

**Stockholm Convention  
on Persistent Organic  
Pollutants**

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**Conference of the Parties to the Stockholm  
Convention on Persistent Organic Pollutants  
Eleventh meeting**  
Geneva, 1–12 May 2023  
Item 5 (e) of the provisional agenda\*

**Matters related to the implementation of the  
convention: listing of chemicals in Annex A, B or C to  
the Convention**

**Recommendation by the Persistent Organic Pollutants Review  
Committee to list Dechlorane Plus in Annex A to the  
Convention and draft text of the proposed amendment****Note by the Secretariat****I. Introduction**

1. At its seventeenth meeting, by decision POPRC-17/2, the Persistent Organic Pollutants Review Committee adopted a risk profile for Dechlorane Plus<sup>1</sup> and decided that Dechlorane Plus was likely, as a result of its long-range environmental transport, to lead to significant adverse human health and environmental effects such that global action was warranted.
2. At its eighteenth meeting, by decision POPRC-18/1, the Committee adopted a risk management evaluation for Dechlorane Plus<sup>2</sup> and decided, in accordance paragraph 9 of Article 8 of the Stockholm Convention on Persistent Organic Pollutants, to recommend to the Conference of the Parties to the Stockholm Convention that it consider listing Dechlorane Plus in Annex A to the Convention with specific exemptions as set out in paragraph 2 of that decision.
3. Pursuant to paragraph 2 of Article 21 of the Convention, on 27 October 2022, the Secretariat communicated the Committee's recommendation on Dechlorane Plus to the Parties and signatories to the Convention. The communication, in which the Secretariat also invited Parties to provide comments, was circulated more than six months before the eleventh meeting of the Conference of the Parties. A compilation of comments received from Parties relating to the proposed listing of chemicals in Annexes A, B and/or C to the Convention recommended by the Persistent Organic Pollutants Review Committee is set out in document UNEP/POPS/COP.11/INF/24. The executive summary of the risk management evaluation for Dechlorane Plus and the decision of the Committee setting out its recommendation are reproduced in the annex to the present note. The executive summary is presented without formal editing.
4. As is indicated in paragraph 9 of Article 8 of the Convention, the Conference of the Parties, taking due account of the recommendations of the Committee, including any scientific uncertainty, is to decide, in a precautionary manner, whether to list the chemical, and specify its related control

\* UNEP/POPS/COP.11/1.

<sup>1</sup> UNEP/POPS/POPRC.17/13/Add.2.

<sup>2</sup> UNEP/POPS/POPRC.18/11/Add.1.

measures, in Annexes A, B and/or C to the Convention. If the Conference of the Parties decides to list the chemical in Annexes A, B and/or C, the respective annex or annexes will be amended in accordance with Articles 21 and 22 of the Convention.

## II. Proposed action

5. The Conference of the Parties may wish to adopt a decision along the following lines:

*The Conference of the Parties,*

*Having considered* the risk profile and the risk management evaluation for Dechlorane Plus as transmitted by the Persistent Organic Pollutants Review Committee,<sup>3</sup>

*Taking note* of the recommendation by the Persistent Organic Pollutants Review Committee that Dechlorane Plus be listed in Annex A to the Convention with specific exemptions,<sup>4</sup>

1. *Decides* to amend part I of Annex A to the Stockholm Convention on Persistent Organic Pollutants to list Dechlorane Plus with specific exemptions by inserting the following row:

<i>Chemical</i>	<i>Activity</i>	<i>Specific exemption</i>
Dechlorane Plus (CAS No: 13560-89-9)	Production	As allowed for the Parties listed in the Register in accordance with the provisions of part [XI] of this Annex
	Use	In accordance with part [XI] of this Annex: Aerospace Space and defence applications Medical imaging and radiotherapy devices and installations Replacement parts for, and repair of, articles in applications in accordance with the provisions of paragraph 2 (b) of part [XI] of this Annex

2. *Also decides* to insert a new part [XI] in Annex A, as follows:

### **Part [XI]**

#### **Dechlorane Plus**

1. The production and use of Dechlorane Plus shall be eliminated except for Parties that have notified the Secretariat of their intention to produce and/or use it in accordance with Article 4.

2. Specific exemptions for the production and use of Dechlorane Plus may be available, limited to the following:

- (a) For five years from the date of entry into force of the amendment in accordance with Article 4:

- (i) Aerospace;
- (ii) Space and defence applications;
- (iii) Medical imaging and radiotherapy devices and installations;

- (b) For replacement parts for, and repair of, articles in the following applications until the end of the service life of the articles or 2044, whichever comes earlier:

- (i) Aerospace (such as aircraft engine fan case rub strip products and void-filling and edge-sealing products, aircraft engine manufacturing repairs, electrical items, structural panels and aircraft cabin interiors);

<sup>3</sup> UNEP/POPS/POPRC.17/13/Add.2; UNEP/POPS/POPRC.18/11/Add.1.

<sup>4</sup> UNEP/POPS/COP.11/13.

- (ii) Space (such as satellites, probes and other exploration equipment, manned cabins and laboratories, heat-insulating materials for rocket motors and ground support equipment);
- (iii) Defence (such as naval vessels, missiles, launch platforms, ordnance, communication equipment, radar and lidar systems and support equipment);
- (iv) Motor vehicles (covering all land-based vehicles, such as cars, motorcycles, agricultural and construction vehicles and industrial trucks; applications include cables, wire harnesses, connectors and insulation tapes);
- (v) Stationary industrial machines (such as tower cranes, concrete plants and hydraulic crushers; applications include cables, wire harnesses, connectors and insulation tapes) for use in agriculture, forestry and construction;
- (vi) Marine, garden, forestry and outdoor power equipment;
- (vii) Medical devices (such as ultrasound diagnostic devices, magnetic resonance imaging systems, X-ray imaging systems, flexible endoscopes) and in vitro diagnostic devices (such as immunoassay analysers, haematology analysers, polymerase chain reaction (PCR) testing systems, genetic analysers, clinical chemistry analysers, blood coagulation analysers, urinalysis analysers);
- (viii) Medical imaging and radiotherapy devices and installations;
- (ix) Instruments for analysis, measurements, control, monitoring, testing, production and inspection.

## Annex

# Risk management evaluation for Dechlorane Plus and the recommendation of the Persistent Organic Pollutants Review Committee

## I. Executive summary of the risk management evaluation<sup>1</sup>

1. At its fifteenth meeting, the Persistent Organic Pollutants Review Committee (POPRC) concluded that Dechlorane Plus (DP, CAS No. 13560-89-9) and its *syn*-isomer (CAS No. 135821-03-3) and *anti*-isomer (CAS No. 135821-74-8) fulfilled the screening criteria in Annex D to the Stockholm Convention on Persistent Organic Pollutants (decision POPRC-15/2). At its sixteenth meeting, the Committee considered the draft risk profile and adopted decision POPRC-16/1, by which it decided to defer its decision on the draft risk profile (UNEP/POPS/POPRC.16/INF/19). At its seventeenth meeting, the Committee completed and adopted draft risk profile (UNEP/POPS/POPRC.17/13/Add.2) and concluded that DP is likely, as a result of its long-range environmental transport, to lead to significant adverse human health and/or environmental effects such that global action is warranted (decision POPRC-17/2). While recognizing that the dataset on toxicity and ecotoxicity is limited, but that available short-term toxicity data indicate concern for potential adverse effects to the environment and humans at low levels, the Committee also decided to explore any further information on adverse effects, and, if appropriate, to revise the risk profile for consideration by the Committee at its eighteenth meeting. Parties and observers were invited to submit to the Secretariat the information specified in Annex F and any additional information relating to the adverse effects of DP before 14 March 2022.

2. The “Dechlorane Plus”<sup>TM</sup> technical mixture is a commercially available polychlorinated flame retardant. The technical DP mixture contains two stereoisomers, *syn*-DP and *anti*-DP, that are present in ratios of about 1:3 or 25% *syn*-DP and 75% *anti*-DP. Commercially available DP mixtures may also contain DP monoadducts, mono-dechlorinated DP and other substances as impurities. DP and its isomers are not known to be unintentionally produced.

3. DP is marketed as a replacement substance for commercial decabromodiphenyl ether (c-decaBDE). It is used as a flame retardant in adhesives, sealants and polymers and also as an extreme pressure additive in greases to a lesser degree. Use in motor vehicles account for 70–90% of the total global use volume. The main use in this sector (around 80%) is in cables and wires. Motor vehicles cover all applications within land-based vehicles such as cars, motorcycles, agriculture and construction vehicles and industrial trucks. Other confirmed uses include aerospace and defence applications, electrical and electronic equipment, marine, garden, forestry, agriculture, and construction machinery, consumer electronics and medical and radiotherapy applications.

4. The global production of DP has been estimated to be in the range of 750–6,000 tonnes per year, with an estimated average of 1980 tonnes per year. DP production in the United States started in the 1960s; however, no domestic production was reported in 2019 and the nationally aggregated import volume for the year 2019 was less than 500 tonnes. Production in China started in 2003 and the annual production is reported to be 300–1,000 tonnes. The Chinese manufacturer may now be the sole global manufacturer. China has released a draft of the New Pollutant Management Action Plan, and production, use, import and export of DP will be banned from 1 January 2026. Such a ban could have significant implications for the global production, use and restriction of DP.

5. Emissions of DP to the environment occur at all its life cycle stages. Estimates suggest that the highest global DP emissions come from the manufacture of DP, while the next highest release to the environment comes from waste dismantling and recycling followed by landfills. In line with these estimates, monitoring data show that DP levels are generally highest near manufacturing sites, in areas around electronic waste and recycling plants and wastewater discharges. In the post manufacturing phase, polymer raw materials handling, compounding and conversion are estimated to be the largest emission sources, and only account for a small share of the total global emissions. While emissions from articles in use are estimated to be equally low, however, these emissions are particularly important in relation to human exposure as evidenced by the high DP levels measured in indoor dust.

6. An assessment of different restriction scenarios suggests that a listing in Annex A that imposes a complete ban on production and use would be the most effective control measure and could reduce

<sup>1</sup> UNEP/POPS/POPRC.18/11/Add.1.

global emissions by 91% over the period 2023–2042, whereas listing in Annex A with specific exemptions according to estimates, could reduce emissions by 89–88 or 76% over the same period, depending on what exemptions are included with the listing. A listing of DP in the Convention would also contribute to reducing emissions from waste by setting requirements for the environmentally sound management of DP containing wastes. In addition to this measure, requirements on labelling of DP containing products and waste as well as the development of guidances for Best Available Techniques and Best Environmental Practices (BAT/BEP) could be considered.

7. It is not possible to fully assess the socioeconomic impacts of the listing of DP, but based on the available data, the costs for listing DP under the Convention are believed to be bearable for most affected actors. The human health and environmental benefits are expected to be highest if DP is listed in Annex A without exemptions. Uncertainties in the socioeconomic impacts of listing DP in the Convention is closely linked to uncertainty in the feasibility of alternatives, as well as the cost of and time required for substitution. Ongoing national processes to regulate DP contribute to the uncertainty and may impact the pace of substitution in industry sectors that still rely on the production and use of DP.

8. Some suitable and commercially available chemical alternatives for the substitution of DP have been identified. Furthermore, non-chemical alternatives such as non-flammable materials and physical barriers are also available. Annex F information and other available information indicates that markets are transitioning away from DP and that substitutions have been implemented or are in progress for most, if not all, known applications. However, the submitted information and information from national regulatory processes suggest that there may be challenges for some applications and sectors, i.e., aerospace, space, defence, medical imaging devices and radiotherapy devices/installations due to long phase-in time. Specific exemptions for applications in these sectors may be needed. In addition, specific exemptions for replacement parts for repair of certain long-lived product may be needed.

9. A global restriction on production and use of DP would have a positive effect on human health and the environment by eliminating or reducing further emissions. DP persists in the environment for a very long time and accumulates in humans and wildlife, and the effects of current emissions may be observed or only be apparent in future generations.

10. The Committee therefore recommends, in accordance with paragraph 9 of Article 8 of the Convention, that the Conference of the Parties consider listing DP in Annex A with specific exemptions for production and use of the following: aerospace, space and defence applications and medical imaging and radiotherapy devices/installations in accordance with Article 4, as well as for replacement parts for, and repair of, articles in the following applications until the end of the service life of the articles or 2044, whichever comes earlier:

- (a) Aerospace;<sup>2</sup>
- (b) Space;<sup>3</sup>
- (c) Defence;<sup>4</sup>
- (d) Motor vehicles;<sup>5</sup>
- (e) Stationary industrial machines<sup>6</sup> for use in agriculture, forestry and construction;
- (f) Marine, garden, forestry and outdoor power equipment;

<sup>2</sup> Such as aircraft engine fan case rub strip products and void-filling and edge-sealing products, aircraft engine manufacturing repairs, electrical items, structural panels and aircraft cabin interiors.

<sup>3</sup> Such as satellites, probes and other exploration equipment, manned cabins and laboratories, heat-insulating materials for rocket motors and ground support equipment.

<sup>4</sup> Such as naval vessels, missiles, launch platforms, ordnance, communication equipment, radar/lidar systems and support equipment.

<sup>5</sup> Covering all land-based vehicles, such as cars, motorcycles, agricultural and construction vehicles and industrial trucks. Applications include cables, wire harnesses, connectors and insulation tapes.

<sup>6</sup> Such as tower cranes, concrete plants, and hydraulic crushers. Applications include cables, wire harnesses, connectors and insulation tapes.

- (g) Medical<sup>7</sup> and *in vitro* diagnostic devices;<sup>8</sup>
- (h) Medical imaging and radiotherapy devices/installations;
- (i) Instruments for analysis, measurements, control, monitoring, testing, production and inspection.

## II. Decision setting out the recommendation of the Committee

### POPRC-18/1: Dechlorane Plus

*The Persistent Organic Pollutants Review Committee,*

*Having concluded* in its decision POPRC-15/2 that the screening criteria set out in Annex D to the Stockholm Convention on Persistent Organic Pollutants have been fulfilled for Dechlorane Plus (CAS No. 13560-89-9) and its syn-isomer (CAS No. 135821-03-3) and anti-isomer (CAS No. 135821-74-8),

*Having evaluated* the risk profile for Dechlorane Plus adopted by the Committee at its seventeenth meeting<sup>9</sup> in accordance with paragraph 6 of Article 8 of the Convention,

*Having decided* in its decision POPRC-17/2 that Dechlorane Plus is likely, as a result of its long-range environmental transport, to lead to significant adverse human health and/or environmental effects such that global action is warranted,

*Having completed* the risk management evaluation on Dechlorane Plus in accordance with paragraph 7 (a) of Article 8 of the Convention,

1. *Adopts* the risk management evaluation for Dechlorane Plus;<sup>10</sup>
2. *Decides*, in accordance with paragraph 9 of Article 8 of the Convention, to recommend to the Conference of the Parties that it consider listing Dechlorane Plus in Annex A to the Convention with specific exemptions for production and use for the following: aerospace, space and defence applications, and medical imaging and radiotherapy devices/installations in accordance with Article 4, as well as replacement parts for, and repair of, articles in the following applications until the end of the service life of the articles or 2044, whichever comes earlier:
  - (a) Aerospace;<sup>11</sup>
  - (b) Space;<sup>12</sup>
  - (c) Defence;<sup>13</sup>
  - (d) Motor vehicles;<sup>14</sup>
  - (e) Stationary industrial machines<sup>15</sup> for use in agriculture, forestry and construction;
  - (f) Marine, garden, forestry and outdoor power equipment;

<sup>7</sup> Such as ultrasound diagnostic devices, magnetic resonance imaging systems, X-ray imaging systems, flexible endoscopes.

<sup>8</sup> Such as immunoassay analysers, hematology analysers, PCR-testing system, genetic analysers, clinical chemistry analysers, blood coagulation analysers, urinalysis analysers.

<sup>9</sup> UNEP/POPS/POPRC.17/13/Add.2.

<sup>10</sup> UNEP/POPS/POPRC.18/11/Add.1.

<sup>11</sup> Such as aircraft engine fan case rub strip products and void-filling and edge-sealing products, aircraft engine manufacturing repairs, electrical items, structural panels and aircraft cabin interiors.

<sup>12</sup> Such as satellites, probes and other exploration equipment, manned cabins and laboratories, heat-insulating materials for rocket motors and ground support equipment.

<sup>13</sup> Such as naval vessels, missiles, launch platforms, ordnance, communication equipment, radar/lidar systems and support equipment.

<sup>14</sup> Covering all land-based vehicles, such as cars, motorcycles, agricultural and construction vehicles and industrial trucks. Applications include cables, wire harnesses, connectors and insulation tapes.

<sup>15</sup> Such as tower cranes, concrete plants and hydraulic crushers. Applications include cables, wire harnesses, connectors and insulation tapes.

- (g) Medical<sup>16</sup> and *in vitro* diagnostic devices;<sup>17</sup>
  - (h) Medical imaging and radiotherapy devices/installations;
  - (i) Instruments for analysis, measurements, control, monitoring, testing, production and inspection.
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<sup>16</sup> Such as ultrasound diagnostic devices, magnetic resonance imaging system, X-ray imaging systems, flexible endoscopes.

<sup>17</sup> Such as immunoassay analyser, haematology analyser, PCR-testing system, genetic analyser, clinical chemistry analyser, blood coagulation analyser, urinalysis analyser.