Quick Guide to POPRC Candidates

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Note that the information is from recent draft POPRC documents as well as finalized risk profiles for Chlordecone, Hexabromobiphenyl, Lindane, Pentabromobiphenyl ether, and Perfluorooctane sulfonate.

Resources

The Stockholm Convention web page on the POPRC is here:
http://www.pops.int/documents/meetings/poprc/poprc.htm

Stockholm Convention text available in Arabic, Chinese, English, French, Russian, and Spanish is located here:
http://www.pops.int/

IPEN web page on POPRC:
http://www.oztoxics.org/poprc/index.html

Assessing Candidate POPs

The Stockholm Convention on Persistent Organic Pollutants (POPs) does more than address the original 'dirty dozen' POPs chemicals. It recognizes the need to take global action on all chemicals with POP-like characteristics, such as;

- persistent in the environment;
- travel long distances via air and water;
- are toxic; and
- bioaccumulate in living things.

These chemicals pose an unacceptable threat to human health and the environment.

The Stockholm Convention established a 'science based' process for evaluating candidate POPs as outlined in Article 8 and Annexes D, E, and F. The process applies the precautionary principle by recognising that lack of full scientific certainty should not prevent a candidate substance from proceeding through the process.

The Persistent Organic Pollutants Review Committee (POPRC) reviews proposals for new POPs via three main stages.

1. If the proposal includes the required information, the POPRC considers whether the nominated chemical fulfills the criteria (POP-like characteristics) as outlined in Annex D.

2. If the POPRC find the chemicals fulfills the criteria, a risk profile based on the information in Annex E is then prepared.

3. If on the basis of the risk profile, the POPRC decides the chemical is likely as a result of its long range transport, to lead to significant adverse human health and/or environmental effects, such that global action is warranted then the POPRC will prepare a risk management evaluation based on information outlined in Annex F.

The POPRC then makes a recommendation to the COP about whether the chemical should be added to the Convention and if so, what type of listing might be appropriate.

The Conference of the Parties (all the countries that have ratified the Convention) makes the final decision on whether to list a chemical as a POP.

There are many chemicals with POP-like characteristics which need priority consideration. Some are already scheduled for elimination through countries' national action or regional treaties like the UNECE Convention on Long-Range Transboundary Air Pollution (LRTAP) on POPs and the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR). Listing on an international agreement will ensure that these chemicals are banned throughout the globe.

POPRC Calendar

Activity	Deadline
Chair sends revised final drafts to Sect and WG	13 August 2007
Secretary sends drafts for editing and translation	17 August 2007
Drafts edited and translated	8 October 2007
Sect distributes final drafts in 6 UN languages	12 October 2007
Third Meeting of POPRC	18 – 23 November 2007
COP4	May 2009

POPRC Candidates

Substance	Abbreviation	Proposing Party	Evaluation Stage
Alpha hexachlorocyclohexane	Alpha HCH	Mexico	Annex E
Beta hexachlorocyclohexane	Beta HCH	Mexico	Annex E
Chlordecone		European Union	Annex F
Endosulfan		European Union	Annex D
Hexabromobiphenyl	HBB	European Union	Annex F
Lindane		Mexico	Annex F
Octabromodiphenyl ether	OctaBDE	European Union	Annex E
Pentabromodiphenyl ether	PentaBDE	Norway	Annex F
Pentachlorobenzene	PeCB	European Union	Annex E
Perfluorooctane sulfonate	PFOS	Sweden	Annex F
Short-chained chlorinated parrafins	SCCPs	European Union	Annex E

POPRC Candidates: References

Substance	References
Alpha HCH	Draft Risk Profile May 2007 http://www.pops.int/documents/meetings/poprc/drprofile/drp/DraftRiskProfile_a-HCH.pdf
Beta HCH	Draft Risk Profile May 2007 http://www.pops.int/documents/meetings/poprc/drprofile/drp/DraftRiskProfile_b-HCH.pdf
Chlordecone	Draft Risk Management Evaluation May 2007 http://www.pops.int/documents/meetings/poprc/drprofile/drme/DraftRME_Chlordecone.pdf Risk Profile UNEP/POPS/POPRC.2/17/Add2 http://www.pops.int/documents/meetings/poprc_2/meeting_docs/report/POPRC-2%20rep%20add2.pdf
Endosulfan	Proposal by the European Union August 2007 http://www.pops.int/documents/meetings/poprc/docs/chem_review.htm Supporting information by German Federal Environment Agency http://www.pops.int/documents/meetings/poprc/docs/under_review/endosulfan/Draft%20Dossier_endosulfan.pdf
HBB	Draft Risk Management Evaluation May 2007 http://www.pops.int/documents/meetings/poprc/drprofile/drme/DraftRME_HBB.pdf Risk Profile UNEP/POPS/POPRC.2/17/Add3 http://www.pops.int/documents/meetings/poprc_2/meeting_docs/report/POPRC-2%20rep%20add3.pdf
Lindane	Draft Risk Management Evaluation May 2007 http://www.pops.int/documents/meetings/poprc/drprofile/drme/DraftRME_Lindane.pdf Risk Profile UNEP/POPS/POPRC.2/17/Add4 http://www.pops.int/documents/meetings/poprc_2/meeting_docs/report/POPRC-2%20rep%20add4.pdf
OctaBDE	Draft Risk Profile May 2007 http://www.pops.int/documents/meetings/poprc/drprofile/drp/DraftRiskProfile_OctaBDE.pdf
PentaBDE	Draft Risk Management Evaluation May 2007 http://www.pops.int/documents/meetings/poprc/drprofile/drme/DraftRME_PeBDE.pdf Risk Profile UNEP/POPS/POPRC.2/17/Add1 http://www.pops.int/documents/meetings/poprc_2/meeting_docs/report/POPRC-2%20rep%20add1.pdf
PeCB	Draft Risk Profile May 2007 http://www.pops.int/documents/meetings/poprc/drprofile/drp/DraftRiskProfile_PeCB.pdf
PFOS	Draft Risk Management Evaluation May 2007 http://www.pops.int/documents/meetings/poprc/drprofile/drme/DraftRME_PFOS.pdf Risk Profile UNEP/POPS/POPRC.2/17/Add5 http://www.pops.int/documents/meetings/poprc_2/meeting_docs/report/POPRC-2%20rep%20add5.pdf
SCCPs	Draft Risk Profile May 2007 http://www.pops.int/documents/meetings/poprc/drprofile/drp/DraftRiskProfile_SCCP.pdf

POPRC Candidates: Producers

Substance	Past and Present Producers	Trade Names
Alpha HCH	Not intentionally produced; see Lindane	
Beta HCH	Not intentionally produced; see Lindane	
Chlordecone	Allied Chemical (USA); Life Sciences Products (USA); Hooker Chemical (USA); Nease Chemical (USA); De Laguarique (France); unnamed French and Brazilian companies	Kepone, GC-1189, Merex, ENT 16391, Curlone
Endosulfan	China; India (All India Medical Corp, Bharat Pulverizing Mills, Excel Industries, Krishi Rasayan, Mewar Oil and General Mills); Germany (Bayer CropScience, Hoechst); Israel (Makhteshim Chemical Works); Italy (Dupont); South Korea; Mexico (Production Quimicos de Chihuahua); Taiwan (Mictonion Industries); UK (FBC); USA (FMC, Drexel, SureCo)	Benzoepin, Beosit, Bio 5462, Chlorthiepin, Crisulfan, Cyclodan, Endocel, Endosol, EndossulfamE, Endossulfo, Endosulfan, Endosulfan 350EC, Endosulphan, ENT-23979, FMC 5462, Hildan, HOE 2671, Insectophene, Kop-Thiodan, Malix, NCI-C00566, NIA 5462, Niagara 5462, OMS 570, SD 4314, Thiofur, Thumul, Thiodan, Thionex, Farmoz, Nufarm, Tiovel
HBB	Michigan Chemical Corp (USA); White Chemical Corp (USA); Hexcel Corp (USA); Atochem (France); Berk Corp (UK); Chemische Fabrik Kalk (Germany)	Firemaster BP-6 Firemaster FF-1
Lindane	Companies in Albania, Argentina, Austria, Azerbaijan, Brazil, Bulgaria, China, Czech Republic, France, Germany (Bayer CropScience), Ghana, Hungary, India (KCIL, Kanoria, India Pesticides Ltd), Italy, Japan, Poland, Romania, Russia, Slovakia, Spain (Inquinosa), Turkey, United Kingdom, and USA (Crompton, Gustafson). It appears that only Romania and India are current producing countries.	Benhexachlor, BHC, Exagama, Forlin, Gallouama, Gamaphex, Gammex, Inexit, Isotox, Lindafor, Lindagam, Lindagrain, Lindagranox, Lindalo, Lindamul, Lindano, Lindapoudre, Lindaterra, Novigan, Silvanol
OctaBDE	Companies in France, Israel, Japan,	

	Netherlands, UK, and USA.	
PentaBDE	Companies in China, EU, Israel (Dead Sea Bromine Group); Japan; and USA (Great Lakes Chemical now Chemtura)	
PeCB	PeCB was produced intentionally to make paranitrochlorobenzene (quintozene), a pesticide. Currently, it is believed to come primarily from unintentional production from sources that include: PCBs, chlorinated solvents, pesticides, chemical manufacturing, aluminum casting, waste combustion including barrel burning, ore treatment for metal production of magnesium, copper, niobium, tantalum, titanium dioxide production, wood treatment plants, and hazardous waste incineration.	
PFOS	Companies in Brazil (Milenia Agro Ciencias S.A.), China (Changjiang Chemical Plant), India (Indofine Chemical Co.), Italy (Miteni S.p.A., EniChem Synthesis S.p.A), Japan (Midori Kaguka Co., Tohkem Products Corp., Tokyo Kasei Kogyo Co.), Russia (Scientific Industrial Association P & M Ltd.) Switzerland (Fluka Chemical Co.), UK (BNFL Fluorochemicals Ltd., Fluorochem Ltd.), USA (3M)	
SCCPs	Companies in Brazil, Czech Republic, Germany (Clariant, Hoechst, Huels), Japan, Slovakia, USA (Dover Chemical Corp.)	Chlorowax 500C

POPRC Candidates: Uses

Substance	Uses
Alpha HCH	None; waste product
Beta HCH	None; waste product
Chlordecone	Pesticide formerly used on banana root borer, fly larvicide, apple scab, powdery mildew, Colorado potato beetle, rust mite, wireworm, and household ant and roach traps.
Endosulfan	Insecticide for control of aphids, thrips, beetles, foliar feeding larvae, mites, borers, cutworms, bollworms, whiteflies, and leafhoppers. Used on cotton, tobacco, cantaloupe, tomatoes, squash, eggplant, sweet potato, broccoli, pears, pumpkins, corn, cereals, oilseeds, potatoes, tea, coffee, cacao, soybean, and other vegetables. Historically used to control termites and tsetse fly. Used in some countries in the past as a wood preservative.
HBB	Hexabromobiphenyl has been used as a fire retardant in acrylonitrile-butadiene-styrene (ABS) thermoplastics for constructing business, machine housings and in industrial and electrical products and in polyurethane foam for auto upholstery.
Lindane	Lindane has been used as a broad-spectrum insecticide for seed and soil treatment, foliar applications, tree and wood treatment and against ectoparasites in both veterinary and human applications.
OctaBDE	Flame retardant primarily for ABS plastics used in office equipment and business machines. Other uses include nylon, low density polyethylene, polycarbonate, phenol-formaldehyde resins, and unsaturated polyesters.
PentaBDE	PentaBDE been used almost exclusively in the manufacture of flexible polyurethane (PUR) foam for furniture and upholstery in homes and vehicles, packaging, and non-foamed PUR in casings and electronic equipment (EE). They are also used to some extent in specialized applications in textiles and in industry.
PeCB	No current intentional use believed though PeCB has been found in the following uses: PCBs, dyestuff carriers, flame retardant, and pesticides (quintozene, endosulfan, chlorpyrifos-methyl, atrazine, and clopyrilid). PeCB has been used to make paranitrochlorobenzene (quintozene).
PFOS	PFOS uses include: fire fighting foams, carpets, leather/apparel, textiles/upholstery, paper and packaging, coatings and coating additives, industrial and household cleaning products, pesticides and other insecticides, photographic industry, photolithography and semiconductor manufacturing, hydraulic fluids, and metal plating.
SCCPs	SCCPs are used primarily in metalworking applications. Other uses include uses as flame retardants or plasticizers in PVC, paints, adhesives, sealants in buildings, PCB substitutes in gaskets, leather fat liquors, and flame retardants in rubber, car carpets, textiles, and other polymers. SCCPs used as flame retardants are added to rubber in a

	proportion of 1–10%.

POPRC Candidates: Effects

Substance	Effects
Alpha HCH	Alpha-HCH has been shown to be neurotoxic, hepatotoxic, and to cause immunosuppressive effects and cancer in laboratory animals. Several epidemiological studies indicate that alpha-HCH might play a role in human breast cancer.
Beta HCH	Toxicological studies with beta-HCH have demonstrated neurotoxicity and hepatotoxicity. Also reproductive and immunosuppressive effects and effects on fertility were seen in laboratory animals. Several epidemiological studies indicate that beta-HCH might play a role in human breast cancer.
Chlordecone	The pesticide is both acutely and chronically toxic, producing neurotoxicity, immunotoxicity, reproductive, musculoskeletal and liver toxicity. Chlordecone is very toxic to aquatic organisms, with the most sensitive group being the invertebrates.
Endosulfan	Excessive and improper application and handling of endosulfan have been linked to congenital physical disorders, mental retardations and deaths in farm workers and villagers in developing countries in Africa, southern Asia and Latin America. Endosulfan was found among the most frequently reported intoxication incidents, adding unintentionally further evidence to its high toxicity for humans. In laboratory animals, endosulfan produces neurotoxicity effects, which are believed to result from over-stimulation of the central nervous system. It can also cause haematological effects and nephrotoxicity. Recent literature has indicated the potential for endosulfan to cause impaired development in amphibians, reduced cortisol secretion in fish, impaired development of the genital tract in birds and hormone levels, testicular atrophy and reduced sperm production in mammals.
HBB	Hepatotoxicity, effects on the thyroid, and endocrine disruption including effects on reproductive capacity in rats, mink and monkeys. There is epidemiological evidence of hypothyroidism in workers exposed to polybrominated biphenyls and of increased incidence of breast cancer in exposed women.
Lindane	Hepatotoxic, immunotoxic, reproductive and developmental effects have been reported for lindane in laboratory animals. The most commonly reported effects associated with oral exposure to gamma-HCH are neurological including seizures and convulsions in individuals who have accidentally or intentionally ingested lindane in insecticide pellets, liquid scabicide or contaminated food
OctaBDE	Unfortunately, the available information on the toxicity and ecotoxicity of hexa to nonaBDE [which make up commercial OctaBDE] is very limited. Effects on mammals and birds include slight fetotoxicity, increased liver weights, and delayed skeletal ossification. Other observed effects include immunotoxicity and neurotoxicity. There is an increasing evidence suggesting similar

	toxicological profiles and therefore, equivalent hazards and concerns, between PBDEs and PCBs.
PentaBDE	Toxicological studies have demonstrated reproductive toxicity, neurodevelopmental toxicity and effects on thyroid hormones in aquatic organisms and in mammals. Information is lacking on the effects in humans of short-term and long-term exposure, although it is to be expected that vulnerable groups can be pregnant women, embryos and infants.
PeCB	PeCB is moderately toxic to humans. Animal studies reveal effects including decreased thyroxin, abnormal sperm, and histopathological effects on the kidneys. Pentachlorobenzene is very toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment.
PFOS	PFOS has demonstrated toxicity towards mammals in sub-chronic repeated dose studies at low concentrations, as well as rat reproductive toxicity with mortality of pups occurring shortly after birth. Environmental toxicity data for PFOS is predominantly found for aquatic organisms such as fish, invertebrates and algae, and for birds. PFOS is toxic to aquatic organisms with mysid shrimp and *Chironomus tentans* being the most sensitive organisms.
SCCPs	SCCPs can harm sensitive aquatic organisms at relatively low concentrations (i.e. below threshold criteria of 1 mg/L used to categorize substances on Canada's Domestic Substances List). SCCPs affect the liver, kidney and thyroid in rats including increased liver, weight, altered liver enzymes, and enlarged thyroid. Rodent studies showed dose related increases in adenomas and carcinomas in the liver, thyroid, and kidney. There continues to be contention over the mechanisms of these tumors and whether they are relevant for human health. SCCPs were classified as a group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). There are no data on fertility or developmental effects for humans.