



IPEN GUIDE TO NEW POPs

April 2017



a toxics-free future



INTRODUCTION

The Stockholm Convention is a living treaty that recognizes the need to take global action on chemicals that are a source of concern because of their persistence, bioaccumulation, long-range environmental transport, and toxicity. The Convention established a science-based process for evaluating candidate POPs that recognizes that

lack of full scientific certainty shall not prevent a candidate substance from proceeding in the evaluation or listing. For consideration at COP8, the treaty's expert committee, the POPs Review Committee (POPRC), has recommended three substances for listing: decabromodiphenyl ether (DecaBDE), short-chain

chlorinated paraffins (SCCPs), and hexachlorobutadiene (HCBD).

When delegates discuss adding these substances, some may question the need for listing and others may even try to weaken the treaty by creating exemptions to continue uses that benefit certain industries. However, the Convention clearly mandates Parties to decide on listing “*in a precautionary manner.*” This means prioritizing the Convention’s promise to protect human health and the environment from POPs. Experts of the POPRC have determined that each of the three new candidate POPs is likely, as a result of long-range environmental transport, to lead to significant adverse effects on human health and/or the environment such



that global action is warranted. All three should be listed in the Stockholm Convention.

IPEN RECOMMENDATIONS

Substance	Listing
DecaBDE	DecaBDE should be listed in Annex A with no specific exemptions. If exemptions are granted, they should be for specific parts and the listing should require labeling new products that contain DecaBDE so that Parties can fulfill requirements under Article 6. This would be similar to what was agreed upon when listing HBCD (SC-6/13).
SCCPs	SCCPs should be listed in Annex A with no specific exemptions, along with an additional remark in note "i" of Annex A requiring limitation of SCCPs in other chlorinated paraffin mixtures.
HCBD	HCBD should be listed in Annex C.



DECABROMODIPHENYL ETHER (DecaBDE)

DecaBDE is primarily used as a flame retardant chemical in the plastic housings of computers and TVs. This makes it a key toxic component of electronic-waste (e-waste). DecaBDE has also been used in textiles, upholstered furniture and mattresses. Emissions of DecaBDE during use

and upon disposal are substantial, making it one of the most prevalent flame retardant chemicals in the global environment and one of the predominant PBDE flame retardants in Arctic air and deposition samples.

DECABROMODIPHENYL ETHER (DecaBDE)

Persistent, bioaccumulative, and toxic

DecaBDE is very persistent. When it does break down, it yields persistent, toxic and bioaccumulative substances, including components of PentaBDE and OctaBDE, which are already listed in the Stockholm Convention. Despite initial industry claims that it did not build up in living things, DecaBDE bioaccumulates in both aquatic and terrestrial species and is found in elevated concentrations in top predators. Toxicity studies provide evidence for potential adverse effects to reproductive health as well as developmental and neurotoxic effects. DecaBDE and/

or its degradation products may also act as endocrine disruptors. There is concern that DecaBDE and other PBDE flame retardant chemicals may act in combination, in an additive or synergistic manner, and induce developmental neurotoxicity in both humans and wildlife at environmentally relevant concentrations.

Vague auto exemptions not justified

The POPRC recommended listing DecaBDE in Annex A for global elimination. However, the Committee also recommended specific exemptions for auto spare parts at the request of the EU auto industry. These proposed



exemptions should be for specific parts, but instead they are vaguely described in three categories:

- (a) **Powertrain and under-hood** applications such as battery mass wire, battery interconnection wire, mobile air-conditioning (MAC) pipe, powertrains, exhaust manifold bushings, under-hood insulation, wiring and harness under hood (engine wiring, etc.), speed sensors, hoses, fan modules and knock sensors
- (b) **Fuel system** applications such as fuel hoses, fuel tanks and fuel tanks under body
- (c) **Pyrotechnical devices** and applications affected by pyrotechnical devices such as air bag ignition cables, seat covers/fabrics (only if airbag relevant) and airbags (front and side)



DECABROMODIPHENYL ETHER (DecaBDE)

There is no independent verification of the need for these exemptions and a very large number of parts (>800) are included in these categories. More seriously, the basis of the auto industry's exemption request is to reduce their costs of testing and does not represent barriers to actual substitution. The Stockholm Convention should not be misused for providing subsidies to permit production and use of POPs. The auto industry admits it can substitute DecaBDE in new parts and it should use retrofitting and generic spare parts that do not contain DecaBDE for spare parts, particularly for wires, hoses, cables, pipes, and fabric.

Exemptions would burden developing countries

These vague auto parts exemptions also have a potential impact on developing countries that receive older vehicles. POPRC Decision POPRC-12/4 states, *“that the increasing waste burden in developing countries from older vehicles that continue to be serviced with spare parts that contain DecaBDE is a concern.”* Developing countries should not have to deal with an increased DecaBDE waste burden simply because the EU auto industry does not want to substitute spare parts for ones that do not contain DecaBDE.

The aviation industry can substitute

The POPRC also considered the possibility of an exemption for DecaBDE uses in aviation. However, a major aviation industry company signaled to the POPRC that DecaBDE will be completely phased out by 2018, indicating that the aviation industry is capable of substitution and that no exemption is needed.

Toxic chemicals should not be recycled into consumer products

COP8 should resist any proposal to create a recycling exemption for materials containing DecaBDE. The POPRC examined the impact



DECABROMODIPHENYL ETHER (DecaBDE)

of this type of exemption for COP5 and recommended against it, urging governments to, “*eliminate brominated diphenyl ethers from the recycling streams as swiftly as possible.*” The Committee noted that recycling materials containing POPs “*will inevitably result in wider human and environmental contamination*” and “*loss of the long-term credibility of recycling.*” A recent IPEN study found DecaBDE at significant levels (above 50 ppm) in 48 children’s products made of recycled plastic from 19 countries (43% of samples tested). Toxic chemicals found in e-waste should not be “recycled” into children’s toys.

How DecaBDE should be listed

DecaBDE should be listed in Annex A with no specific exemptions. If exemptions are granted, they should only be for a very limited number of specific parts and the listing should require labeling new products that contain DecaBDE so that Parties can fulfill requirements under Article 6. This would be similar to what was previously agreed upon when listing HBCD (SC-6/13), another substance in use at the time of listing.



SHORT-CHAIN CHLORINATED PARAFFINS (SCCPs)

SCCPs are primarily used as a lubricant in metal cutting and as a flame retardant in PVC plastic, rubber, and carpet. Other uses include a plasticizer function in paints, adhesives, and sealants. SCCPs have been found in children's products such as toys,

stickers, clothing, sports gear, childcare articles, and in kitchen utensils above permitted levels, some at high levels up to 11% in concentration. Hand blenders used for food preparation leak SCCPs under normal use.

SHORT-CHAIN CHLORINATED PARAFFINS (SCCPs)

Harmful characteristics and high production

SCCPs are persistent in air and stable to hydrolysis. They bioaccumulate in the aquatic food web and in birds. SCCPs are also found in Arctic biota (including fish, seabirds, seals, walrus, and whales) at levels comparable to known POPs, indicating widespread contamination. These animals also serve as food for northern Indigenous Peoples. SCCPs are toxic to aquatic organisms at low concentrations, disrupt endocrine function, and are suspected to cause cancer in humans. According to a recent scientific paper, *“no other persistent anthropogenic chemical has been produced in such quantities [as*

SCCPs]” and there is some indication that production is increasing. Considering SCCPs’ demonstrated long-range transport and ability to accumulate, there is a potential for increases in environmental levels should releases continue or increase.

Alternatives are technically and economically feasible

The POPRC recommended listing SCCPs in Annex A for global elimination. The POPRC also recommended including controls to limit the presence of SCCPs in other chlorinated paraffin mixtures. The Committee did not recommend exemptions and its analysis of

alternatives indicates that none are needed. The use of SCCPs in metal cutting can be substituted with vegetable oil-based formulations. These are widely available and provide better heat dissipation and produce less smoke during machining. There are also gas-based systems using supercritical carbon dioxide. For flame retardancy, alternative techniques are available, such as using inherently flame-resistant materials, flammability barriers and product re-design. There are alternative chemical plasticizers and alternative sealants that can provide the same function without using SCCPs.

Regrettable substitutes should be avoided

In order to prevent regrettable substitutions, MCCPs (medium-chained chlorinated paraffins) and LCCPs (long-chained



SHORT-CHAIN CHLORINATED PARAFFINS (SCCPs)

chlorinated paraffins), as well as other chemical alternatives that exhibit POPs or other hazardous properties, should not be considered as alternatives to SCCPs. High levels of SCCPs can be found in other chlorinated paraffin (CP) mixtures at concentrations ranging up to 24.9%. It is therefore prudent to specify the restriction of SCCPs in other CP mixtures in accordance with the provisions of Article 3 of the Convention.

How SCCPs should be listed

SCCPs should be listed in Annex A with no specific exemptions, along with an additional remark in note “i” of Annex A requiring limitation of SCCPs in other chlorinated paraffin mixtures.





HEXACHLOROBUTADIENE (HCBD)

HCBD is already listed in Annex A of the Convention. COP8 will consider the listing of HCBD in Annex C as it is largely produced unintentionally from production of chlorinated hydrocarbons (particularly of perchloroethylene, trichloroethylene and carbon tetrachloride); production

of magnesium; production of PVC, ethylene dichloride and vinyl chloride monomer; and incineration processes. HCBD is persistent in air and bioaccumulates in aquatic species. Monitoring of Arctic species demonstrates long-range transport predicted by modelling studies. HCBD

is very toxic to aquatic organisms and causes renal toxicity in laboratory animals. Laboratory studies also indicate evidence of genotoxicity and HCBd is classified as a possible human carcinogen by the USEPA and as a chemical known to the State of California (USA) to cause cancer.

No extra costs expected

Alternatives to HCBd need to address its unintentional formation. The POPRC recommends application of Best Available Techniques /Best Environmental Practices (BAT/BEP) to control and reduce emissions of HCBd. One country expressed interest in continued production of carbon tetrachloride as a feedstock for production of HFC refrigerants such as HFC-245fa and HFC-365mfc. However, these HFC compounds



HEXACHLOROBUTADIENE (HCBD)

are also potent greenhouse gases. An interest in continued production of substances with significant greenhouse gas potential should not prevent HCBD from being listed in Annex C. Additionally, the POPRC decision alludes to some concerns about the cost-benefit implications of addressing the unintentional releases of HCBD. However, the Committee agreed in the HCBD Risk Management Evaluation that, *“Additional costs for eliminating the intentional production and use of HCBD are not expected.”* This is partly due to the fact that countries already have obligations to address other unintentionally-produced POPs with similar control measures.

How HCBD should be listed

HCBD emissions can be minimized by improved process controls; alternative production processes; emission control measures; or by reducing and ultimately eliminating the relevant chlorinated chemicals in favor of safer, technically feasible and cost-effective alternatives. Precise recommendations would be developed by the BAT/BEP expert group and HCBD should be listed in Annex C to trigger their work.



Established in 1998, IPEN is currently comprised of over 500 Participating Organizations in 116 countries, primarily developing and transition countries. IPEN brings together leading environmental and public health groups around the world to establish and implement safe chemicals policies and practices that protect human health and the environment. IPEN's mission is a toxics-free future for all.

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