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The 4th Tripartite Policy Dialogue on Chemical Management

# Strategy for Response to New POPs in Japan

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# **1. Overview of the Stockholm Convention**

# Stockholm Convention on POPs

## - Persistent Organic Pollutants-

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### Persistent Organic Pollutants (POPs)

POPs are organic chemical substances, possessing a particular combination of physical and chemical properties, once released into the environment:

- 1) remain intact for exceptionally long periods of time (many years)
- 2) become widely distributed throughout the environment as a result of natural processes involving soil, water and, most notably, air
- 3) accumulate in the fatty tissue of living organisms including humans, and are found at higher concentrations at higher levels in the food chain
- 4) are toxic to both humans and wildlife

# Stockholm Convention on POPs

## - Persistent Organic Pollutants-

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### Initial 12 POPs

(Aldrin, Chlordane, DDT, Dieldrin, Endrin, Heptachlor, HCB, PCBs, Mirex, Toxaphene)

Initially, 12 POPs have been recognized as causing adverse effects on humans and the ecosystem, classified into 3 categories:

#### 1) Pesticides:

aldrin, chlordane, DDT, dieldrin, endrin, heptachlor,  
hexachlorobenzene, mirex, toxaphene

#### 2) Industrial chemicals:

hexachlorobenzene, polychlorinated biphenyls (PCBs)

#### 3) By-products:

hexachlorobenzene, polychlorinated dibenzo-p-dioxins,  
polychlorinated dibenzofurans (PCDD/PCDF), PCBs

# Stockholm Convention on POPs

## - Persistent Organic Pollutants-

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### Stockholm Convention on POPs

- Adopted in 2001, enforced in 2004
- To protect human health and the environment from POPs
- Prohibits or restricts the production/use/international trade of POPs
- Reduces or eliminates releases from unintentional production of **PCBs, HCB, PCDDs and PCDFs** through the use of best available techniques (BAT) and best environmental practice (BEP)

# Stockholm Convention on POPs

## - Persistent Organic Pollutants-

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### ★ Stockholm Convention on POPs (*cont'd*)

- Reduces or eliminates releases from stockpiles and wastes through their identification, management and disposal
- Parties shall endeavour to implement national plans
- POPs are listed in the Annexes of the convention text
- The governing body is the Conference of the Parties (COP) consisting of the Parties to the convention

## **2. COP4 and New POPs**

# Stockholm Convention on POPs

## - Persistent Organic Pollutants-

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### Nine New POPs

In May 2009, the fourth meeting of COP (COP4) adopted amendments to Annexes of the convention to list 9 additional chemicals as POPs:

#### 1) Pesticides:

chlordecone, alpha hexachlorocyclohexane, beta hexachlorocyclohexane, lindane, pentachlorobenzene

#### 2) Industrial chemicals:

hexabromobiphenyl, hexabromodiphenyl ether and heptabromodiphenyl ether, pentachlorobenzene, perfluorooctane sulfonic acid (PFOS) and its salts, perfluorooctane sulfonyl fluoride (PFOSF), tetrabromodiphenyl ether and pentabromodiphenyl ether

#### 3) By-products:

alpha hexachlorocyclohexane, beta hexachlorocyclohexane, pentachlorobenzene

# Nine New POPs

\* In the Annexes, the total of 9 substances were added to the lists, considering No.1 and 2 as one, No. 9 and 10 as one (*commercial pentaBDE*), and No. 11 and 12 as one (*commercial octaBDE*).

Substance	Purposes
1. Perfluorooctane sulfonate acid (PFOS) and its salts	Water repellent, Lipid repellent, Surfactant
2. Perfluorooctane sulfonyl fluoride (PFOSF)	Starting material for PFO
3. Pentachlorobenzene	Agricultural chemicals, Byproduct
4. r-1, c-2, t-3, c-4, t-5, t-6-hexachlorocyclohexane (Alpha hexachlorocyclohexane)	Byproduct of Lindane
5. r-1, t-2, c-3, t-4, c-5, t-6-hexachlorocyclohexane (Beta hexachlorocyclohexane)	Byproduct of Lindane
6. r-1, c-2, t-3, c-4, c-5, t-6-hexachlorocyclohexane (Gamma-hexachlorocyclohexane or Lindane)	Agricultural chemicals, Pesticides
7. Decachloropentacyclo [5.3.0.0.0.0] decan-5-one (Chlordecone)	Agricultural chemicals, Pesticides
8. Hexabromobiphenyl	Flame retardants
9. Tetrabromo (phenoxybenzene) (Tetrabromodiphenyl ether)	Flame retardants
10. Pentabromo (phenoxybenzene) (Pentabromodiphenyl ether)	Flame retardants
11. Hexabromo (phenoxybenzene) (Hexabromodiphenyl ether)	Flame retardants
12. Heptabromo (phenoxybenzene) (Heptabromodiphenyl ether)	Flame retardants

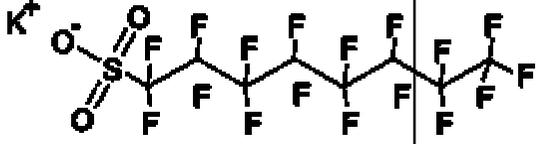
## Addition to Annex A (Elimination)

Parties must take measures to eliminate the production and use of the chemicals listed under Annex A (*chemicals to be eliminated*). Specific exemptions for use or production are listed in the Annex and apply only to Parties that register for them.

Substance	Usage	exemptions
commercial pentaBDE (tetrabromodiphenyl ether and pentabromodiphenyl ether)	flame retardant	<u>specific exemption</u> for use as articles containing these chemicals for recycling
chlordecone	agricultural pesticide	without specific exemptions
hexabromobiphenyl	flame retardant	without specific exemptions
lindane	creams for treatment head lice, agricultural pesticide	<u>specific exemption</u> for use as a human health pharmaceutical for control of head lice and scabies as second line treatment
alpha hexachlorocyclohexane	unintended byproduct of lindane manufacture	without specific exemptions
beta hexachlorocyclohexane	unintended byproduct of lindane manufacture	without specific exemptions
commercial octaBDE (hexabromodiphenyl ether and heptabromodiphenyl ether)	flame retardant	<u>specific exemption</u> for use as articles containing these chemicals for recycling

## Addition to Annex B (Restriction)

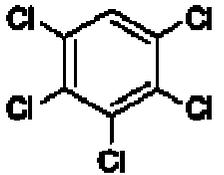
Parties must take measures to restrict the production and use of the chemicals listed under Annex B (*chemicals to be restricted*) in light of any applicable acceptable purposes and/or specific exemptions listed in the Annex.

Substance	Usage	exemptions
<p>perfluorooctane sulfonic acid (PFOS), its salts and perfluorooctane sulfonyl fluoride (PFOS-F)</p> <div style="text-align: center;">  </div>	<p>electric and electronic parts, fire fighting foam, photo imaging, hydraulic fluids and textiles, etc.</p>	<p><u>acceptable purposes</u>                      for photo-imaging, photo-resist and anti-reflective coatings for semi-conductor, etching agent for compound semi-conductor and ceramic filter, aviation hydraulic fluids, metal plating (hard metal plating) only in closed-loop systems, certain medical devices (such as ethylene tetrafluoroethylene copolymer (ETFE) layers and radio-opaque ETFE production, in vitro diagnostic medical devices, and CCD colour filters), fire-fighting foam, insect baits for control of leaf-cutting ants from <i>Atta spp.</i> and <i>Acromyrmex spp.</i></p> <p><u>specific exemptions</u>                      for photo masks in the semiconductor and liquid crystal display (LCD) industries, metal plating (hard metal plating, decorative plating), electric and electronic parts for some colour printers and colour copy machines, insecticides for control of red imported fire ant, and termites, chemically driven oil production, carpets, leather and apparel, textiles and upholstery, paper and packaging, coatings and coating additives, rubber and plastics</p>

As for PFOS, its salts and PFOS fluoride, there are some uses for which alternatives are not available at home and abroad at this time, which led to their inclusion in Annex B. It was agreed that the parties will advance the development of alternative technology and work toward their elimination in the future.

## Addition to Annexes A and C (Unintentional production)

Parties must take measures to reduce the unintentional releases of chemicals listed under Annex C (*minimization of unintentional releases of listed chemicals*) with the goal of continuing minimization and, where feasible, ultimate elimination.

Substance	Usage	Exemptions
pentachlorobenzene 	dyestuff carrier, fungicide, flame retardant, chemical intermediate	(Annex A) without specific exemptions  (Annex C) Parties shall take measures to reduce the unintentional releases

# Schedule

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## Entry into force of the amendments

- In principle, the amendments to Annexes A, B and C shall enter into force at the expiry of 1 year after the COP decision (*i.e.*, August 26, 2010).



## Necessary actions after the entry into force

- Parties should put its national legislation and regulations in conformity with the obligations as set out by the Conventions.
- Parties needs to review and update its national implementation plan (NIP).
- Parties shall transmit their revised/updated NIP to the COP within 2 years of the entry into force of the amendments (*i.e.*, August 26, 2012).

### **3. Japan's Response to New POPs**

- Amendment to the Chemical Substances Control Law & its Relevant Regulations**

# Amendment to Chemical Substances Control Law (CSCL) in 2009

International inconsistencies should be eliminated by reviewing regulations on Class I Specified Chemical Substances in order to permit the exceptional use of substances that will be listed under the Stockholm Convention in the future under strict control.

## Before the Amendment

Class I Specified Chemical Substances could be only used, when there is **no substitute**, and they **don't use mainly in the daily lives of consumers** and have **no risks of causing environmental pollution**.



## After the Amendment

Class I Specified Chemical Substances are **permitted in case of the exceptional use** listed under the Stockholm Convention. While, **obligations to adhere to specific handling standards and label them are added**.

# Amendment to the Order for Enforcement of CSCL in 2009

(1) Additional designation for Class I Specified Chemical Substances  
New POPs were designated the Class I Specified Chemical Substances under CSCL (*Enforced in April 1, 2010*)

- Perfluorooctane-1- sulfonic acid (PFOS) or its salts
- Perfluorooctane-1- sulfonyl fluoride (PFOSF)
- Pentachlorobenzene
- 1-alpha,2-alpha,3-beta,4-alpha,5-beta,6-beta-Hexachlorocyclohexane (alpha-Hexachlorocyclohexane)
- 1-alpha,2-beta,3-alpha,4-beta,5-alpha,6-beta-Hexachlorocyclohexane (beta-Hexachlorocyclohexane)
- 1-alpha,2-alpha,3-beta,4-alpha,5-alpha,6-beta-Hexachlorocyclohexane (gamma-1,2,3,4,5,6-Hexachlorocyclohexane or Lindane)
- Decachloropentacyclo[5.3.0.0<sup>2,6</sup>.0<sup>3,9</sup>.0<sup>4,8</sup>]decan-5-one (Chlordecone)
- Hexabromobiphenyl
- Tetrabromophenoxybenzene (Tetrabromodiphenyl ether)
- Pentabromobiphenyl (Pentabromodiphenyl ether)
- Hexabromophenoxybenzene (Hexabromodiphenyl ether)
- Heptabromophenoxybenzene (Heptabromodiphenyl ether)

## (2) Addition of Articles Containing Class I Specified Chemical Substances for Import-prohibited Items

14 Articles with 3 new Class I Specified Chemical Substances were prohibited against their import (*Enforced in May 1, 2010*)

[PFOS and its salts]

- Aviation hydraulic fluids
- Spinning oil
- Etching agent for processing of metal
- Etching agent for semi-conductor production (exclude the compound-semi-conductor which makes it possible for the radio equipment to send and receive an equal to or more than 3 MHz frequency electric wave)
- Surface preparation agent or its preparation additives for metal plating
- Anti-reflective coating for semi-conductor production
- Abrading agent
- Fire extinguisher, fire-extinguishing chemical for fire extinguisher and fire fighting foam
- Insect baits (limited to insecticides for control of termites or ants)
- Photographic paper

[Tetrabromodiphenyl ether and Pentabromodiphenyl ether]

- Paints
- Adhesives

### (3) Essential Uses of Class I Specified Chemical Substances

✓ Class I Specified Chemical Substances should not be used in principle; however, the following exceptional uses would be acceptable (*Enforced in April 1, 2010*)

#### Essential Uses of Class I Specified Chemical Substances

[PFOS and its salt]

- Production of etching agent (limited to ceramic filter or the compound-semi-conductor which makes it possible for the radio equipment to send and receive an equal to or more than 3 MHz frequency electric wave)
- Production of photo-resist for semi-conductor
- Production of photographic film for industry

Market research showed that among new POPs, only PFOS, its salt and PFOS-F were manufactured/imported in the past 3 years in Japan.

✓ Those who use Class I Specified Chemical Substances in their articles shall follow the technical standards and implement labeling to prevent the environmental pollution (*Enforced in October 1, 2010*)

Articles with the Class I Specified Chemical Substances which shall conform to the technical standards and labeling

[PFOS and its salt]

- Production of etching agent (limited to ceramic filter or the compound-semi-conductor which makes it possible for the radio equipment to send and receive an equal to or more than 3 MHz frequency electric wave)
- Photo-resist for semi-conductor
- Photographic film for industry
- fire extinguisher, fire-extinguishing chemical for fire extinguisher and fire fighting foam (for the time being)

# Establishment of the Relevant Ordinances of CSCL in 2010 *(Enforced in October 1, 2010)*

## **(1) Technical standards concerning articles containing PFOS and its salts**

- PFOS and its salts
- Etching agents for semiconductors (limited to voltage filters and high-frequency compound semiconductors to allow radio equipment to transmit waves of 3 megahertz or higher.)
- Semiconductor resists
- Photo films for industrial purposes

## **(2) Technical standards concerning fire extinguisher, fire-extinguishing chemical for fire extinguisher and fire fighting foam containing PFOS and its salts**

## **(3) Mandatory labeling on articles containing PFOS and its salts**

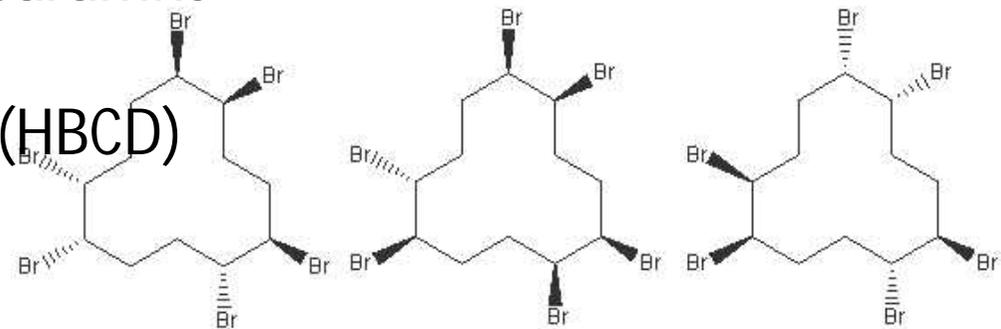
- PFOS and its salts
- Etching agents for semiconductors (limited to voltage filters and high-frequency compound semiconductors to allow radio equipment to transmit waves of 3 megahertz or higher.)
- Semiconductor resists
- Photo films for industrial purposes
- Fire extinguishers agents for fire extinguishers and fire extinguishers, extinguishers, fire-extinguishing foam

# Future Challenges for the Convention and POPs

- Any Party may submit proposal for listing a new chemical in Annexes of the Convention. The POPs Review Committee (POPRC) evaluates the proposals and makes recommendation to COP on such listing.

- Currently, following chemicals are under review:

- ✓ • Short-chained chlorinated paraffins
- ✓ • Endosulfan
- ✓ • Hexabromocyclododecane (HBCD)



# Future Challenges for the Convention and POPs

## ➤ Contribution to POPRC

MOEJ submitted data on Avian Reproduction Toxicity of HBCD for the preparation of draft risk profile.

"6-Week Administration Study of 1,2,5,6,9,10-Hexabromocyclododecane for Avian Reproduction Toxicity under Long-day Conditions using Japanese Quail"

Bird chick survival was decreased in quails exposed via the feed to 15 ppm HBCD (2.1 mg/kg/day), NOEC 5 ppm (0.7 mg/kg/day).

## ➤ Internal policies *(As of September 3, 2010)*

The Councils decided to instruct a person operating the business of manufacturing or importing of HBCD to conduct a study of the hazardous and to report the results thereof.

**Thank you for your kind attention!**

*MOEJ's website*

(English)

<http://www.env.go.jp/en/>

(中文)

<http://www.env.go.jp/cn/>

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<http://www.env.go.jp/kr/>