Abteilung Umweltschutzpolitik

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STN

ZVEI Answers to

1st Stakeholder Consultation – Questionnaire for tetrabromobisphenol A – TBBP-A (CAS 79-94-7)

Abbreviations

EEE	Electrical and Electronic Equipment
DOPO	9,10-Dihydro-9-oxa-10-phosphaphenanthrene-10-oxide
TBBP-A	Tetrabromobisphenol A

Background

The Oeko-Institut and Fraunhofer IZM have been appointed by the European Commission, within a framework contract[1], among others to support the review of the list of restricted substances and to assess seven substances with a view to their possible future restriction under Directive 2011/65/EU (RoHS 2).

Tetrabromobisphenol A (TBBP-A) was specified in the project terms of reference for a detailed assessment. Initial substance information for TBBP-A is compiled and available on the substance specific webpage of the stakeholder consultation (http://rohs.exemptions.oeko.info/index.php?id=291). Against this background the questions below are intended to outline the need for additional information.

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Questions

1. **Applications and quantities (ranges) in which TBBP-A is in use**
   a. Please provide information concerning products and applications in which the substance is in use and give detail as to the annual amounts of use.

TBBP-A is widely used as a reactive flame retardant in Electric and Electronic Equipment. Examples are FR-4 printed circuit boards, hoods, housings, encapsulations and molding compounds of electric and electronic components that will be incorporated in electrical and electronic equipment.

In all these applications TBBP-A is used as reactive intermediate to form a brominated and flame retarded polymer. The functional aromatic OH-groups are changed into C-O-C-ether or ester-bonds firmly fixed in the polymer matrix. The intrinsic substance characteristics of TBBP-A do no longer exist in these polymers. The unreacted residues of TBBP-A in the polymers can be considered as very low.[1]

Any additive use of TBBP-A as flame retardant in Electric and Electronic equipment, e.g. in housing, is not known in Europe. Indicating that the presence of TBBP-A as an individual compound is negligible in the polymers and it is no longer used as additive, TBBP-A (CAS 79-94-7) does not meet the criteria of Article 6 of Directive 2011/65/EU. Therefore, TBBP-A should not be a candidate for possible inclusion in annex II of Directive 2011/65/EU.

3. **Potential emissions in the lifetime (use phase) of products and waste stream**

a. For specific products and components in which TBBP-A is present, please detail potentials for emissions in the use phase.

Indicating that the presence of TBBP-A as a separate molecule is negligible in the polymers relevant emissions in the use phase are not expected.

b. Please provide information on how EEE applications containing TBBP-A are managed in the waste phase (with which waste is such EEE collected and what treatment routes are applied).

i. Please refer in your answer to the treatment of specific products and components in which TBBP-A is present, for example, how does the presence of TBBP-A in printed circuit boards affects the recyclability of resources contained in these components?

see 3a.

ii. Please detail potentials for emissions in the relevant treatment and disposal processes.

see 3a.

[1] ICL Report_Unreacted TBBPA in different stages of PCBs production, October 2015 (Dr. Y. Rachmilevitch)