

POPRC-5/1: Work programmes on new persistent organic pollutants

The Persistent Organic Pollutants Review Committee,

Taking note of decisions SC-4/10–SC-4/18, by which the Conference of the Parties amended Annexes A, B and C to the Stockholm Convention on Persistent Organic Pollutants to list nine new chemicals therein,

Mindful of the importance of facilitating the elimination of listed brominated diphenyl ethers and the restriction or elimination of perfluorooctane sulfonate and its salts, perfluorooctane sulfonyl fluoride and other chemicals listed in the annexes to the Convention,

Taking into account that some Parties at the fourth meeting of the Conference of the Parties expressed a need for guidance on how to identify unintentionally released pentachlorobenzene,

1. *Invites* the Secretariat to collect from Parties and observers the information outlined in decision SC-4/19 using a revised version of the questionnaire for submitting information on new persistent organic pollutants, as discussed during the fifth meeting of the Persistent Organic Pollutants Review Committee;

2. *Requests* the Secretariat to prepare a summary of the information collected in accordance with the preceding paragraph for consideration by the Committee at its sixth meeting;

3. *Adopts* the revised outline for developing a technical paper on brominated diphenyl ethers contained in the annex to the present decision;

4. *Requests* the Secretariat to commission the technical paper on brominated diphenyl ethers based upon the revised outline in paragraph 3 above for consideration by the Committee at its sixth meeting;

5. *Recommends* to the Toolkit expert group that it consider reviewing at its next meeting possible implications of listing pentachlorobenzene in Annex C to the Convention with regard to an inventory of sources and an estimation of releases of unintentionally produced persistent organic pollutants;

6. *Takes note* of the activities on lindane proposed as an element of work to be undertaken for other chemicals listed in Annex A or B to the Convention as requested at the fourth meeting of the Conference of the Parties.¹

Annex to decision POPRC-5/1

Terms of reference for the technical paper on commercial pentabromodiphenyl ether and octabromodiphenyl ether, newly listed in the Stockholm Convention

A. Background

1. The Conference of the Parties at its fourth meeting listed in Annex A of the Stockholm Convention² certain congeners contained in commercial pentabromodiphenyl ether³ and octabromodiphenyl ether.⁴ Among other consequences, this listing requires each Party to take

1 UNEP/POPS/POPRC.5/INF/19, annex III.

2 Decisions SC-4/14 on the listing of hexabromodiphenyl ether and heptabromodiphenyl ether and SC-4/18 on the listing of tetrabromodiphenyl ether and pentabromodiphenyl ether.

3 The listing includes tetrabromodiphenyl ether and pentabromodiphenyl ether, meaning 2,2',4,4'-tetrabromodiphenyl ether (BDE-47, CAS No: 40088-47-9) and 2,2',4,4',5-pentabromodiphenyl ether (BDE-99, CAS No: 32534-81-9) and other tetrabromodiphenyl and pentabromodiphenyl ethers present in commercial pentabromodiphenyl ether.

4 The listing includes hexabromodiphenyl ether and heptabromodiphenyl ether, meaning 2,2',4,4',5,5'-hexabromodiphenyl ether (BDE-153, CAS No: 68631-49-2), 2,2',4,4',5,6'-hexabromodiphenyl ether (BDE-154, CAS No: 207122-15-4), 2,2',3,3',4,5',6-heptabromodiphenyl ether (BDE-175, CAS No: 446255-22-7), 2,2',3,4,4',5',6-heptabromodiphenyl ether (BDE-183, CAS No: 207122-16-5) and other hexabromodiphenyl and heptabromodiphenyl ethers present in commercial octabromodiphenyl ether.

appropriate measures to reduce or eliminate releases of persistent organic pollutants (POPs) from stockpiles and wastes.⁵

2. Article 6 of the Stockholm Convention requires that wastes containing POPs be managed in a manner protective of human health and the environment. The decisions to list these PBDEs,⁶ however, include specific exemptions allowing for recycling and the use in articles of recycled materials containing these substances.

3. This exemption raises a concern that relates to the environmental and health risks associated with recycling these articles, and also to the long-term desirability of these exemptions.

4. The Persistent Organic Pollutants Review Committee was requested to make recommendations to the Conference of the Parties to address the above concerns. These recommendations will be based on information gathered from Parties and observers, and also on a technical report. The terms of reference for this technical report are outlined below.

B. Objectives of the technical paper

5. The objectives of the technical paper are as follows:

(a) To assess the possible health and environmental impacts of recycling articles containing brominated diphenyl ethers;

(b) To review the long-term environmental desirability of the recycling of articles containing brominated diphenyl ethers;

(c) To identify the best available techniques and best environmental practices for the recycling of articles containing brominated diphenyl ethers.

6. The study should be relevant to developed and developing countries and countries with economies in transition.

Exemptions for the recycling of articles (part IV of Annex A, adopted in decisions SC-4/14 and SC-4/18)

In paragraph 3 of decision SC-4/14, on hexabromodiphenyl ether and heptabromodiphenyl ether, and paragraph 3 of decision SC-4/18, on tetrabromodiphenyl ether and pentabromodiphenyl ether, the Parties adopted a new part IV in Annex A. Below is the text of the new part IV pertaining to tetrabromodiphenyl ether and pentabromodiphenyl ether, which is substantially identical to the text pertaining to hexabromodiphenyl ether and heptabromodiphenyl ether:

Part IV

Tetrabromodiphenyl ether and pentabromodiphenyl ether

1. A Party may allow recycling of articles that contain or may contain tetrabromodiphenyl ether and pentabromodiphenyl ether, and the use and final disposal of articles manufactured from recycled materials that contain or may contain tetrabromodiphenyl ether and pentabromodiphenyl ether, provided that:

(a) The recycling and final disposal is carried out in an environmentally sound manner and does not lead to recovery of tetrabromodiphenyl ether and pentabromodiphenyl ether for the purpose of their reuse;

(b) The Party does not allow this exemption to lead to the export of articles containing levels/concentrations of tetrabromodiphenyl ether and pentabromodiphenyl ether that exceed those permitted to be sold within the territory of the Party; and

(c) The Party has notified the Secretariat of its intention to make use of this exemption.

2. At its sixth ordinary meeting and at every second ordinary meeting

5 Article 6 of the Stockholm Convention.

6 For the purpose of the technical report, "PBDE" refers to certain congeners contained in commercial octabromodiphenyl and pentabromodiphenyl ethers as listed in decisions SC-4/14 and SC-4/18.

thereafter the Conference of the Parties shall evaluate the progress that Parties made towards achieving their ultimate objective of elimination of tetrabromodiphenyl ether and pentabromodiphenyl ether contained in articles and review the continued need for this specific exemption. This specific exemption shall in any case expire at the latest in 2030.

C. Information to be collected from Parties and observers

7. The information that the Conference of the Parties requested the Secretariat to collect from Parties and observers⁷ on brominated diphenyl ethers found in articles is as follows:

- (a) Types and quantities of articles containing brominated diphenyl ethers, including concentrations of those substances in the articles, including recycled articles;
- (b) Types of articles recycled, the extent of recycling, the types of articles produced from recycling, the options for the environmental management of recycling operations and releases or potential releases resulting from recycling operations;
- (c) Cost-effectiveness of different management options;
- (d) Options for environmentally sound disposal;
- (e) Methods for identifying the presence and levels of brominated diphenyl ethers in articles;
- (f) Identification of remediation methods for contaminated sites as listed in subparagraph 1 (e) of Article 6 of the Convention;
- (g) Any other related information.

D. Outline of the technical paper

8. The paper shall have a maximum length of 20 pages and comprise the following sections:

1. Executive summary

Two or three pages presenting the salient points of the report, including the most important findings and conclusions. This shall be written in clear language so that it is intelligible to readers who are not experts in the field (including policymakers).

2. Background and purpose

The purpose of this section is:

- (a) To summarize the decisions by the Conference of the Parties and the Persistent Organic Pollutants Review Committee and the rationale for the report;
- (b) To describe the issues that are being considered in the report and the overall objective; this should include descriptions of the terms “article”, “recovery”, “recycling”, “reclamation”, “direct reuse” and “other disposal operations”, with illustrative examples;
- (c) To indicate the structure of the report and the content of the various chapters;
- (d) To provide details concerning the methodology used to obtain data and to describe how this is presented in the report.

3. Assessment of the possible health and environmental impacts of recycling articles containing brominated diphenyl ethers

This section summarizes and assesses the information collected from Parties and observers and from scientific and grey literature with the goal of describing the health

⁷ Pursuant to paragraphs 1–4 of the annex to decision SC-4/19.

and environmental impacts of recycling activities, including transport and storage, and of using recycled articles containing brominated diphenyl ethers. The study shall include an assessment of possible impacts on the environment and health impacts on workers, local populations, vulnerable populations and consumers.

This section shall:

- (a) Describe the more common and important operations to recycle various materials and products (e.g., shredding and remoulding of plastics, fabrication of re-bonded carpet underlay from scrap polyurethane foam, etc.);
- (b) For the operations outlined above, review and summarize information on:
 - (i) Possible emissions that may occur through existing processing and recycling operations. This review should cover both high- and low-technology operations;
 - (ii) Information on relevant monitoring and exposure data such as occupational exposure and levels of pollutants in local environments and biota;
 - (iii) The extent of unintentionally produced organic pollutants (e.g., brominated dioxins and furans);
- (c) Examine release and emission data on PBDEs and other unintentionally produced organic pollutants (e.g., brominated dioxins and furans) from various disposal operations, such as incineration, landfilling and open burning. The examination shall cover both high- and low-technology operations;
- (d) Review and summarize information on the presence of PBDEs in articles produced from recycled materials and health risks from use of such articles;
- (e) Rank various exposure scenarios from recycling and disposal operations and from the use of recycled articles containing PBDEs according to estimated risks to health and the environment;
- (f) Identify and compile knowledge gaps.

4. Identification of the best available techniques and best environmental practices for the recycling of articles containing brominated diphenyl ethers

Based on the analysis in section 3, this section shall identify and discuss best available techniques and best environmental practices associated with recycling articles containing PBDEs.

This section will:

- (a) Include information on current methods to identify articles or recycled articles containing PBDEs;
- (b) Describe how to separate them from other components of the waste stream and how to remove PBDEs from articles containing them;
- (c) Cover potential releases and unintentional by-products from recycling operations;
- (d) Identify whether or not these technologies are technically applicable for articles and materials that contain PBDEs;
- (e) Compare available technologies and determine which of these are the best based on technical, economic, geographical and environmental concerns;
- (f) Identify and compile knowledge gaps;
- (g) Identify the capacity of developing countries and countries with economies in transition to implement best available techniques and best environmental practices;

(h) Reflect on regulatory approaches and strategies used to support the implementation of best available techniques and best environmental practices.

5. Review of the long-term environmental desirability of the recycling of articles containing brominated diphenyl ethers

This section of the paper shall discuss the environmental desirability of recycling articles containing PBDEs in the context of sustainable development and the environmental and health impacts identified in the previous sections. It shall take into account the life cycle and the durability of new articles made from recycled material containing PBDEs. This section shall include:

- (a) A prediction of the volumes and types of articles containing PBDEs and an anticipation of levels of PBDEs in articles in the waste stream and in new articles produced from recycled materials, with a view to considering the fate of PBDEs in waste materials and new products;
- (b) Information on the potential trade volume of recycled articles containing PBDEs, including from developed to developing countries;
- (c) An analysis of the respective costs and benefits of removing and maintaining the exemption on recycling articles containing PBDEs;
- (d) Consideration of the particular needs of developing countries and countries with economies in transition (both in the event that the exemption on recycling articles containing PBDEs is removed and in the event that it is maintained);
- (e) Recommendations on the long-term environmental desirability of the recycling of articles containing PBDEs;
- (f) Recommendations for the elimination of PBDEs from the waste stream.

E. Requirements for the consultant and information sources

1. Requirements

9. The consultant shall develop the technical paper under the guidance of the Secretariat. In writing the technical paper, the consultant shall review and assess information from scientific and grey literature. The consultant shall also use the information collected from the Parties and observers on brominated diphenyl ethers in accordance with decision SC-4/19.

10. The consultant shall be required to produce the draft in accordance with the workplan set out in annex II to the report of the Persistent Organic Pollutants Review Committee on the work of its fifth meeting (UNEP/POPS/POPRC.5/10). The technical paper will be reviewed by the Committee at its sixth meeting. The consultant shall revise the draft based on the Committee's review and finalize it for the Conference of the Parties at its fifth meeting.

2. Qualifications and special skills or knowledge

11. The consultant shall have extensive experience and expertise in chemicals assessment and management and in recycling and waste management practices at the national and international levels, and shall also be familiar with the waste management of brominated diphenyl ethers and their sound management. The consultant should have some background knowledge on relevant multilateral environmental agreements.