中华人民共和国环境保护部

MINISTRY OF ENVIRONMENTAL PROTECTION OF CHINA

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FACSIMILE SHEET

Date: April 30, 2008	No. of Pages:
To: Mr. Donald Cooper	From: Yue Ruisheng
Secretariat of the Stockholm Convention	MEP China
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Subject: Additional information on production and use of PFOS

Dear Dr. Cooper,

In response to the request for further information on the socio-economic impacts of listing PFOS for addition to Annexes A, B, and/or C of the Convention, I would like to, on behalf of the Chinese government, submit some additional information that we have gathered through our preliminary study. Please find the information as attached.

Despite the limited amount of time and resources that we are constrained with, we have tried our best to conduct primary investigation and study on PFOS's production and use after POPRC3. We found that the use of PFOS was widespread and complicated. It is used in dozens of sectors like textile, pesticide, fire fighting foams, semi-conductor (IC industry), metal plating, oil exploitation, cleaning products (solvent application), leather, dope photograph imaging, hydraulic fluids in aviation, photoelectricity, nanophase materials, medical appliance, printing ink and paper making etc.

Due to financial and time constraints, the information we collected so far is not yet sufficient to support the assessment on the risk management evaluation of PFOS phase-out and substitution. The Chinese government would like to provide these preliminary information to the Secretariat for your consideration. In the meanwhile, we will continue to conduct investigation and evaluation studies and shall keep the Secretariat of the Convention duly informed in this process.

In addition, China is willing to use this opportunity to reiterate some viewpoints on PFOS, which have been raised by the Chinese delegates at POPRC3, but regretfully not integrated into the POPRC report.

1. In the application fields of PFOS, the application in the fields of cleaning products (solvents), plastics, photoelectricity, nanomaterial, oil exploitation and

printing ink etc should be added, because PFOS is used in these three fields in China.

2. In the categories of application, "unidentified application fields" should be added as one category because PFOS has the potential to be used in many fields, some of which are not known to us now, but might be identified in the future.

3. Information on alternatives/alternative technologies should be supplemented into the risk management evaluation report. The current report only mentioned that alternatives/alternative technologies exist in some fields and applications. But there is no concrete description and assessment of the alternatives/technologies as required by the Convention. In particular, there is neither analysis on their availability and channel, nor assessment of their cost, environmental-friendliness and technical feasibility.

We look forward to the further review and evaluation by POPRC in an objective, fair and scientific manner after more information has been submitted by Parties concerned and integrated into the report of the POPRC.

Sincerely,

Yue Ruisheng
Deputy Director General
Department of International Cooperation
Ministry of Environmental Protection
Beijing, China

Preliminary Information on Risk Management Evaluation of PFOS's in China

(the consumption data of PFOS in sector level are confidential)

In order to complete the PFOS Risk Management Evaluation report, China has tried its best to conduct investigation and workshops, and collected following preliminary information: [1]

1. Production of PFOS

China began large-scale production of PFOS in 2003. Before 2004, total production was less than 50 tons. From 2005 on, while production in developed countries was restricted, China's annual output has grown rapidly due to the increase of PFOS's application fields and oversea demands. According to the 2006 statistics, currently 15 Chinese enterprises are producing more than 200 tons of PFOSF, about 100 tons of which is for export to Brazil, EU and Japan.

2. Use of PFOS

So far, China has not compiled a complete list of sectors that use PFOS. But according to initial estimation based on investigation, the fields of application at least include: textiles, pesticide, firefighting foams, semiconductor (IC industry), metal plating, petroleum, cleaning products (solvents), rubber and plastics, leather, dope, photography, aircraft hydraulic fluids, photoelectron, nanomaterials, medical equipment, printing ink and papermaking etc. Due to the shortage of time and funds, only preliminary information about some sectors can be provided but without information about alternatives/technologies. Such information is specified as follows:

- Textiles: More than 10,000 tons of fluorine-containing textile finishing agents is being imported in China per year for the treatment of high-quality clothing. According to incomplete statistics, of the total 50 billion meters of dyed and finished textiles each year, 1.5 billion meters is treated with fluorine-containing water/oil/stain-proof finishing agents, which is involved in an industrial link with output value amounting to 100 billion yuan.
- Pesticide: PFOS is a major ingredient for the production of sulfluramid, a major effective insecticide against cockroaches, white ants and fire ants in China. There are three enterprises producing sulfluramid, which uses about 3 tons of PFOS each year. At present, some alternatives still cannot completely take the place of sulfuramid in functions.

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[1] Information and data sourced from related departments and guides

- Firefighting foam: More than 50 enterprises in China are producing Aqueous Film Forming Foam (AFFF, containing fluorocarbon surfactants), consuming more than 100 tons of PFOS per year (PFOS were imported and produced in China). In fact, AFFF containing PFOS is the substitute/alternative technology for halon which was phased out under Montreal Protocol for Ozone layer protection. The products are mainly use in firefighting equipment, petrochemical enterprises' firefighting, marine firefighting and AFFF extinguishers. Before even more effective and safe substitutes/alternative technologies coming into being, restriction to use of PFOS could lead to more substantial losses caused by fire, even with threats to people's life and security.
- Semiconductors (IC industry): In semiconductor IC industry, PFOS is mainly used in such materials like photoresist, anti reflective coatings, degluing agent and developing agent etc. These materials mainly depend on import with total consumption of PFOS amounting to 30-40 kilograms. The total sales amount of China's IC industry reached 100 billion yuan, 20% higher than 2006. So far, there are no substitutes/alternatives technologies.
- Metal plating: By using the effective PFOS-containing chromium fog inhibitor in the process of hexa-chrome plating, we can prevent the volatilization of chrome, reduce environmental pollution, reduce consumption of raw materials and ensure the health of workers. Annually about 25 tons of the PFOS-containing chromium fog inhibitor is used in chrome plating industry, which is related to 30 billion Yuan's worth of production. Without a reliable alternative product/technology, the phase-out of the fluoro-containing inhibitor would worsen environmental pollution and harm the health of 100,000 workers.
- Petroleum industry: In the process of secondary or tertiary oil recovery of oilfields, surfactants are often used to recover oil trapped in smaller pores between rock particles. In actual use, a small amount of this Fluoro-surfactants surfactant can effectively lower interfacial tensions and reduce oil consumption obviously. China's use of these materials is mainly in chemical driven oil production of the old oil field. The concrete situation is yet to be further investigated.
- Cleaning products (solvents): Cleanout of top-end precious instruments uses imported cleaning agents (solvents). Short of inspection capacity, we can not confirm whether such cleaning agent contains PFOS before further investigation, so related risk management impact is cannot be assessed.

- Rubber and plastics: PFOS is widely used in the production of rubber, plastic and related products. Because their production crosses multiple sectors, sufficient investigation has not been conducted so far.
- Other sectors: PFOS is also used in other sectors in China such as leather, paints, papermaking, photography, aviation hydraulic fluids, photoelectron, nanomaterials, medical equipment and printing ink etc. under limitation of conditions, we have not got more information, so further investigation is in need.

3. Potential impacts of China's control of PFOS

Although there is no sufficient basic information, it can be expected that phase-out of the use of PFOS would involve dozen sectors and several decades of fields with more than 1,000 billion yuan's production and large amount of workers' jobs.

Some sectors and fields still lack product/technology substitutes that are technologically and economically feasible and environmentally friendly. Under this circumstance, control of PFOS could endanger environment and human's health and safety. Although some sectors in some foreign countries have found alternatives, the existence of technical barriers like IPR would bring about huge pressure of cost.

4. Obstacles in Risk management of PFOS in China

- China still lacks competency and related standards of inspection and supervision systems on PFOS risk management.
- The toxicity and harms of PFOS have not been fully recognized, and most industries have paid no attention to its substitution and phase-out.
- Most of the PFOS auxiliary products used by Chinese industries is imported mainly from the developed countries. Because the PFOS content of the products is not clearly marked, China cannot conduct risk management assessment. China hopes to urge exporters to provide related information from the angle of the Convention.
- The fields of application of PFOS in China as a whole are short of product/technology alternatives that are technologically and economically feasible and environmentally friendly. Some countries mentioned in the POPRC report that alternatives for PFOS have been developed in certain industries. However, for lack of channels to get detailed information about the alternative technologies, we can't assess whether they are environmentally

friendly, or whether they are feasible for China in terms of technology and economy. So, it is necessary to urge, under the support of the Secretariat, related parties of the Convention to provide related information from the angle of the Convention and promote technical transfer.

Moreover, like other parties of the convention, China, as a developing country, is still devoting efforts to the reduction, phase-out and control of the 12 kinds of POPs listed into the Convention. With limited finance and management capacity, the cost-efficiency of devoting large amount of human power and fund to conduct risk control on the chemical materials like PFOS widely used under complicated situation in small amount need to be further evaluated.