

Project Description SBAA Substance Review

1. Background

The RoHS Directive (2002/95/EC) (RoHS 1) has been recasted and has now become Directive 2011/65/EU that entered into force on 21 July 2011, repealing Directive 2002/95/EC on 3 January 2013. The RoHS Directive (2011/65/EU) on the restriction of the use of certain hazardous substances in electrical and electronic equipment requires “that EEE placed on the market, including cables and spare parts for its repair, its reuse, updating of its functionalities or upgrading of its capacity, does not contain the substances listed in Annex II” (i.e. lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls and polybrominated diphenyl ethers and the phthalates dibutyl phthalate (DBP), bis(2-ethylhexyl)phthalate (DEHP), diethyl phthalate (DEP) and diisobutyl phthalate (DIBP).

RoHS 2 sets the rules for amending the list of restricted substances in Article 6(1). The annex is to be reviewed periodically. According to article 6(1) it is possible for member states to submit a proposal for adding new substances to the list of restricted substances of the directive. Article 6(1) and 6(2) describe the criteria and requirements for proposals for restrictions respectively.

In 2014, the Danish Environmental Protection Agency (DEPA) performed a survey on brominated flame retardants (BFRs). On the basis of its results, the Danish Technical University (DTU Food) investigated possibilities of grouping BFRs. One of the groupings; the small linear and branched brominated alkyl alcohols (hereafter SBAA), including:

- 2,3-dibromo-1-propanol (2,3-DBPA);
- 2,2-bis(bromomethyl)-1,3-propanediol (DBNPG); and
- 2,2-bis-(bromomethyl)-3-bromo-1-propanol (TBNPA);

was chosen for further investigation and the grouping was extended to include also theoretical compounds. The category, defined as having 3-5 carbons, 2-3 bromine atoms and 1-2 alcohol groups, comprises 61 members. Predictions for carcinogenic and mutagenic/genotoxic properties indicated that the 61 members in the category of small linear and branched brominated alkyl alcohols have a carcinogenic potential with a possible mutagenic/genotoxic mode of action. Experimental data for a small number of the members of the group is available. The experimental data support the (Q)SAR prediction.

DEPA has thus commissioned a project to collect, assess and present scientific data to support a proposal for restriction of small brominated alkyl alcohol in the RoHS Directive, if the data prove to be adequate. For this purpose, a stakeholder consultation is being held as a means of collecting further information and data as to the substances of interest and their relevance to the EEEE sector.

With the contract No. MST-STG-MF-003 Oeko-Institut for Applied Ecology and COWI AS have been requested by DEPA to provide technical and scientific support for an evaluation of a possible restriction of small alkyl alcohols under Directive 2011/65/EU (RoHS 2). On the basis of available information, the study team shall prepare a RoHS dossier for the group of substances, to be submitted to the Commission, including a recommendation if a full substance evaluation should be performed by the European Commission, to determine the need for a restriction of the substance group under RoHS.

2. Objectives

The objectives of this project are to collect, assess and present scientific data to support a proposal for restriction of small brominated alkyl alcohol in the RoHS Directive, if the data prove to be adequate.

To this end, an evaluation shall be performed, whether the application of small brominated alkyl alcohols in EEE:

- Could result in uncontrolled or diffuse emissions of brominated alkyl alcohols and/or their derivatives, being released into the environment during manufacture of materials and components to be applied in EEE and during the use of such components.
- Could result in uncontrolled or diffuse emissions of brominated alkyl alcohols and/or their derivatives, being released into the environment at the end-of-life (EoL) stage of EEE and respective collection and treatment processes.
- Could result in unacceptable impacts on the health of workers (e.g. related to dealing with WEE at EoL) and on the health of consumers (e.g. related to improper disposal).
- Could have a negative impact during the waste management operations of EEE, including in relation to the possibility of preparing waste EEE for recycling or for reuse;
- Whether small brominated alkyl alcohols could be replaced by substitutes or alternative technologies, leading to a decrease in negative impacts on the environment and on health.

3. Scope

The scope of the current consultation concerns the review of a group of substances titled small brominated alkyl alcohols (hereafter SBAA). Substances in the scope of this group are defined as having 3-5 carbons, 2-3 bromine atoms and 1-2 alcohol groups.

A list of substances in this group that have been associated EC and/or CAS numbers is detailed in the table on the following page 3. A full list is included in the annex of the guiding document available on the consultation webpage (<http://rohs.exemptions.oeko.info/index.php?id=273>).

Table 3-1: Substances of the SBAA covered by this stakeholder consultation (non-exhaustive list, see also Appendix of Background Document)

No.	CAS	EC	Substance name
1	96-13-9	202-480-9	2,3-dibromopropan-1-ol, 2,3-dibromo-1-propanol
2	96-21-9	202-489-8	1,3-dibromopropan-2-ol
3	106023-63-6		3-Bromo-2-(bromomethyl)-1-propanol
4	19398-47-1	243-029-6	1,4-dibromobutan-2-ol
5	79033-40-2		3,4-Dibromo-2-butanol
6	4021-75-4		2,3-dibromobutan-1-ol
7	87018-30-2		3,4-Dibromo-1-butanol
8	35330-59-7		3,4-Dibromo-1,2-butanediol
9	14396-65-7	627-179-3	1,4-Dibromo-2,3-butanediol
10	855236-37-2		2,3,4-Tribromo-1-butanol
11	87018-38-0		1,2,4-Tribromo-3-butanol
12	105100-80-9		2,2-Bis(bromomethyl)-1-propanol
13	213821-22-8		4,5-Dibromo-2-pentanol
14	408319-76-6		1,2-Dibromo-3-pentanol
15	159475-15-7		1,4-dibromo-(R*,R*)-(9CI)-3-pentanol
16	343268-04-2		2,4-Dibromo-3-pentanol
17	76377-07-6		3,4-Dibromo-(2R*,3S*,4S*)-(9CI)-2-pentanol
18	59287-66-0		4,5-Dibromo-1-pentanol
19	856991-78-1		2,5-Dibromo-1-pentanol
20	100606-66-4		2-Pentanol, 1,5-dibromo-
21	213821-20-6		2,5-Dibromo-2-pentanol
22	98069-26-2		4-Bromo-2-(bromomethyl)-1-butanol
23	3296-90-0	221-967-7	2,2-bis(bromomethyl)propane-1,3-diol; Synonym: Dibromo-neopentyl-glycol
24	44804-46-8		4-Bromo-2-(bromomethyl)-1,3-butanediol
25	1522-92-5	622-370-8	3-Bromo-2,2-bis(bromomethyl)-1-propanol
26	36483-57-5	253-057-0	2,2-dimethylpropan-1-ol, tribromo derivative; Synonym: Tribromoneopentyl alcohol

4. Project set-up

The overall project is led by Yifaat Baron. At COWI the contact person is Jesper Kjølholt. The project team at Oeko-Institut consists of the technical experts Carl-Otto Gensch and Katja Moch and at COWI of the technical expert Sonja Hagen Mikkelsen.

The evaluation will be performed in close co-operation with DEPA and stakeholders (electrical and electronic industry and its associations, NGOs, independent experts etc.). This includes:

- Central communication access for stakeholders via the RoHS evaluations e-mail account rohs.exemptions@oeko.de;
- RoHS evaluations website at <http://rohs.exemptions.oeko.info/> where relevant documents and project activities will be published;
- Information for stakeholders via website and via mailing lists for which stakeholders can register;
- Preparation and management of stakeholder consultation for the review of the substance group via project website;
- Technical and scientific evaluation of stakeholder input and further procedure for receiving a sound basis with a high level quality of data and information and for cross-checking information for technical correctness and confidentiality issues.

5. Time schedule

Assignment of project tasks to Oeko-Institut and Fraunhofer IZM started 14 July 2016 and will run until the 31 December 2016. A draft dossier shall be delivered to DEPA in mid-November. The final report is due at the end of the project.

The stakeholder consultation is planned to start in September 2016 and shall be held for a period of six weeks. Following the consultation, stakeholders may be contacted in relation to clarifications and provision of further information.

On the basis of available information, the study team shall prepare a RoHS dossier for the group of substances, to be submitted to the Commission, including a recommendation if a full substance evaluation should be performed by the European Commission, to determine the need for a restriction of the substance group under RoHS.