

Scientific Committee on Health and Environmental Risks

Request for a scientific opinion on heavy metals in jewellery

1. BACKGROUND

The Danish Environmental Protection Agency (EPA) analysed a number of jewellery pieces present on the Danish market for their release of arsenic, barium, cadmium (Cd), chromium, copper (Cu), mercury, nickel (Ni), lead (Pb), antimony and selenium¹. Four metals migrated into artificial sweat in concentrations above the detection limit: Cd, Cu, Ni and Pb. They were selected for exposure and risk assessments for consumers. Exposures were calculated for wearing the jewellery for 16 or 24 hours/day, or for sucking on it for 2 hours/day. Exposure levels were then compared with Margin to Tolerable Daily Intake (Margin TDI) values, which took Danish background exposures to Cd, Cu, Ni and Pb into account.

Exposure through the skin was shown to be a risk for Cd, and in certain cases also for Ni. No health risk was related to the exposure of the skin to jewellery containing Cu or Pb. When considering oral exposure through sucking of the jewellery, potential health risks were identified for Cd, Ni and Pb. Cu was not found to cause health risks by oral exposure.

Based on these results, the authors concluded that it cannot be excluded that potential health risks could arise from wearing or sucking some of the metal jewellery pieces examined in this study. Thus, the Danish Ministry of the Environment invited the Commission to consider whether the results of this study, and the possible health risks to consumers (e.g. kidney toxicity for Cd; reduced IQ in children for Pb) should justify regulatory action.

Currently, migration limits exist at European level for Ni in jewellery (Entry 27, Annex XVII of REACH)². Cd is also regulated under REACH (Entry 23, Annex XVII) but specific limits do not yet exist for Cd in jewellery. A review is currently ongoing and the Commission intends to propose amendments to Annex XVII of REACH relating to further restrictions on the uses of Cd, notably in jewellery. At present, no specific limits apply for Pb in jewellery at European level.

2. TERMS OF REFERENCE

Against the above background, the Scientific Committee is requested to:

- (1) Critically review the Danish EPA Survey and health assessment of chemical substances in jewellery and comment in particular on its completeness, reliability and on the validity of its conclusions. The Committee is also asked to comment on the chosen methodological approach and assumptions made for the risk assessments (e.g. 2 hours/day sucking time for oral exposure assessments, calculation methods, reference Margin to TDI values, etc).

¹ <http://www2.mst.dk/udgiv/publications/2008/978-87-7052-853-5/pdf/978-87-7052-854-2.pdf>

² <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:136:0003:0280:EN:PDF>

- (2) In light of its response to question 1, pronounce itself as to whether there may be reasons for concern arising from the exposure of consumers from jewellery containing Pb, as concluded in the report. In elaborating its point of view, the Committee is asked to take into account all known sources of exposure of consumers to Pb. If the Scientific Committee disagrees with the conclusions of the report, it is invited to elaborate on the reasons and provide comments.
- (3) In light of its response to question 2, assess whether the exposure of consumers to Pb from jewellery should be mitigated. If so, the Committee is asked to assess whether a limit of Pb in jewellery can be established that will lead to exposure of consumers not giving reasons for health concerns (e.g. the Danish limit of 100 ppm Pb in products, including jewellery³). In answering this question, consideration should also be given to other sources of exposure to Pb than jewellery.

3. DEADLINE

31 March 2010

³ Statutory order on ban on import and sale of products containing lead. Stat. Ord. no. 1082 of 13.09.2007.