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ECONOMIC COMMISSION FOR EUROPE

**EXECUTIVE BODY FOR THE CONVENTION ON LONG-RANGE
TRANSBOUNDARY AIR POLLUTION**

Working Group on Strategies and Review

Forty-third session
Geneva, 9–13 March 2009
Item 3 of the provisional agenda

**OPTIONS FOR REVISING THE PROTOCOL ON
PERSISTENT ORGANIC POLLUTANTS**

Note by the secretariat

1. The present document was prepared by the secretariat in consultation with the Chair of the Working Group on Strategies and Review following a request made by the Executive Body at its twenty-sixth session¹. It reflects the outcomes of the breakout group that worked during the Executive Body session to find consensus on the amendments to the annexes I, II and III to the Protocol on Persistent Organic Pollutants (POPs) proposed by the French presidency of the European Council and the European Commission on behalf of the European Community and the European Union (EU) Member States that are Parties to the Protocol, and also by Norway, in line with the of article 14, paragraph 2, to the Protocol².

¹ See ECE/EB.AIR/WG.5/92.

² Article 14, paragraph 4, states that amendments to the Protocol proposed by a Party “shall be submitted in writing to the Executive Secretary of the Commission who shall communicate them to all Parties. The Parties meeting within the Executive Body shall discuss the proposed amendments at its next session, provided that the proposals

2. The amendment proposals by the EU and Norway built on the discussions of options for revising the Protocol carried out by the Working Group at its forty-first and forty-second sessions. At its forty-second session, the Working Group agreed to forward the outcome of its deliberations on POPs, as contained in document ECE/EB.AIR/2008/12³, to the Executive Body at its twenty-sixth session, with a view to providing a basis for negotiating possible amendments to the Protocol. The proposals in the present document concerning annexes IV, V, VII and VIII are carried over from the above-mentioned document.

3. In line with the request made by the Executive Body, at its forty-third session the Working Group will be invited to consider the outcome of the breakout group concerning annexes I, II and III, and to address those issues, presented in square brackets, that the group did not manage to resolve. Secondly, the Working Group will be invited to address the proposals for annexes IV, V, VII and VIII that the breakout group did not have time to discuss.

4. In addition, the Working Group may wish to consider the proposed amendments to annexes IV and V prepared by the ad hoc group of technical experts in parallel to the Working Group's forty-first and forty-second sessions. These proposals will be presented in informal documents that will be made available on the Working Group's webpages on the Convention's website⁴.

5. The Working Group no longer needs to consider articles 14 to 16 to the Protocol, as following further consultations with the ad hoc group of legal experts the Executive Body adopted the amendments to these articles as set out in annexes to the Executive Body's report on its twenty-sixth session (ECE/EB.AIR/96).

I. PROPOSED AMENDMENTS TO ANNEX I

6. The Working Group may wish to consider the proposals described in paragraphs 7 to 18 below for listing substances in annex I. Each of the paragraphs corresponds to one substance. The text without square brackets has been agreed in principle in the breakout group. The text in square brackets requires further work.

have been circulated at least 90 days in advance". The official correspondence and dossiers submitted, as well as written comments to the dossiers by industry representatives, are available on the Convention's website (<http://www.unece.org/env/lrtap>), on the documents pages for the Executive Body's twenty-sixth session.

³ This dual-symbol document was also issued as ECE/EB.AIR/WG.5/2008/8/Rev.1.

⁴ <http://www.unece.org/env/lrtap>

7. **Dichloro-diphenyl-trichloroethane (DDT)**⁵.
 - (a) [Eliminate production and use without exemption; list in annex I only];
 - (b) [Keep the specific uses exemptions as they are listed in annexes I and II].
8. **Heptachlor**. List in annex I.
9. **Hexachlorobenzene (HCB)**. List in annex I.
10. **Hexachlorobutadiene (HCBD)**. List in annex I.
11. **Hexachlorocyclohexane (HCH)**. List HCH (CAS: 608-73-1) in annex I with the following exemptions: “Topical insecticide for public health purposes”. Such uses shall be re-evaluated under this Protocol no later than 2012.
12. **Commercial Octabromodiphenyl ether (C-OctaBDE)**⁶. List in annex I, including hexaBDE congeners, individually.
 - (a) [List heptaBDE congeners];
 - (b) Implementation requirements:
 - (i) [Use: None. Parties must take appropriate measures to ensure that recycling processes of articles manufactured or in use by the implementation date do not result in recovered material containing 0.1% or more of penta/octa by weight];
 - (ii) [Use in recycled articles].
13. **Pentachlorobenzene (PeCB)**. List in annex I. [PeCB may be present in PCBs⁷ as additives, therefore similar conditions as for PCBs may be necessary.]

⁵ Currently, there is no production or use of DDT in the United Nations Economic Commission for Europe (UNECE) region. However, according to the Food and Agriculture Organization of the United Nations (FAO), the United Nations Environment Programme (UNEP) and the World Health Organization (WHO), DDT is still needed for public health protection in certain regions outside UNECE. Therefore, effective, economically viable and less environmentally hazardous alternatives to DDT continue to be needed there. WHO does not entirely exclude the possibility of outbreaks of malaria and other vector-borne diseases in the future. See informal document no. 4 submitted to the Working Group’s forty-second session.

⁶ Commercial PentaBDE and commercial OctaBDE contain polybrominated diphenyl ethers with varying degrees of bromination, typically consisting of penta- to deca-bromodiphenyl ether isomers (ECE/EB.AIR/WG.5/2007/14).

⁷ Polychlorinated biphenyls.

14. **Commercial-Pentabromodiphenyl ether (C-PentaBDE)**⁸. List in annex I, including tetraBDE, pentaBDE and hexaBDE congeners individually.

(a) Implementation requirements:

(i) [Use: None. Parties must take appropriate measures to ensure that recycling processes of articles manufactured or in use by the implementation date do not result in recovered material containing 0.1% or more of penta/octa by weight];

(ii) [Use in recycled articles].

15. **Perfluorinate sulfonates (PFOS)**. List in annex [I][II];

(a) Definition:

(i) PFOS, including the 96 congeners (perfluorooctane sulfonates C₈F₁₇SO₂X (X=OH, metal salt, halide, amide or other derivatives including polymers) [in concentration higher than 0.005% by mass];

(ii) [**United States:** PFOS (Perfluorooctane sulfonic acid C₈F₁₇SO₂X (X=OH))];

(b) Exemptions:

(i) Exemptions should be included for the following uses and the production related to these uses:

a. Photo-resists or anti-reflective coatings for photolithography processes;

b. Photographic coatings applied to films, papers or printing plates;

⁸ According to information submitted by the Bromine Science and Environmental Forum: “The most scientifically sound, enforceable and practical option would listing those specific tetra-, penta- and hexaBDE isomers present in the commercial products that have been evaluated (BDEs 47, 85, 99, 100, 153, 154). These six BDEs account for more than 99% of the BDE mass found in historic c-pentaBDE and also account for the Br6 BDEs found in c-OctaBDE”.

- c. Mist suppressants for non-decorative hard chromium (VI) plating and wetting agents for use in controlled electroplating systems;
 - d. Hydraulic fluids for aviation;
 - e. Firefighting foams that have been placed on the market before the ban can be used until 2011;
 - f. Chromium electroplating, chromium anodizing and reverse etching;
 - g. Electroless nickel-polytetrafluoroethylene plating;
 - h. Etching of plastic substrates prior to their metalization.]
- (ii) [Add conditions of stockpiles of firefighting foam containing more than 0.005% PFOS by weight to be identified, collected and destroyed.]
- (iii) Restricted uses of PFOS shall be reassessed no later than two years after the entry into force of the Protocol;
- (iv) [**United States:** Include below exemptions in annex II:
- a. Use as an anti-erosion additive in fire-resistant phosphate ester aviation hydraulic fluids;
 - b. Use as a component of a photoresist substance, including a photo acid generator or surfactant, or as a component of an anti-reflective coating, used in a photomicrolithography process to produce semiconductors or similar components of electronic or other miniaturized devices;
 - c. Use in coating for surface tension, static discharge and adhesion control for analog and digital imaging films, papers, and printing plates or as a surfactant in mixtures used to process imaging films;
 - d. Use as a component of an etchant, including a surfactant or fume suppressant, used in the plating process to produce electronic devices;
 - e. Use as a mist/fume suppressant in metal finishing and plating baths, e.g. hard chrome plating; decorative chromium plating; chromic acid anodizing; nickel, cadmium or lead plating; metal plating on plastics; and alkaline zinc plating;
 - f. Use as an intermediate to produce chemical substances for hydraulic fluids used in aviation, semiconductor manufacturing and photographic coatings ((i), (ii), and (iii) above).]

16. **Polychlorinated biphenyls (PCBs).** List in annex I. See the table with proposed amendments regarding PCBs in the annex to the present document.

17. **Polychlorinated naphthalenes (PCN).** List in annex I.
18. **Short-chained chlorinated paraffins (SCCP).** List in annex [I][II]^{9,10}.
 - (a) Exemptions:
 - (i) The need for essential uses is still being assessed;
 - (ii) [**United States:** Include the following restricted uses: “Metalworking fluids and non-emissive applications e.g. as a plasticizer or flame retardant in paints, inks, coatings and sealants, rubber, textiles and plastics, and insulation fibre”.]

II. PROPOSED AMENDMENTS TO ANNEX II

19. The Working Group may wish to consider the proposals described in paragraphs 20 to 25 below for listing substances in annex II. Each of the paragraphs corresponds to one substance. The text without square brackets has been agreed in principle in the breakout group. The text in square brackets requires further work.
20. **DDT.** Delete the specific uses exemption 2 “as a chemical intermediate to produce dicofol”;
 - (a) [Eliminate production and use without exemption; list in annex I only]
21. **HCH.** Remove from annex II.
22. **PCBs.** Remove from annex II. See table in annex to the present document.
23. **PFOS.** List in annex [I][II]. See paragraph 14.
24. **SCCP.** List in annex [I][II]. See paragraph 16.
25. **PentaBDE.** [Specify the following use: “Use of imported articles”].

⁹ Canada has no principal objection to listing SCCP in annex I, subject to the exempted uses identified.

¹⁰ United States did not agree that SCCP meet the POPs criteria. However, if SCCP were to be listed, the United States would recommend listing them in annex II.

III. PROPOSED AMENDMENTS TO ANNEX III

26. The Working Group may wish to consider the proposals described in paragraphs 27 to 30 below for listing substances in annex III. The text without square brackets has been agreed in principle in the breakout group. The text in square brackets requires further work.
27. List PCBs, [PCN], [PeCB], [HCBd] in annex III.
28. Add a footnote referring to PCBs that reads: “Polychlorinated biphenyls emitted as unintentional by-product.”
29. [Specify the reference year for PCBs, PCN, PeCB and HCBd, as follows: “2000; or an alternative year from 1995 to 2005 inclusive, specified by a Party upon ratification, acceptance, approval or accession”] ;
30. [For PCN, PeCB and HCBd, the emission inventory should be established on a voluntary basis, in derogation to article 9, paragraph 1 (b), to the Protocol, which provides for obligatory reporting of emissions].

IV. PROPOSED AMENDMENTS TO ANNEX IV

31. The Working Group may wish to consider the following proposed changes to annex IV to the Protocol prepared at meetings of an ad hoc group of technical experts held in parallel to and in between the Working Group’s forty-first and forty second sessions. (Newly introduced words are in square brackets).
32. At the end of paragraph 2 of annex IV, add the words [“and for a given oxygen content”].
33. Amend paragraph 3 of annex IV to read: Limit values relate to the normal operating situation, including [in some cases] start-up and shutdown procedures, unless specific limit values have been defined for those situations.
34. Amend the first sentence of paragraph 4 of annex IV to read: “Sampling and analysis of all pollutants shall be carried out according to [the most up-to-date] standards laid down by Comité européen de normalisation (CEN), the International Organization for Standardization (ISO) or the corresponding United States or Canadian reference methods”. Add a footnote that reads: [“Current CEN measurement standards are EN 1948-1, EN 1948-2 and EN 1948-3, for PCDD/Fs sampling, extraction/purification and analysis, respectively. A new TS 1948-4 was issued in 2007 with regard to PCB-DL measurements”]. Delete the last sentence of paragraph 4: “While awaiting the development of CEN or ISO standards, national standards shall apply”.

35. Amend the paragraph 6 of annex IV to read: “Emissions of PCDD/F are given in toxicity equivalents (TE). [The toxic equivalent factor values to be used for the purposes of this Convention shall be consistent with accepted international standards, commencing with the World Health Organization 2005 mammalian toxic equivalent factor values for polychlorinated dibenzo-pdioxins and dibenzofurans and coplanar polychlorinated biphenyls]”. Add the following reference and text into a footnote: [“Van den Berg, 2005 (The 2005 WHO Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds). The WHO study included dioxin-like PCB TEs¹¹ values for the first time. These were not previously included in the calculation of ELVs¹²”].

36. As regards the proposed changes to ELVs for major stationary sources, in paragraph 7 of annex IV, the Working Group may wish to consider the following positions:

(a) Decrease the ELVs for medical solid waste from 0.5 to 0.1 ng TE/m³;

(i) **EU and Canada:** 0.1 ng TE/m³ is technically feasible;

(ii) **Other Parties:** 0.5 ng TE/m³ is technically feasible;

(b) Decrease the ELVs for hazardous waste from 0.2 to 0.1 ng TE/m³.

(i) **EU and Canada:** 0.1 ng TE/m³ is technically feasible;

(ii) **Other Parties:** 0.2 ng TE/m³ is technically feasible.

(c) Regarding new ELVs for additional emission source categories, the Working Group considered at its forty-second session that, on the basis of annex V, it was technically possible to reduce emissions as follows:

(i) Electric arc furnaces: <0.1 – 0.5 ng TE/m³;

(ii) Non-hazardous industrial waste: 0.1 ng TE/m³;

¹¹ Toxic equivalency factors.

¹² Emissions limit values.

- (iii) Sinter plants: <0.1 – 0.5 ng TE/m³;
- (iv) Secondary production of copper and aluminum: <0.1 – 0.5 ng TE/ m³.

V. PROPOSED AMENDMENTS TO ANNEX V

37. As regards the proposed amendments to annex V, the Working Group may wish to consider the informal document on annexes IV and V to the Protocol prepared by the ad hoc group of technical experts¹³.

VI. PROPOSED AMENDMENTS TO ANNEX VII

38. As a result of the phase-out of leaded petrol in most parts of the UNECE region, petrol-fuelled vehicles are no longer a relevant source of PCDD/PCDF¹⁴. Furthermore, diesel-powered engines, which are formally a main source of fine particulates, with PAHs¹⁵ as a major component, are subject to stricter controls for particulate matter (PM) under regulations outside of the Protocol¹⁶.

39. Based on the findings of the sufficiency and effectiveness review, the Working Group may wish to consider the proposal to delete the contents of annex VII.

VII. PROPOSED AMENDMENTS TO ANNEX VIII

40. The Working Group may wish to consider the following proposals to amend annex VIII:

- (a) Amend the description of the category in the list of categories as follows:
 - (i) At the end of the description of category 1, insert [“or of non-hazardous industrial waste.”];

¹³ Available on the Working Group’s webpages on the Convention’s website (<http://www.unece.org/env/lrtap>).

¹⁴ PCDDs – polychlorinated dibenzodioxins; PCDFs – polychlorinated dibenzofurans.

¹⁵ Polycyclic aromatic hydrocarbons.

¹⁶ See EB.AIR/WG.5/2005/1, paras. 33–37.

(ii) At the end of the description of category 3, insert: [“primary production of magnesium”]; chlorine based methods;

(iii) At the end of the list, insert a new category 13 with a description reading: [“Large volume production of chlorinated hydrocarbons”];

(iv) Insert a new category 14 with a description reading: [“Installations for recycling or shredding of municipal and industrial waste”];

(b) **EU:** “Instead of the inclusion of “primary production of magnesium” and the new category 13 “large volume production of chlorinated hydrocarbons”, insert “specific chemical production processes” as a new category 7 bis and “other processes used in metallurgic industry” as a new category 5 bis.

Annex**AMENDMENTS TO ANNEX I REGARDING POLYCHLORINATED BIPHENYLS**

PCBs are defined as follows:

“Polychlorinated biphenyls” means aromatic compounds formed in such a manner that the hydrogen atoms on the biphenyl molecule (two benzene rings bonded together by a single carbon-carbon bond) may be replaced up to 10 chlorine atoms (as defined in the Stockholm Convention on POPs);

[For countries within the geographical scope of EMEP¹⁷, PCBs include: polychlorinated biphenyls; polychlorinated terphenyls (PCT); ugilecs (monomethyl-tetrachlorodiphenyl methane, monomethyl-dichlorodiphenyl methane, monomethyl-dibromo-diphenyl methane); and any mixture containing any of the above-mentioned substances in a total of more than 0.005% by weight.]

The bold text is new and agreed except where square-bracketed.

Substance	Implementation requirements	
	Elimination of	Conditions
PCBs	Production	None.
	Use	None, [except for PCBs in use as of the date of entry into force or produced up to 31 December 2005]*. Concerning these: Parties shall make determined efforts designed to lead to: (a) The elimination of the use of identifiable PCBs in equipment (i.e. transformers, capacitors or other receptacles containing residual liquid stocks) containing PCBs in volumes greater than 5 dm ³ and having a concentration of 0.05% PCBs or greater, as soon as possible but no later than 3 December 2010, or 31 December 2015 for countries with economies in

¹⁷The Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe.

Substance	Implementation requirements	
	Elimination of	Conditions
		<p>transition;</p> <p>Parties shall endeavour to:</p> <p>(b) Identify and remove from use equipment (e.g. transformers, capacitors or other receptacles containing liquid stocks) containing greater than 0.005% PCBs and volumes greater than 0.05 dm³, as soon as possible but no later than 31 December 2025;</p> <p>Parties shall make determined efforts designed to lead to:</p> <p>(c) The destruction or decontamination in an environmentally sound manner of:</p> <ul style="list-style-type: none"> - All liquid PCBs referred to in subparagraph (a) and other liquid PCBs containing more than 0.005% PCBs not in equipment, as soon as possible but no later than 31 December 2015, or 31 December 2020 for countries with economies in transition; - All liquid PCBs referred to in subparagraph (b) no later than [31 December [2025]][2029]; <p>(d) The decontamination or disposal of equipment referred in subparagraphs (a) and (b) in an environmentally sound manner.</p> <p>Parties shall:</p> <p>(e) Ensure that equipment containing PCBs, as described in subparagraphs (a) and (b), shall not be exported or imported except for the purpose of</p>

Substance	Implementation requirements	
	Elimination of	Conditions
		<p>environmentally sound waste management;</p> <p>(f) Endeavour to identify other articles containing more than 0.005% PCBs (e.g. cable sheaths, cured caulk and painted objects) and manage them in accordance with paragraph 3 of article 3;</p> <p>(g) Promote the following measures to reduce exposures and risk to control the use of PCBs:</p> <p>(i) Use PCBs only in intact and non-leaking equipment and only in areas where the risk from environmental release can be minimized and quickly remedied;</p> <p>(ii) Not use PCBs in equipment in areas associated with the production or processing of food or feed;</p> <p>(iii) When PCBs are used in populated areas, including schools and hospitals, take all reasonable measures to prevent electrical failures that could result in a fire, and regularly inspect equipment for leaks.</p>

* The legal experts will need to review how to keep the same legal requirements if text is moved to annex I.
