

GLOBAL ACTION TOWARDS THE RISK REDUCTION OF POPs

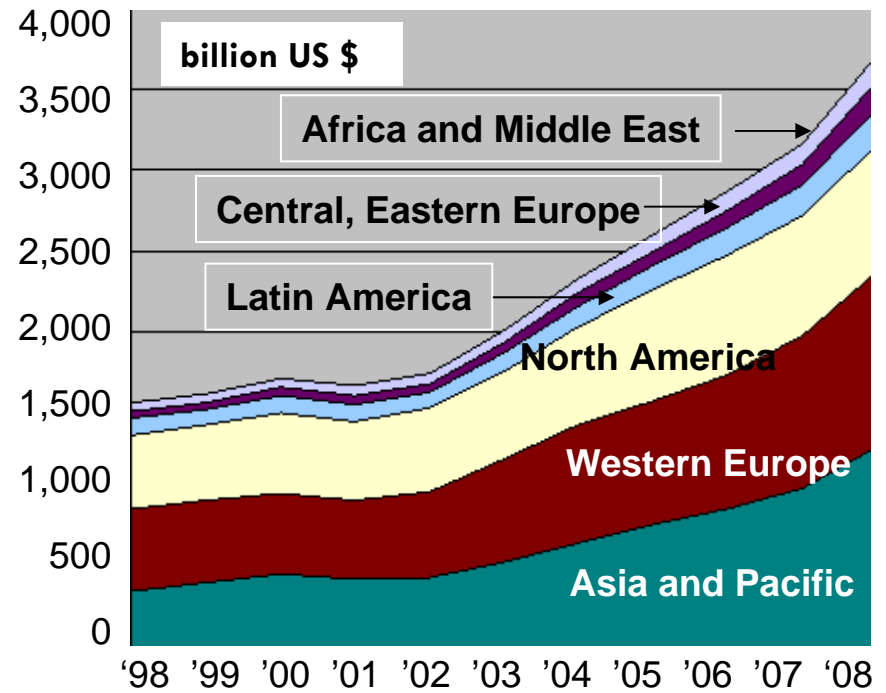


Ms. Kei Ohno
Programme Officer, Stockholm Convention Secretariat

The chemicals industry is one of the largest sectors of the world economy. Nearly every manufactured product contains one or more of the thousands of chemicals produced.



Global chemical production by region
(Source: American Chemistry Council, 2009)



Many are important and essential to modern society and can be used safely,

... but some can pose a serious threat to human health and the environment.



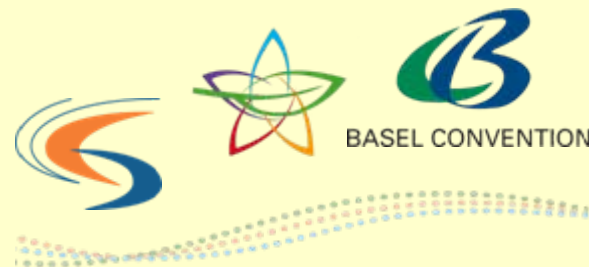
Global action to address the risk reduction by Environmentally Sound Management of chemicals:

6 programme areas outlined in Agenda 21

- Expanding and accelerating international assessment of chemical risks
- Harmonization of classification and labelling of chemicals
- Information exchange on toxic chemicals and chemical risks
- Establishment of risk reduction programmes
- Strengthening of national capabilities, capacities for management of chemicals
- Prevention of illegal international traffic in toxic and dangerous products

International initiatives today:

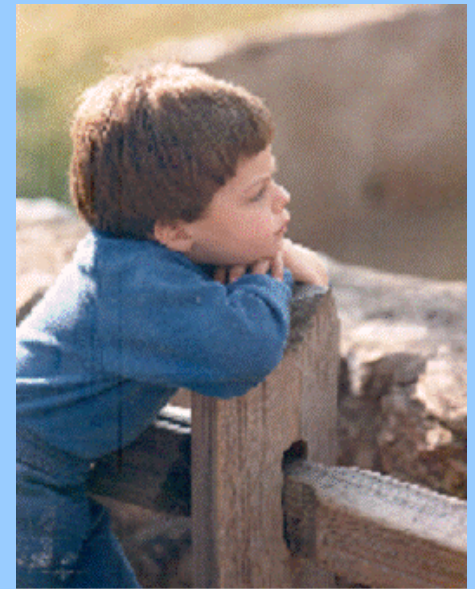
- **Several multilateral agreements, Intergovernmental Organizations and coordinating mechanisms**



GLOBAL ACTION TOWARDS THE RISK REDUCTION OF POPs



- *How has it been evolved?*
 - Brief history of the POPs negotiation
- *What does it do?*
 - Overview of the Convention
- *What has been done and where to?*
 - Highlights on achievements and challenges

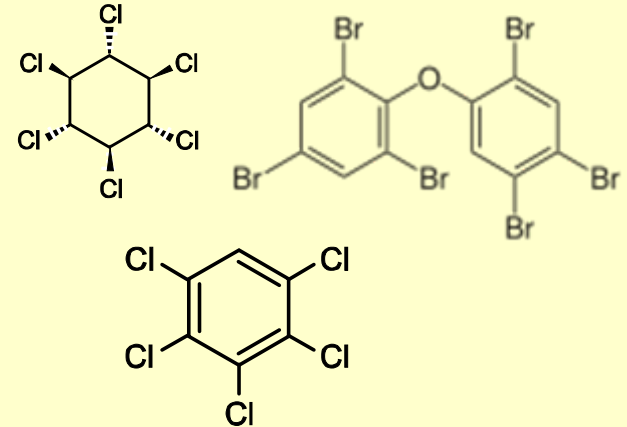


Global attention on POPs

• POPs:

Persistent Organic Pollutants

- Persistent
- Bio-accumulative
- Pose a risk of causing adverse effects to human health and the environment
- Potential of long-range transport



International community called for urgent global action to reduce and eliminate their release into the environment.

Brief history of POPs negotiation



- **1992: Agenda 21, Chapter 19**
 - Called for the establishment of IFCS, IOMC...
- **1995: UNEP GC-18 decision 18/32**
 - Invited IFCS, IOMC to begin the evaluation of initial 12 POPs
- **1996: Special Task Force on POPs**
 - Concluded and recommended the need for international action to minimize the risks of the 12 POPs
- **1997: UNEP GC-19 decision 19/13**
 - Requested to establish INC with the mandate to develop an international legally binding instrument, starting with the 12 POPs

Negotiations for the Convention

- **INC-1** June 1998 in Montreal to
- **INC-5** December 2000 in Johannesburg
- **Conference of Plenipotentiaries** 22-23 May 2001 in Stockholm
- **Entry into force** of the Stockholm Convention
17 May 2004



... 169 countries have ratified
(as of Feb 2010)

 Parties to the Stockholm Convention



What does the Convention do?

Objective:

To protect human health and the environment from POPs.

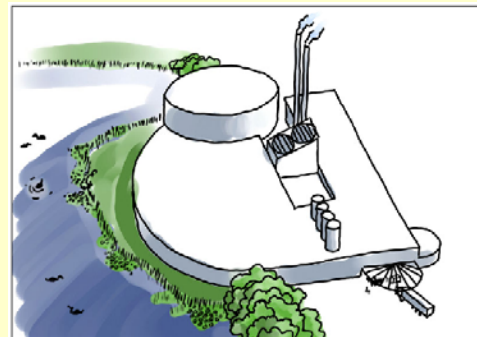


Initial 12 POPs

- **Annex A (Elimination)**
 - **Pesticides:** Aldrin, chlordane, dieldrin, endrin, heptachlor, mirex, toxaphene,
 - **Industrial chemicals:** hexachlorobenzene, and PCBs
- **Annex B (Restriction)**
 - **Pesticides:** DDT
- **Annex C (Unintentional production)**
 - **By-products:** Dioxins and furans, PCBs, and hexachlorobenzene

How does it work?

- **Eliminate or restrict** the production, use, import and export of POPs
- Reduce releases from **unintentional POP** production
- Promote **BAT/BEP** to reduce POP emissions
- Eliminate POPs **stockpiles** and **wastes**
- Target additional **new POPs** for action
- Mechanism for **financial and technical assistance**
- Information exchange by **Clearing House Mechanism**



What has been done?

Conference of the Parties:

- COP-1: May 2005 in Punta del Este, Uruguay;
- COP-2: May 2006 in Geneva, Switzerland;
- COP-3: May 2007 in Dakar, Senegal;
- COP-4: May 2009 in Geneva, Switzerland.

COP-5: 25-29 April, Buenos Aires, Argentine



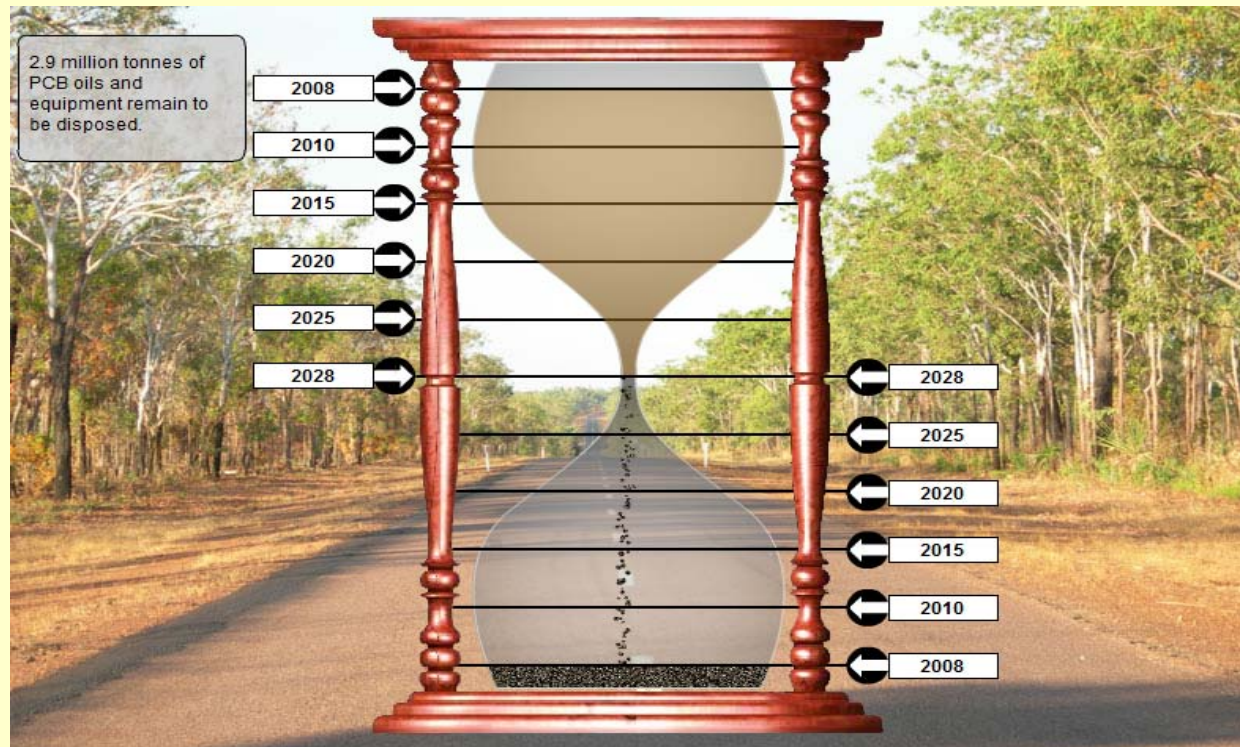
DDT: Global Alliance

- Establish a clear platform and a joint leadership to address the challenges around the development and deployment of alternatives to DDT;
- Enhance clarity on the understanding and agreement on goals and issues while creating momentum in addressing the challenges;
- Improve coordination between individual initiatives aimed at developing and deploying alternatives to DDT and addressing the interactions between goals;
- Address gaps identified in existing initiatives in a proactive manner while limiting the potential for duplication.



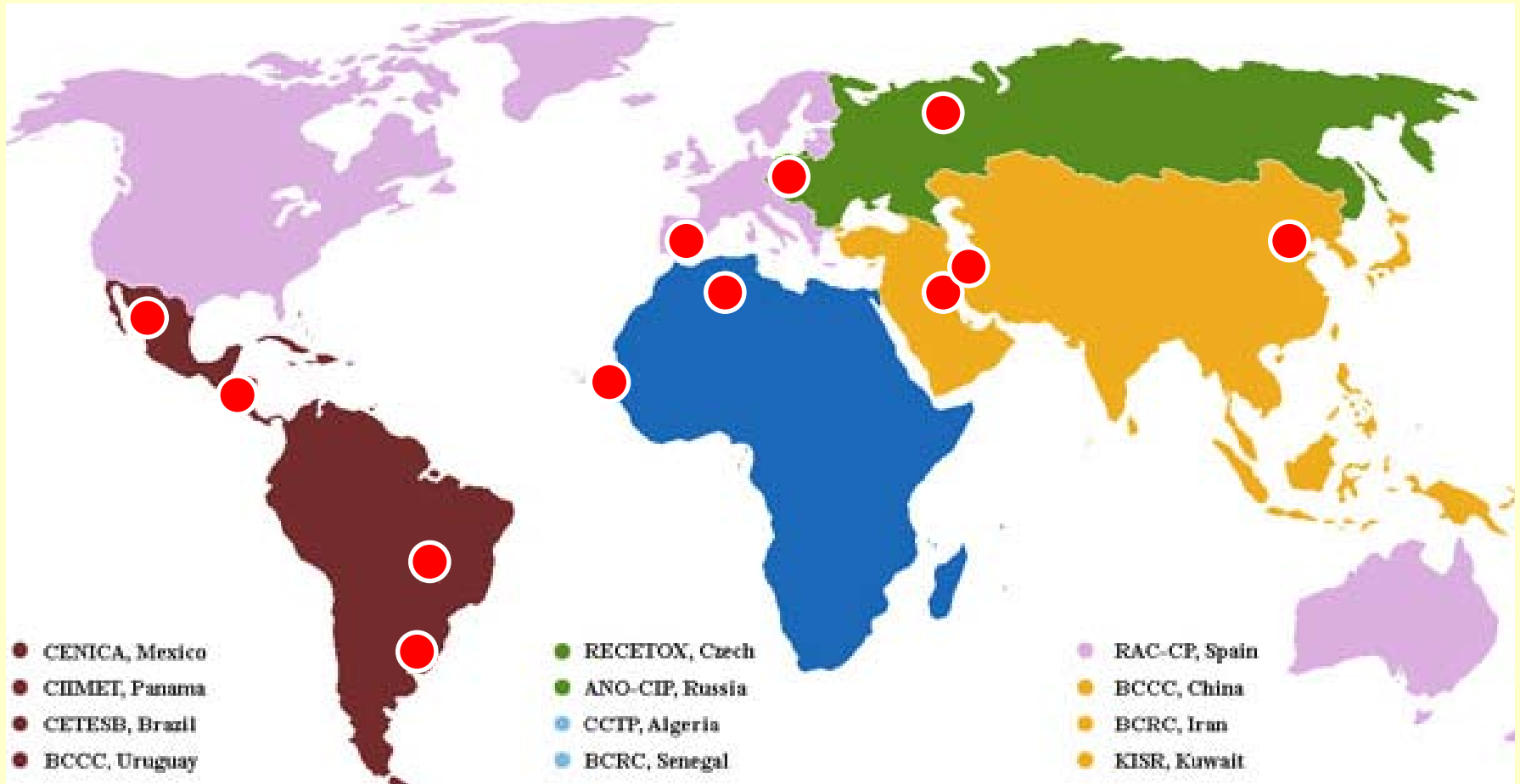
PCBs: Elimination Network (PEN)

- Equal partnership
- Promote collaboration and information exchange
- Promote environmentally sound management and its equipment
- Promote technical assistance and technology-transfer



Technical Assistance, Regional Centers

- To facilitate technical assistance and technology transfer
- To undertake projects with GEF support

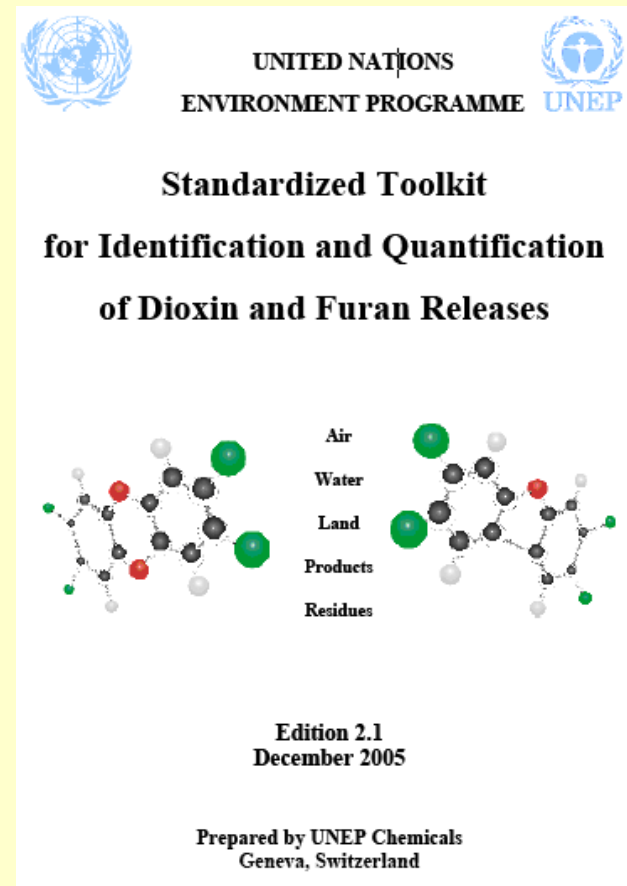
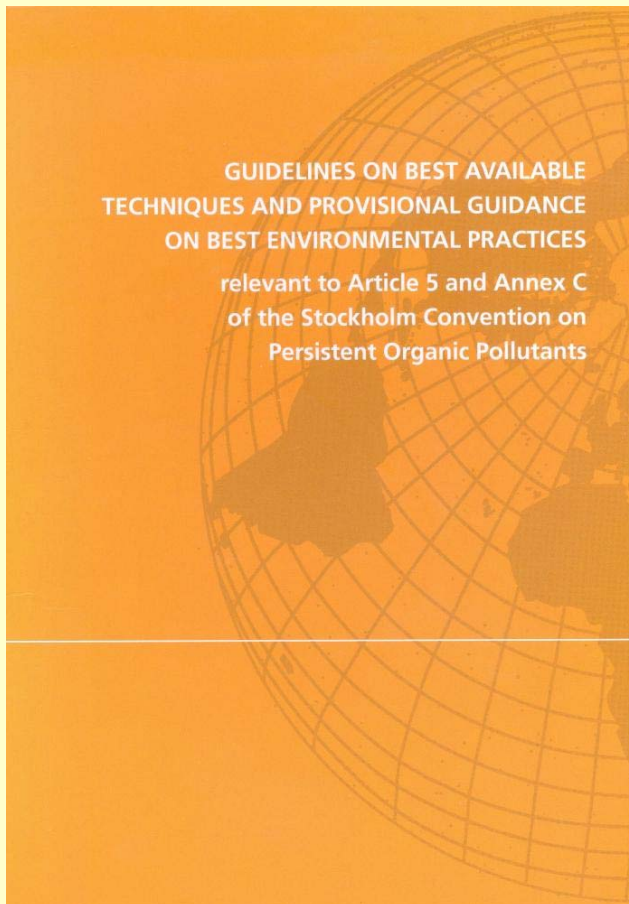


Global Monitoring Plan for effectiveness evaluation



Reducing unintentional releases

- BAT/BEP guidelines and Toolkit



BIG LEAP made at COP4



Addition of 9 new POPs

12 + 9 = 21 POPs

- **Annex A (Elimination)**
 - **Pesticides:** Lindane, alpha-HCH, beta-HCH, chlordane
 - **Industrial chemicals:** hexabromobiphenyl, pentachlorobenzene, pentaBDE, octaBDE
- **Annex B (Restriction)**
 - **Industrial chemicals:** PFOS, its salts, and PFOS-F
- **Annex C (Unintentional production)**
 - **By-products:** Pentachlorobenzene

Amendments will enter into force on 26 August 2010.

Listing of new POPs

[Article 8]

1. Any **Party** may submit a **proposal** for listing a new chemical in Annex A, B, or C of the Convention.
2. POPs Review Committee (POPRC) applies **screening criteria** specified in **Annex D** to the proposal.
3. Committee develops a **risk profile** based on information provided by Parties/observers as specified in **Annex E**.
4. Committee develops a “**risk management evaluation**” based on socio-economic information provided by Parties/observers as specified in **Annex F**.
5. Committee makes **recommendations** to the COP .
6. *COP decides whether to list the chemical in which Annex.*

Persistent Organic Pollutants Review Committee (POPRC)

- Subsidiary body to the Convention, **mandated to review chemicals proposed for listing**
- Members: **31** government-designated **experts**
- Chair: Mr. Reiner Arndt (Germany)
Vice Chair: Ms. Kyung-hee Choi (Korea)
- Meet annually, work intersessionally, Open to observers
- **Endosulfan, HBCD, SCCPs** will be considered at POPRC6, 11-15 Oct 2010



Annex D criteria (POPs properties)

- **Chemical identity**
- **Persistence**
- **Bio-accumulation**
- **Potential of long range environmental transport**
- **Adverse effects**

Annex E information (Risk Profile)

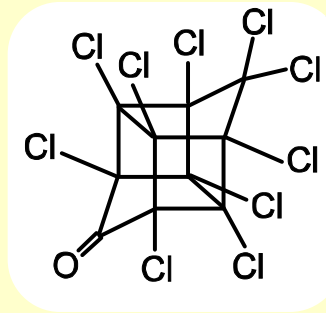
- **Sources**
- **Hazard assessments**
- **Environmental fate**
- **Monitoring data**
- **Exposure and bio-availability**
- **National and international risk evaluations**
- **International conventions**

Annex F information (socio-economic information)

- Efficacy and efficiency of possible control measures
- Alternatives (costs, risks, efficacy, accessibility)
- Positive/negative impacts of control measures on health, agriculture, biota, economic aspects, social costs
- Waste, disposal implications, stockpiles
- Access to information and public education
- Status of control and monitoring capacity
- Any national or regional control actions

1. Chlordecone

- Proposal: 2005, European Community
- Risk profile: UNEP/POPS/POPRC.2/17/Add.1
- Risk management evaluation: UNEP/POPS/POPRC.3/20/Add.1



FACTSHEET

Past use: Agricultural pesticide (banana plantation)
Used in 1966-1975 in the USA for ant and roach.
Also known as « Kepon ».
Properties similar to Mirex.

Currently: No production and use reported.
The French island of Martinique is heavily contaminated with chlordecone.

Alternatives: Available



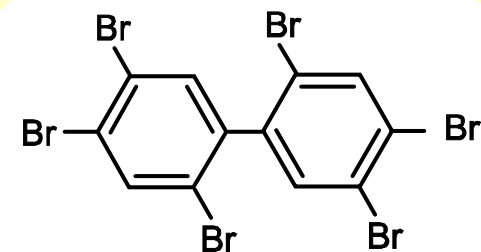
→ Listed in: **Annex A (Elimination)**

→ Production: **No exemption**

→ Use: **No exemption**

2. Hexabromobiphenyl

- Proposal: 2005, European Community
- Risk profile: UNEP/POPS/POPRC.2/17/Add.3
- Risk management evaluation: UNEP/POPS/POPRC.3/20/Add.3



FACTSHEET

Past use: Flame retardants. Added to plastics used in products such as home electrical appliances, textiles, plastic foams, laptop cabinets, etc. to make them difficult to burn.

Currently: No production and use reported. Other polybrominated biphenyls are also controlled by RoHS Directive by EU.

Alternatives: Available



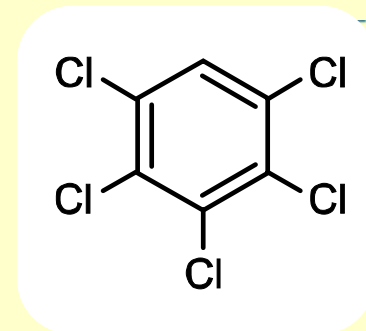
→ Listed in: **Annex A (Elimination)**

→ Production: **No exemption**

→ Use: **No exemption**

3. Pentachlorobenzene

- Proposal: 2006, European Community
- Risk profile: UNEP/POPS/POPRC.3/20/Add.7
- Risk management evaluation: UNEP/POPS/POPRC.4/15/Add.1



FACTSHEET

Past use: Component in PCB products, fungicide, flame retardant.

Currently: Possible continuous use as intermediate for production of quintozone (pentachloronitrobenzene: fungicide).
Unintentional production during combustion, thermal and industrial processes
Impurities in products e.g. solvents, pesticides.

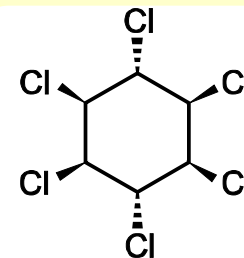
Alternatives: Available

- Listed in: **Annex A (Elimination)** and **Annex C (Unintentional production)**
- Production: **No exemption**
- Use: **No exemption**



4. Lindane

- Proposal: 2005, Mexico
- Risk profile: UNEP/POPS/POPRC.2/17/Add.4
- Risk management evaluation: UNEP/POPS/POPRC.3/20/Add.4



FACTSHEET

Past use: About 600,000 tons of lindane was used globally 1950-2000 as pesticide and veterinary and human applications

Currently: Some countries are still known to produce or use lindane (e.g. for seed dressing, control of termites, head lice, etc)

Alternatives: Exists but not readily available in some countries especially for control of head lice and scabies

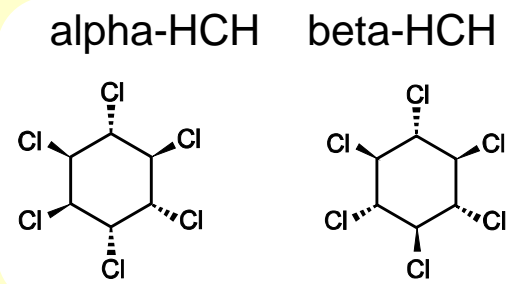


- Listed in: **Annex A (Elimination)**
- Production: **No exemption**
- Use: **Specific exemption for human health pharmaceutical for control of head lice and scabies as second line treatment**



5. Alpha-HCH, 6. Beta-HCH

- Proposal: 2006, Mexico
- Risk profile: UNEP/POPS/POPRC.3/20/Add.8 and Add.9
- Risk management evaluation: UNEP/POPS/POPRC.4/15/Add.3 and 4



FACTSHEET

Past use: High-volume **by-products of lindane**. The production of one ton of lindane generates approximately up to 8 tons of alpha- and beta-HCH.

Currently: Large stockpiles of alpha- and beta-HCH exist.

Alternatives: As there is no commercial use of alpha- and beta-HCH, alternatives are not needed.

→ Listed in: **Annex A (Elimination)**

→ Production: **No exemption**

→ Use: **No exemption**





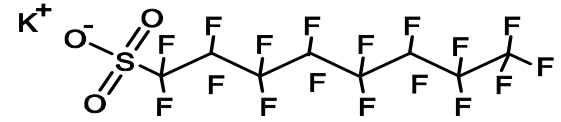
GLOBAL concern:

Large amount of obsolete waste and stockpile of alpha-, beta-HCH and lindane



7. Perfluorooctane sulfonic acid (PFOS), its salts and PFOS fluoride

- Proposal: 2005, Sweden
- Risk profile: UNEP/POPS/POPRC.2/17/Add.5
- Risk management evaluation: UNEP/POPS/POPRC.3/20/Add.5

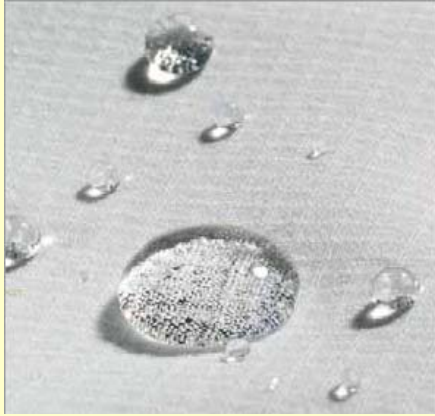


FACTSHEET

- Past use:** PFOS is both intentionally produced and an unintended degradation product of PFOS-related substances (PFOS precursors). Examples of use include: electronic appliances, fire-fighting foams, water proof for textile, leather, etc.
- Currently:** PFOS is still produced and used in several countries.
- Alternatives:** Available for some types of use but no known technically feasible alternatives for some applications e.g. semi-conductor, photo imaging, aviation hydraulic fluids.

→ Listed in **Annex B (Restriction)** with several
Specific exemptions and Acceptable purposes

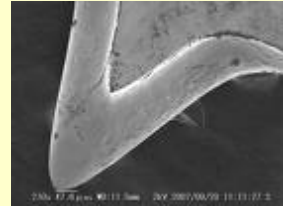
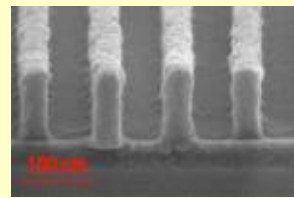
Some examples of historical use of PFOS and related substances



travis jon allison on flickr

Acceptable purposes: (Currently no alternatives are available)

- Photo imaging,
- Photo resist and anti-reflective coatings for semi-conductors,
- Etching agent for compound semi-conductors and ceramic filters,
- Aviation hydraulic fluids,
- Metal plating only in closed-loop systems,
- Certain medical devices (e.g. ETFE layers, radio-opaque ETFE, in vitro diagnostic medical devices, CCD color filters),
- Fire fighting foam,
- Insect baits for control of leaf-cutting ants.



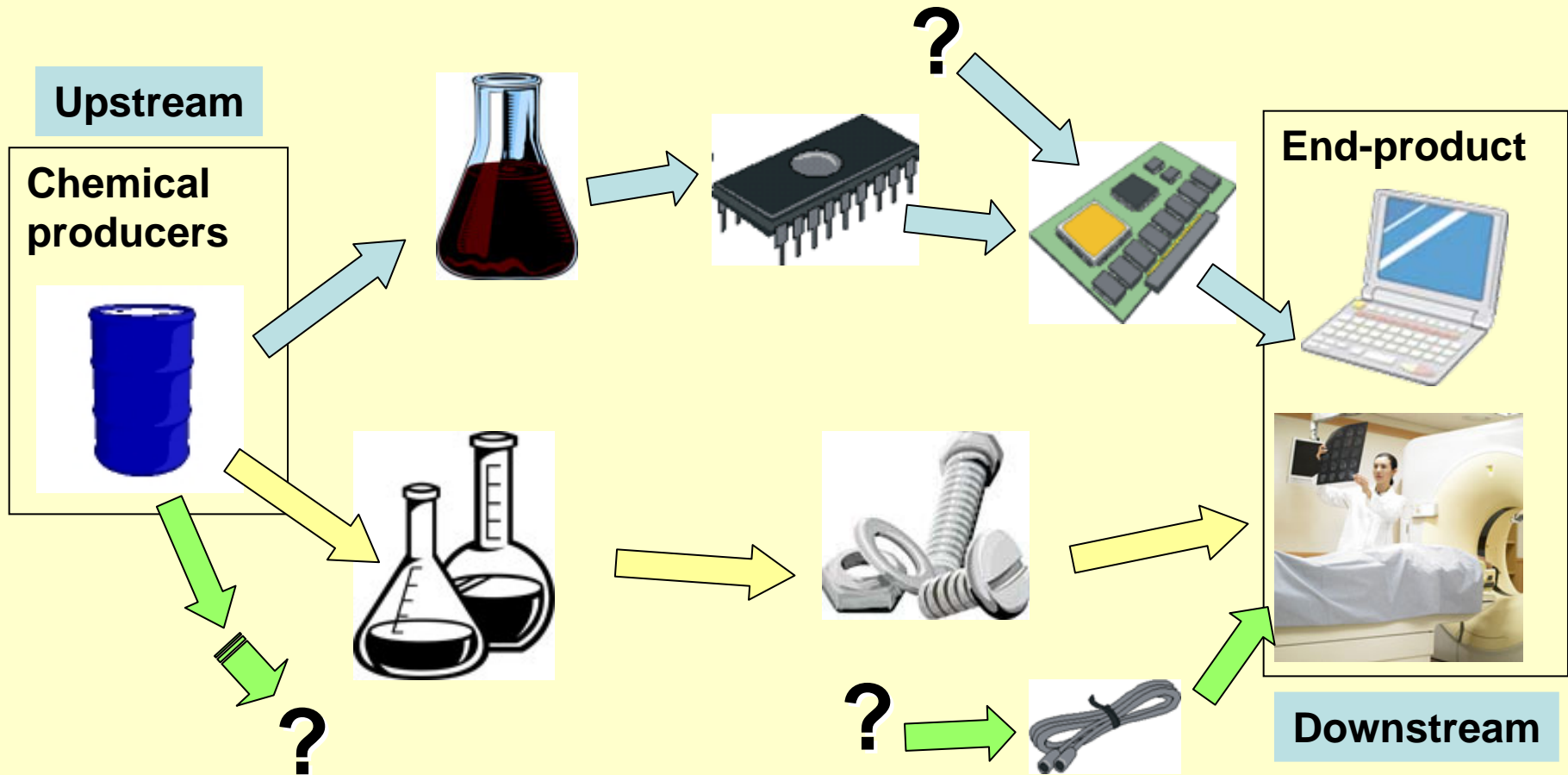
Specific exemptions: (Alternatives needs phase-in)



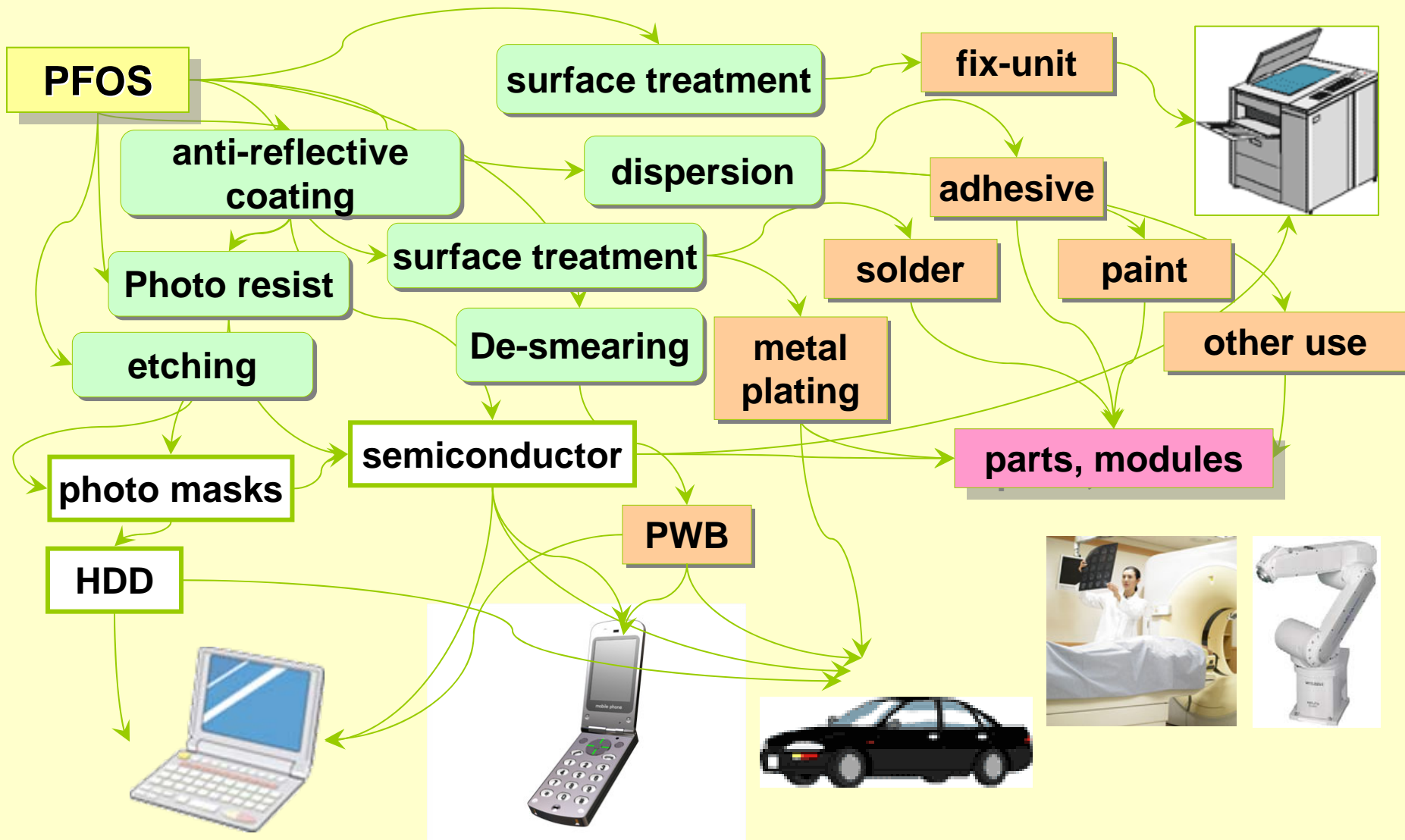
- Photo masks in the semiconductor and LCD industries,
- Hard metal plating,
- Decorative metal plating,
- Electric and electronic parts for some color printers and color copy machines,
- Insecticides for control of red imported fire ants and termites,
- Chemically driven oil production,
- Carpets,
- Leather and apparel,
- Textiles and upholstery,
- Paper and packaging,
- Coatings and coating additives,
- Rubber and plastics.



CHALLENGE: Industrial chemicals are used in numerous processes and parts



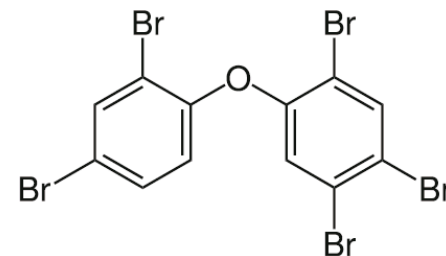
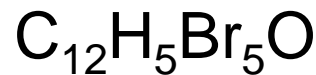
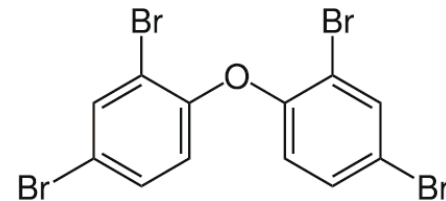
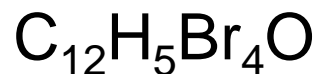
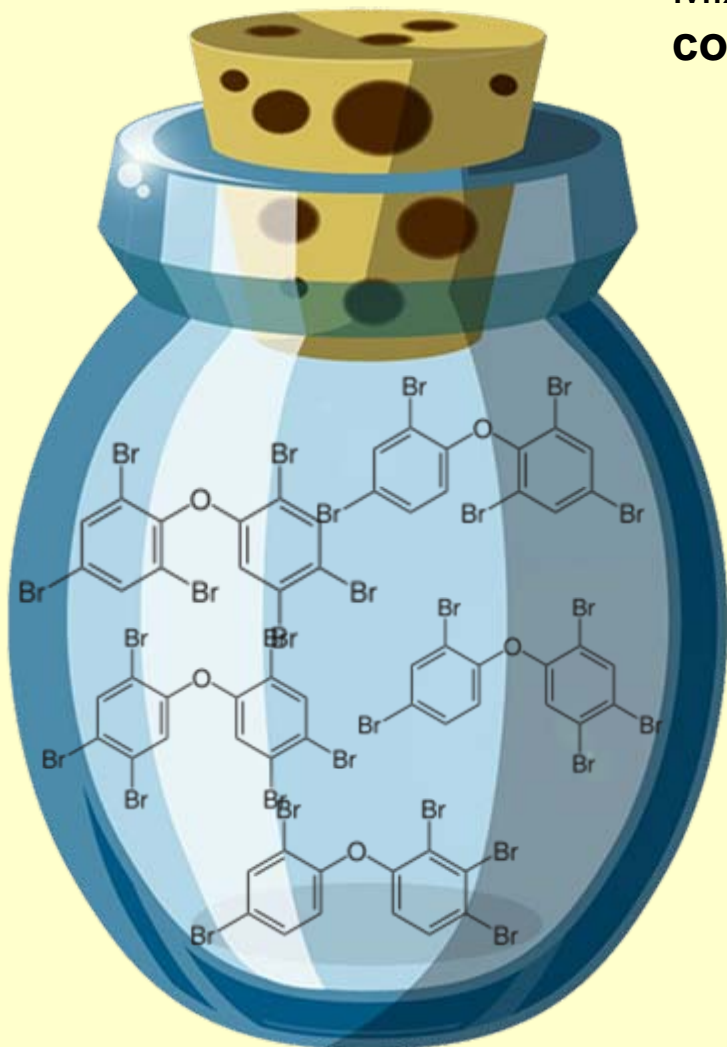
CHALLENGE: Long supply-chain, involve many producers/users



8. Tetra- and pentabromodiphenyl ether

“Commercial mixture of pentabromodiphenyl ether

Mixture of brominated organic chemicals, **main components are tetra- and penta- isomers.**



Proposal: 2005, Norway

Risk profile: UNEP/POPS/POPRC.2/17/Add.1

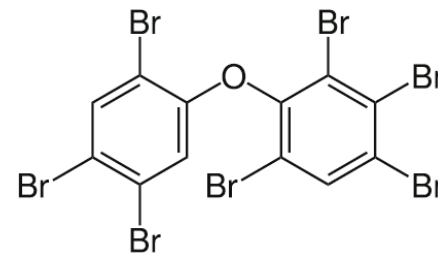
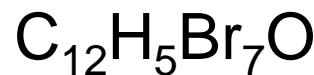
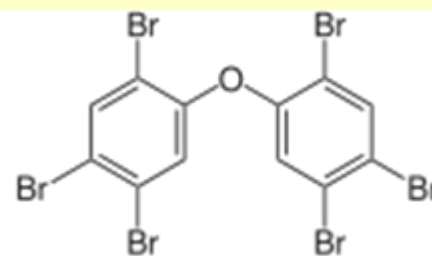
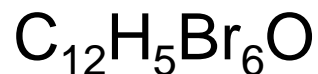
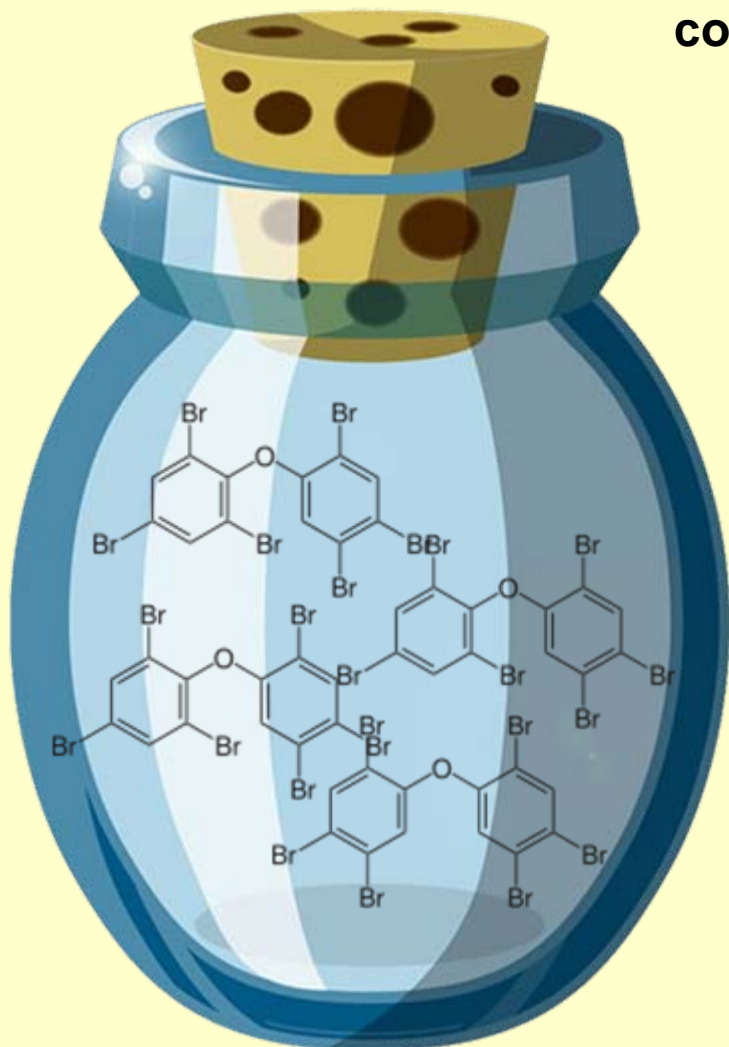
Risk management

evaluation: UNEP/POPS/POPRC.3/20/Add.1

9. Hexa- and heptabromodiphenyl ether

“Commercial mixture of octabromodiphenyl ether

Mixture of brominated organic chemicals, **main components are hexa- and hepta- isomers.**



Proposal: 2006, EU

Risk profile: UNEP/POPS/POPRC.3/20/Add.6

Risk management

evaluation: UNEP/POPS/POPRC.4/15/Add.1

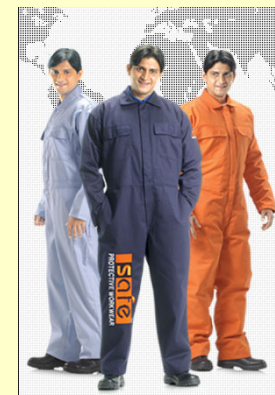
FACTSHEET

Past use: Most commonly used as a flame retardant in flexible polyurethane foam (PUF);

Currently: Production ceased in Europe, Japan, Canada, Australia and the US; however, it is possible that production continues elsewhere in the world.

Alternatives: Guidance on feasible flame-retardant alternatives to commercial pentabromodiphenyl ether (POPRC)

Environmental Profiles of Chemical Flame-Retardant Alternatives for Low-Density Polyurethane Foam (USEPA 2005)



- Listed in **Annex A (Elimination)**
- Exemption for production: **none**
- Exemption for use: **may allow recycling of articles that may contain the chemicals, and the use and final disposal of articles manufactured from recycled materials that may contain the chemicals**

Identification of chemicals in articles

Example of samples:

Liquid crystal display, personal computer, power supply unit, etc.

Analytical method:

Reduce the sample to powder using liquid nitrogen.

Analysis: HRGC/HRMS and LC/MS

Print circuit board



Powderized sample



LCD panel



Powderized sample



Need global information on PFOS and BDEs



- What types of processes use PFOS/BDEs?
- What types of articles contain PFOS/BDEs?
- What types of articles containing PFOS/BDEs are recycled?
- What are options for alternative products or processes?
- How are wastes containing PFOS/BDEs handled?
- What are approaches to remediation of contaminated site?

Work programme on new POPs



[Decision SC-4/19]

- 1) Collect information on BDEs, PFOS and other new POPs
 - What articles contain these chemicals, recycling and waste management practices, remediation of contaminated sites
 - Interim deadline: 10 April 2010 (Final deadline: 1 July 2010)

Questionnaire for submission of information on New POPs in accordance with SC-4/19

PART I – General information on the submission

<input type="checkbox"/>	Date of submission	
	Name of the submitting Party/observer	
	Contact details (name, address, telephone, e-mail)	
	Information sources: (Industry groups, private entities, NGOs, government, universities, sites, waste treatment plants, facilities, landfills, etc.)	

PART II – Commercial PentaBDE (tetra- and pentabromodiphenyl ether) and commercial OctaBDE (hepta- and hexabromodiphenyl ether)

SECTION A – GENERAL QUESTIONS

II-A-1 Has your country ever manufactured articles containing commercial PentaBDE or commercial

2) Develop a technical paper on BDEs to address below objectives:

- Assess the possible health and environmental impacts of recycling articles containing brominated diphenyl ethers;
- Review the long-term environmental desirability of the recycling of articles containing brominated diphenyl ethers;
- Identify the best available techniques and best environmental practices for the recycling of articles containing brominated diphenyl ethers.

National Implementation Plan

- Party should transmit NIP within two years of the entry into force of the Convention.
 - NIP for the New POPs, by August 2012
- Provides a framework for a country to develop and implement priority policy and regulatory reform, capacity building and investment programmes.
- Reviewed and updated on a periodic basis

AWARENESS RAISING ACTIVITIES FOR NEW POPs

Regional training workshop on new POPs and the process of reviewing and updating NIPs

1. Spain, Barcelona: 2-4 December 2009
2. Kuwait: 14-16 December 2009
3. Panama: 25-28 January 2010
4. Brazil: planned in 2010
5. China: planned in April 2010

Still more challenges ...

- **Lack of institutional capacity**
- **Legislation and risk management policy framework**
- **Availability of Best Available Technology and Best Environmental Practices (BAT/BEP)**
- **Workers knowledge**
- **Long-term environmental and health effects**
- **Public awareness**
- **Information needs for chemicals in articles**

... striving for a world free of POPs

For more information:

<http://www.pops.int>



The screenshot shows the homepage of the Stockholm Convention on persistent organic pollutants (POPs). At the top left is the Stockholm Convention logo, which consists of a stylized 'S' in blue and orange. To the right of the logo is the text 'Stockholm Convention on persistent organic pollutants (POPs)'. In the top right corner, there are navigation links for 'Meetings', 'Documents', 'Contacts', and 'Projects', along with the date 'January 21, 2009' and a 'Login' link. Below these links is a search bar with a magnifying glass icon and the text 'Search'. A horizontal menu below the search bar contains five items: 'CONVENTION' (orange), 'PROGRAMMES' (yellow), 'COUNTRIES' (light green), 'SECRETARIAT' (green), and 'PARTNERS' (dark green). The main content area features a large image of a coral reef with several sea anemones. Overlaid on the bottom of this image is the text 'STOCKHOLM CONVENTION PROTECTING LIFE' in large, white, bold, sans-serif capital letters.

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Merci beaucoup...