framework contract[1] for the evaluation of an application for granting an exemption to be included in or deleted from Annexes III and IV of the new RoHS Directive 2011/65/EU (RoHS 2) by the European Commission.[1]

MOCON Inc. submitted the above mentioned request for 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=219).

According to the applicant, Cadmium is present in the anodes of Hersch cells, which are used in specialized, high sensitivity oxygen sensors where parts per trillion (ppt) measurements are required. Using a Hersch Cell, the range of oxygen detection is from 80ppt to 70ppm. These oxygen sensors are used for specific applications when a high degree of sensitivity and long-term instrument stability is required. MOCON state**s** that given the absolute nature of the sensor, it is the only possible instrument where no calibration is necessary.

According to MOCON Inc. a Hersch cell operates by introducing a sample gas to an electrolytic solution. The Coulox oxygen sensor is a fuel cell that performs in accordance with Faraday’s Law. When exposed to oxygen, the Coulox generates an electrical current that is proportional to the amount of oxygen entering the sensor and can be used to calculate this amount. According to MOCON the Hersch Cadmium Cell follows Faraday’s Law at ppt levels, removing the need to calibrate at these extreme low levels.

For details, please check the applicant’s exemption request at:
http://rohs.exemptions.oeko.info/fileadmin/user_upload/RoHS_Pack_6/2014-1/Mocon-Exemption_Request_Public.pdf

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:

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

Questions

1. The applicant has requested an exemption for “Cadmium Anodes in Hersch cells for high-sensitivity oxygen sensors” specifying that the application falls under Sub-Category 9: Industrial monitoring and control instruments. Should an exemption be granted it is to be added to Annex IV of the RoHS Directive.
    a. Please state if this exemption is also needed for devices falling under other categories, explaining the range of use and relevant category.
    b. 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.
    c. 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 technical argumentation / evidence in line with the criteria in Art. 5 (1) (a) to support your statement.

2. According to the applicant, though alternative oxygen sensors are available that may measure oxygen as low as single ppm levels (and not at ppt levels), all require frequent calibration for measurements to remain reliable.
    a. Please provide information concerning possible substitutes or developments that may enable reduction, substitution or elimination, at present or in the future, of Cd in anodes used in Hersch cells for high sensitivity oxygen sensors;
    b. In this regard, please provide information as to alternatives that may cover part or all of the applicability range of the Hersch cell sensor;
    c. Please provide quantitative data as to device specifications; calibration requirements etc. to support your view.

3. The applicant is not aware of other manufacturers, besides MOCON Inc. that supply the Cd based Hersch cell Sensors. If you are aware of additional manufacturers of such sensors, please provide information as to the market share as well as concerning the need for this exemption to ensure that products can be placed on the EU market.

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.