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Response to 1<sup>st</sup> Questionnaire

Date: 2017-10-06

Reference: 1<sup>st</sup> Questionnaire Exemption Request No. 2017-4

Oeko-Institut e.V.

**Subject:** Exemption for “Lead in solder and hexavalent chromium in parts used to make RF detectors in mass spectrometers”.

## Questions and Answers

Q1. To allow an evaluation of the requested exemption, it is important to understand the application/s in which the RoHS substance is present as well as the specific function and properties that the substance provides within the application and for which substitutes need to be applied. The application mentions the use of the following RoHS substances within RF detectors of mass spectrometers:

- Lead used in Sn63Pb37 solders which are understood to be used when a low soldering temperature is required;
- Hexavalent chromium used in coated parts of the detector capacitor case;

Q1a. Please provide a clear and detailed explanation of the applications in which each of the substances is used. Please take care to detail the function of the substance within the application and the properties provided by the specific substance that are considered crucial for providing the respective function.

A1a. The lead solder is used for its lower soldering temperature, while the hexavalent chromium is used to maintain the shielding effectiveness of the detector capacitor case.

Q1b. In relation to the function and properties detailed in a., please provide quantitative indicators of relevance to the performance of the substance in the applications at hand as well as the minimum value or performance range that possible substitutes would need to achieve in order to be considered as potential substitutes.

A1b. Altering the materials was considered a high risk to the performance and reliability of the instrument since the RF detector has to be extremely accurate, very stable, and highly linear over two orders of magnitude of input voltage. Alternative substitutes will have to achieve the same level of performance.

Q2. Directive 2011/65/EU (RoHS 2) was enacted in 2011. Please explain which steps Sciex undertook since 2011 to achieve RoHS compliance. Please note in this respect that according to annex V of the directive, an application for exemption (for its renewal, amendment or revoke) must contain such information.

Q2a. Please specify what efforts have been taken and what efforts are planned to enable substitution within the coming years.

A2a. A three stage conversion plan has been developed to study the reliability of substitutes and conduct conversion to RoHS where feasible with estimated duration of up to 24 months.

Q2b. In this respect please provide information as to:

Q2b.i. possible substance substitutes, in which lead/CrVI can be replaced by another compound within the respective application;

A2b.i. the possible substance substitutes include using lead-free solder alloys, and using Chromium III plated metals.

Q2b.ii. possible technology alternatives, which eliminate the use of lead/CrVI within the respective applications;

A2b.ii. the conversion efforts are focusing primarily on substance substitutes at this time rather than technology alternatives.

Q2b.iii. An estimated time or time range should be provided for research to be conducted in the future in search of alternatives;

A2b.iii. the research and development phase is estimated to take up to 6 months.

Q3. It is assumed that RF detectors used in mass spectrometers and their parts are produced and placed on the EU market by additional manufacturers, for which this request may also be relevant. Please provide information as to other manufacturers of RF detectors in mass spectrometers and their parts;

A3. Such information is not available to AB SCIEX.

Q4. 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 in relation to all EEE placed on the EU market through this exemption (i.e., not just by SCIEX):

Q4a. Please estimate the related volume of EEE concerned and the respective amount of lead to be avoided should the exemption not be granted.

A4a. Such information is not available to AB SCIEX.

Q4b. Please estimate possible amounts of waste to be generated through a forced substitution should the exemption not be granted. In this respect, please clarify if such a scenario would result in limitations to further use and maintenance of certain equipment (e.g. equipment placed on the market in the past, refurbished equipment, etc.).

A4b. Material and assembly scrap is possible if the exemption is not granted.

Q4c. Please estimate possible 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 – for example manufacturers of mass spectrometers, RF detectors and their parts, supply chain, retail, etc.

A4c. The estimate is considered proprietary information.

Q4d. 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).

A4d. The use of AB SCIEX instruments allow various sectors to benefit from the many features and capabilities these products offer such as:

- Testing of Pesticide, Food Authenticity, Allergen, Antibiotic, as well as Ingredient analysis and Unknown substances screening.
- Testing of environmental contaminants, drinking water and wastewater testing, environmental fate analysis and soil and biota testing.
- Drug Discovery and Health Research to detect and quantify trace amounts of analytes in samples.
- Solutions for Forensic toxicology.
- Continued health research identifying key genes, proteins, lipids and metabolites to further understand health and disease in life sciences.
- Continued employment, financial remuneration from the sale and support of the instruments and within the industries such equipment supports.

Rejection of the exemption will eliminate the subject products from the market, with the following impact:

Public:

- Reduced food quality and safety, greater potential for exposure to chemical hazards, slower drug discovery and health research.
- The benefits and return to the public from using these instruments surpass any individual financial impact.

Industry:

- The environmental monitoring, food safety, pharmaceutical research and forensics industries will face financial impacts represented in loss of revenue; furthermore there will be unforeseen expenditure related to disruption caused by the unavailability of these instruments.

Supply chain:

- Loss of revenues and growth opportunities in the EU and abroad. This will be reflected directly on vendor employment headcount and operations.

Private:

- Loss of revenue, employment, operations delays and customer satisfaction concerns.

**Please note that answers to these questions are to be published as part of the available information relevant for the stakeholder consultation to be carried out as part of the evaluation of this request. 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.**