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**Stockholm Convention
on Persistent Organic
Pollutants**

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Persistent Organic Pollutants Review Committee
Fourth meeting
Geneva, 13–17 October 2008

**Report of the Persistent Organic Pollutants Review Committee
on the work of its fourth meeting**

Addendum

**Addendum to the risk management evaluation for perfluorooctane
sulfonate**

At its third meeting, the Persistent Organic Pollutants Review Committee, by decision POPRC-3/5, adopted the risk management evaluation for perfluorooctane sulfonate (UNEP/POPS/POPRC.3/20/Add.5). An addendum to that evaluation was adopted at its fourth meeting. The text of the addendum is set out below. It has not been formally edited.

Summary of new information on perfluorooctane sulfonate (PFOS) submitted during the intersessional period between the third and fourth meetings of the Committee

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2.3 Information on alternatives (products and processes), where relevant

A. Uses for which at present, according to responses received, no technically feasible alternatives are available

No additional information received.

B. Uses for which alternative substances or technologies may be available but would need to be phased in

2.3.8 Electric and electronic parts

According to information from Japan, PFOS is used in an etching process of the piezoelectric ceramic filter which is used as a bandpass filter at intermediate frequency in two-way radios for police radio, FM radios, TV, Remote Keyless Entry for Cars, etc. Annual PFOS usage is about 20 kg. The possibility of PFOS environmental discharge is estimated to be low PFOS alternatives are under consideration by industries.

Etching of high-frequency compound semiconductors is a processing method to produce semiconductor transistors used for satellite communications and various radar systems. To fabricate fine patterns by etching, use of surfactant containing PFOS is currently necessary, according to information from Japan. Alternate technology is being developed and is estimated to be completed by November, 2014.

2.3.9 Use of PFOS derivative in production of ant baits for control of leaf-cutting ants

The ant pesticides S-methoprene and pyriproxifen are registered for exotic ants, not for leaf-cutting ants, according to Brazilian information. According to additional Brazilian information, toxicological assessments and environmental hazard assessments of both Sulfluramid and Sulfluramid-based baits are been conducted before registration.

2.3.10 Medical devices

According to information from Japan, PFOS was used related to the CCD Color Filters. The product is a CCD color filter used as a replacement part for CCD color filters to repair video endoscopes that were manufactured in the past. It is technically possible to manufacture PFOS-free CCDs, but PFOS-free CCDs are not suitable for use in the repair of video endoscopes with CCDs that contain PFOS. To make all CCDs in video endoscope PFOS-free would require replacing the whole video endoscope systems. Presently there is no production of CCDs with color filters containing PFOS in Japan, but these CCDs are available for replacement purposes.

The CCDs are contained inside the insertion sections of video endoscopes so the possibility of PFOS leakage and the risk of environmental contamination are small when recovered and appropriately incinerated when replaced. According to submitted data, one CCD contains 150 ng of PFOS.

2.3.11 Chemically driven oil production

According to information from China PFOS is used for chemically driven oil production in old oil field where surfactants are used to recover oils trapped in smaller pores between rock particles. A small amount of fluoro-surfactants are used to effectively lower interfacial tensions. The concrete situation including the amount used in this sector would require further investigation.

C. Uses for which alternatives are available in developed countries

Based on information available, China reports that PFOS is still used in a number of areas where alternatives are available in developed countries. These applications include: textiles, pesticide, fire fighting foams, cleaning products, rubber and plastics, leather, dope, paper and packaging. Of the national production of PFOSF, about 100 tonnes are used nationally.

2.3.12 Use of PFOS derivative in production of pest control

According to additional information from China, Sulfluramid using a PFOS-related derivative is used also against cockroaches, white ants and fire ants in China. There are three Chinese enterprises using about 3 tons of PFOS for pest control. The cost and the efficiency of alternatives would require further investigation.

2.4.2 Agriculture, including aquaculture and forestry

According to additional information from Brazil, baits with Sulfluramid represent more than 95% of the baits used in Brazil.

2.4.4 Economic aspects, including costs and benefits for producers and consumers and the distribution of costs and benefits

The semiconductor industry in China mainly uses PFOS for photoresists, anti-reflective coating, de-gluing agent and developing agent amounting annually to 30-40 kilograms. The total sales amount of this industry reached 100 billion Yuan in 2007.

Electric and electronic parts

According to the information from Japan the demand for piezoelectric ceramic filters is nearly 100,000,000 pieces per a month. PFOS use prohibition would have a significant economic and social impact on the supply of piezoelectric ceramic filters, while the amounts used are small.

Metal plating

Annually, about 25 tonnes of PFOS-containing chromium fog inhibitor are used in the Chinese chrome plating industry, with the value of 30 billion Yuan. A phase-out of the fluoro-containing inhibitor could worsen the health of 100,000 Chinese workers.

Fire fighting foam

More than 50 enterprises in China are producing Aqueous Film Forming Foam (AFFF), consuming more than 100 tons of PFOS per year. AFFF was phased in as alternative technology for halon, an ozone depleting substance.

Medical devices

According to the Japanese additional submission, around 70% of the video endoscopes worldwide contain a CCD colour filter that contains PFOS. Replacement with PFOS-free endoscope systems instead of replacing the colour filter would impose a huge cost on medical institutions throughout the world and there would be a social impact.

Ant baits

According to additional information from Brazil, damages corresponding to losses of up to 14,5% of trees per hectare have been estimated without the use of ant pesticide. The cost of an attack of leaf-cutting ants is estimated to US\$ 6.7 billion in wood.

Considering that the sugar cane planted area in Brazil is of approximately 6 millions of hectares, the cost in this sector is estimated to US\$ 1,82 billion/year. Other affected agricultural products likely to be affected at high costs are soybean and maize. Also the capacity of supporting livestock heads / hectare is likely to be reduced if forage for grazing is reduced by ants.

3.2 Suggested risk management measures

According to additional information received from China, many developing countries including China lack competency and related standards of inspection and enforcement systems on PFOS risk management.

The adverse effects and potential risks of PFOS have not been fully recognized, and most industries have not yet given attention to its substitution and phase-out.

Most of the PFOS auxiliary products used by Chinese industries (for textile-treatment or for semiconductor products production) are imported mainly from the developed countries. Because the PFOS content of the products is not clearly labeled, China currently cannot implement appropriate risk management. China will urge exporters to provide related information from the perspective of the Convention.

The fields of application of PFOS in developing countries are generally lacking product/technology alternatives that are technologically and economically feasible and environmentally friendly. Due to lack of detailed information about alternative technologies, it can neither be assessed whether they are environmentally friendly nor whether they are feasible for developing countries in terms of technology and economy. It is therefore necessary to encourage Parties to the Convention to provide relevant information and to promote technical assistance and transfer of technology.
