

Annex F Questionnaire (one per chemical)

Chemical name (as used by the POPs Review Committee (POPRC))	Pentachlorobenzene
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Explanatory note:

1. This chemical is undergoing a risk management evaluation. It has already satisfied the screening criteria set out in paragraph 4 (a) of Article 8 of the Convention. A risk profile has also been completed for this chemical in accordance with paragraph 6 of Article 8 and with Annex E to the Convention.

Introductory information	
Name of the submitting Party/observer	Canada
Contact details (name, telephone, e-mail) of the submitting Party/observer	<p>France Jacovella Stockholm Convention on POPs Focal Point for Canada Executive Director, Chemicals Management Division Environment Canada 351 St. Joseph Blvd., 12th Floor Place Vincent Massey Gatineau, Quebec K1A 0H3 Canada Tel. (819) 956-5263 Email France.Jacovella@ec.gc.ca</p>
Date of submission	February 5, 2008

NOTE REGARDING CANADIAN SUBMISSION –

Detailed information is provided in the documents submitted by Canada:

1. Environment Canada. 2005. Risk Management Strategy for Pentachlorobenzene and Tetrachlorobenzenes, June 2005. Chemicals Control Branch, Environmental Protection Service, Gatineau, Canada

Submitted as electronic file: << Annex F - Pentachlorobenzene Risk Management Strategy.pdf>>

2. Government of Canada. 2006. Regulations Amending the Prohibition of Certain Toxic Substances Regulations, 2005 (2-Methoxyethanol, Pentachlorobenzene and Tetrachlorobenzenes). Canada Gazette Part II, vol. 140, no. 24, pp. 1889-1904. 29 November 2006. <http://canadagazette.gc.ca>.

Submitted as electronic file: << Annex F - Regulations for Pentachlorobenzene.pdf>>

3. Government of Canada. 2006. Regulatory Impact Analysis Statement. Canada Gazette Part II, vol. 140, no. 24, pp. 1889 – 1904. 29 November 2006. . <http://canadagazette.gc.ca>.

Submitted as electronic file: << Annex F - Regulatory Impact Analysis Statement for Pentachlorobenzene.pdf>>

Additional Annex E information

<p>(i) Production data, including quantity and location</p>	<p>Pentachlorobenzene (QCB) is not currently produced or used in its pure form in Canada, and, currently, there is no domestic commercial demand for this substance. Formerly, pentachlorobenzene could be found in dielectric fluids used to top up polychlorinated biphenyl (PCB) transformers and in dyestuff carriers. These applications have either been discontinued (dye carriers) or are being phased out (dielectric fluids). A possible source of release may include dielectric PCB material still in use.</p> <p>Pentachlorobenzene may be generated when organic compounds are burned or exposed to a large source of energy in the presence of a chlorine source. Through this mechanism, they may be formed and released to the environment as a result of waste incineration and barrel burning of household waste.</p> <p>[See Section 2.2 of << Annex F - Pentachlorobenzene Risk Management Strategy.pdf>>]</p>
<p>(ii) Uses</p>	<p>The principal current commercial use of pentachlorobenzene is as a chemical intermediate in the formation of pentachloronitrobenzene (also known as quintozone), a fungicide. Pentachlorobenzene is present as an impurity in this fungicide. Pentachloronitrobenzene is currently used, but not produced, in Canada. Pentachlorobenzene can also be found as an impurity in several herbicides, pesticides and fungicides currently in use in Canada.</p> <p>[See Section 2.2 of << Annex F - Pentachlorobenzene Risk Management Strategy.pdf>>]</p>
<p>(iii) Releases, such as discharges, losses and emissions</p>	<p>See Section 4 of << Annex F - Pentachlorobenzene Risk Management Strategy.pdf>></p>

Explanatory note:

- This information was requested for preparation of the risk profile in accordance with Annex E of the Convention. The POPRC would like to collect more information on these items. If you have additional or updated information, kindly provide it.

A. Efficacy and efficiency of possible control measures in meeting risk reduction goals (provide summary information and relevant references):

<p>(i) Describe possible control measures</p>	<p>1. The addition of Pentachlorobenzene (QCB) to the Prohibited Toxic Substances List in Schedule 2, Part 2 of the <i>Prohibition of Certain Toxic Substances Regulations, 2005</i> has enacted a ban on the manufacture, use, sale, offer for sale and import of pentachlorobenzene or any mixture or product containing pentachlorobenzene, but allows use exemptions where they are used with polychlorinated biphenyls (PCBs). Pentachlorobenzene is found in small amounts in dielectric fluids that initially contained PCBs and in the liquid used for servicing equipment containing PCBs. PCBs are regulated under the <i>Chlorobiphenyls Regulations and Storage of PCB Material Regulations</i>. [See page 3, << Annex F - Regulatory Impact Analysis Statement for Pentachlorobenzene.pdf>>]</p> <p>2. Pentachlorobenzene is present in products as impurities or is unintentionally produced through waste incineration. The Canada-wide Standards that are already in place for dioxins and furans, and the regulatory approaches in other Canadian jurisdictions to either prohibit open burning, (including backyard and barrel burning of household waste) or permit it only under pre-approved conditions, will indirectly contribute to the reduction of pentachlorobenzene emissions. [See page 5, << Annex F - Regulatory Impact Analysis Statement for Pentachlorobenzene.pdf>>]</p> <p>3. Minor sources of pentachlorobenzene include wood treatment, pesticide use, dielectric fluids, magnesium production, solvent use and long-range transport. Proposed revisions to the existing PCB regulatory framework, the Wood Preservation Strategic Options Process, and the <i>Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations</i> all provide cobenefits by reducing pentachlorobenzene releases from these sources. [See page 5, << Annex F - Regulatory Impact Analysis Statement for Pentachlorobenzene.pdf>>]</p> <p>4. Unintentional releases of pentachlorobenzene to water are controlled through the Canadian Council of Ministers of the Environment's interim chronic exposure water quality guideline at 0.006 mg/L for pentachlorobenzene. In addition, movement of wastes containing more than 8 parts per million of chlorobenzenes is controlled under the <i>Export and Import of Hazardous Wastes and Hazardous Recyclable Material Regulations</i> and the <i>Interprovincial Movement of Hazardous Waste Regulations</i>. [See page 5, << Annex F - Regulatory Impact Analysis Statement for Pentachlorobenzene.pdf>>]</p>
<p>(ii) Technical feasibility</p>	<p>All of the above options are technically feasible and have been implemented or are in the process of being implemented..</p>
<p>(iii) Costs, including environmental and health costs</p>	<p>The purpose of adding pentachlorobenzene to Schedule 2, Part 2 of the <i>Prohibition of Certain Toxic Substances Regulations, 2005</i> is to ensure the prohibition of the manufacture, use, sale, offer for sale and import of pentachlorobenzene or any mixture or product containing it but allow use exemptions where they are used with PCBs.</p> <p>As a consequence, no significant incremental costs or benefits will accrue to the Canadian economy and federal government as a result of placing the two substances on Schedule 2, Part 2 of the <i>Prohibition of Certain Toxic Substances Regulations, 2005</i>.</p> <p>[See page 5, << Annex F - Regulatory Impact Analysis Statement for Pentachlorobenzene.pdf>>]</p>

Explanatory notes:

3. If relevant, provide information on uses for which there may be no suitable alternative or for which the analysis of socio-economic factors justify the inclusion of an exemption when considering listing decisions under the Convention. Detail the negative impacts on society that could result if no exemption were permitted.
4. “Risk reduction goals” could refer to targets or goals to reduce or eliminate releases from intentional production and use, unintentional production, stockpiles, wastes, and to reduce or avoid risks associated with long-range environment transport.
5. Provide the costs and benefits of implementing the control measure, including environmental and health costs and benefits.
6. Where relevant and possible “costs” should be expressed in US dollars per year.

B. Alternatives (products and processes) (provide summary information and relevant references):	
(i) Describe alternatives	Pentachlorobenzene is not manufactured in Canada, and there is no commercial domestic demand for this substance. There are also no known natural sources of pentachlorobenzene. Pentachlorobenzene is present in products as impurities or is unintentionally produced through waste incineration. Since there is no commercial domestic demand for pentachlorobenzene, no alternatives have been identified. [See page 13, << Annex F - Regulatory Impact Analysis Statement for Pentachlorobenzene.pdf>>]
(ii) Technical feasibility	N/A
(iii) Costs, including environmental and health costs	N/A
(iv) Efficacy	N/A
(v) Risk	N/A
(vi) Availability	N/A
(vii) Accessibility	N/A

Explanatory notes:

7. Provide a brief description of the alternative product or process and, if appropriate, the sector(s), use(s) or user(s) for which it would be relevant.
8. If several alternatives could be envisaged for the chemical under consideration, including non-chemical alternatives, provide information under this section for each alternative.
9. Specify for each proposed alternative whether it has actually been implemented (and give details), whether it has only reached the trial stage (again, with details) or whether it is just a proposal.
10. The evaluation of the efficacy should include any information on the performance, benefits, costs, and limitations of potential alternatives.
11. Specify if the information provided is connected to the specific needs and circumstances of developing countries.
12. The evaluation of the risk of the alternative should include any information on whether the proposed alternative has been thoroughly tested or evaluated in order to avoid inadvertently increasing risks to human health and the environment. The evaluation should include any information on potential risks associated with untested alternatives and any increased risk over the life-cycle of the alternative, including manufacture, distribution, use, maintenance and disposal.
13. If the alternative has not been tried or tested, information on projected impacts may also be useful.
14. Information or comments on improving the availability and accessibility of alternatives may also be useful.

C. Positive and/or negative impacts on society of implementing possible control measures (provide summary information and relevant references):	
(i) Health, including public, environmental and occupational health	<p>Pentachlorobenzene has been assessed to be toxic under the <i>Canadian Environmental Protection Act, 1999</i> (CEPA 1999). Currently, pentachlorobenzene is not manufactured in Canada. It was concluded that prohibiting the manufacture, import, sale, offer for sale and use of pentachlorobenzene, with exemptions for use with PCBs, will ensure that the environment and health of Canadians are protected from the potential harmful effects attributed to this toxic substance.</p> <p>[See page 6, << Annex F - Regulatory Impact Analysis Statement for Pentachlorobenzene.pdf>>]</p>
(ii) Agriculture, including aquaculture and forestry	N/A
(iii) Biota (biodiversity)	N/A
(iv) Economic aspects	<p>As a consequence, no significant incremental costs or benefits will accrue to the Canadian economy and federal government as a result of placing the two substances on Schedule 2, Part 2 of the <i>Prohibition of Certain Toxic Substances Regulations, 2005</i>.</p> <p>[See page 5, << Annex F - Regulatory Impact Analysis Statement for Pentachlorobenzene.pdf>>]</p>
(v) Movement towards sustainable development	N/A
(vi) Social costs	N/A

Explanatory notes:

15. Socio-economic considerations could include:

- Any information on the impact (if any), costs and benefits to the local, national and regional economy, including the manufacturing sector and industrial and other users (e.g., capital costs and benefits associated with the transition to the alternatives); and impacts on agriculture and forestry;
- Any information on the impact (if any) on the wider society, associated with the transition to alternatives, including the negative and positive impacts on public, environmental, and occupational health. Consideration should also be given to the positive and negative impacts on the natural environment and biodiversity.
- Information should be provided on how control measures fit within national sustainable development strategies and plans.

D. Waste and disposal implications (in particular, obsolete stocks of pesticides and clean-up of contaminated sites) (provide summary information and relevant references):

(i) Technical feasibility	<p>Pentachlorobenzene is present in products as an impurity or is unintentionally produced through waste incineration. The Canada-wide Standards for dioxins and furans, and the regulatory approaches in other Canadian jurisdictions to either prohibit open burning, (including backyard and barrel burning of household waste) or permit it only under pre-approved conditions, will indirectly contribute to the reduction of pentachlorobenzene emissions.</p> <p>[See page 5, << Annex F - Regulatory Impact Analysis Statement for Pentachlorobenzene.pdf>>]</p> <p><i>PCB Use, Storage and Disposal</i></p> <p>Revisions to existing regulations on use and storage of PCBs are currently being drafted. Once finalized, the PCB Regulations will replace the <i>Chlorobiphenyls Regulations</i> and the <i>Storage of PCB Material Regulations</i> and, while incorporating most of the original requirements, will add new provisions to end current uses and storage of PCBs and accelerate and track their destruction.</p> <p>Pentachlorobenzene is present in small amounts in the original PCB fluids used, and in larger quantities in the Tri- and TeCB blend used to top up the transformers. As these dielectric fluids are incompatible with new transformers, the gradual elimination of PCB equipment will also lead to their gradual elimination.</p> <p>[See page 11, << Annex F - Pentachlorobenzene Risk Management Strategy.pdf >>]</p> <p>In addition, movement of wastes containing more than 8 parts per million of chlorobenzenes is controlled under the <i>Export and Import of Hazardous Wastes and Hazardous Recyclable Material Regulations</i> and the <i>Interprovincial Movement of Hazardous Waste Regulations</i>.</p> <p>[See page 5, << Annex F - Regulatory Impact Analysis Statement for Pentachlorobenzene.pdf>>]</p>
(ii) Costs	Unknown

Explanatory note:

16. Specify if the information provided is connected to the specific needs and circumstances of developing countries.

E. Access to information and public education (provide summary information and relevant references):
<p>Public access to risk management information on pentachlorobenzene is available at http://www.ec.gc.ca/TOXICS/EN/detail.cfm?par_substanceID=188&par_actn=s1</p>

Explanatory note:

17. Please provide details here of access to information and public education with respect to both control measures and alternatives.

F. Status of control and monitoring capacity (provide summary information and relevant references):
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Pentachlorobenzene is not listed on the National Pollutant Release Inventory. However, Environment Canada is considering adding it to the inventory in order to monitor progress towards the proposed objectives.

[See page 14, << Annex F - Pentachlorobenzene Risk Management Strategy.pdf >>]

Regulations Amending the Prohibition of Certain Toxic Substances Regulations, 2005 (2-Methoxyethanol, Pentachlorobenzene and Tetrachlorobenzenes), under the *Canadian Environmental Protection Act, 1999* were published on November 29, 2006.

See : << Annex F - Regulations for Pentachlorobenzene.pdf>>

Explanatory note:

18. With regard to control capacity, the information required is on legislative and institutional frameworks for the chemical under consideration and their enforcement. With regard to monitoring capacity, the information required is on the technical and institutional infrastructure for the environmental monitoring and biomonitoring of the chemical under consideration, not monitoring capacity for alternatives.

G. Any national or regional control actions already taken, including information on alternatives, and other relevant risk management information:

Pentachlorobenzene is included under the *Prohibition of Certain Toxic Substances Regulations, 2005* (hereinafter referred to as the Regulations) under the Prohibited Toxic Substances List in Schedule 2, Part 2 of the Regulations,

The final assessment of pentachlorobenzene was published on April 3, 2004, in the *Canada Gazette*, Part I, and, on August 31, 2005, the substance was added to the List of Toxic Substances in Schedule 1 under the *Canadian Environmental Protection Act, 1999* (CEPA 1999). The assessment report concluded that pentachlorobenzene is harmful to the environment or its biological diversity. Therefore, it was recommended that this substance be declared toxic under CEPA 1999. Moreover, because pentachlorobenzene is considered to be toxic under the Act, and is persistent, bioaccumulative and predominantly the result of human activity, it meets the criteria for virtual elimination under the Toxic Substances Management Policy.

Adding pentachlorobenzene to the Prohibited Toxic Substances List in Schedule 2, Part 2 of the Prohibition Regulations enacted a ban on the manufacture, use, sale, offer for sale and import of pentachlorobenzene or any mixture or product containing these substances, but allow use exemptions where they are used with PCBs. Pentachlorobenzene is found in small amounts in dielectric fluid containing PCBs, and the liquid used for servicing equipment containing PCBs. PCBs are regulated under the *Chlorobiphenyls Regulations* and *Storage of PCB Material Regulations*.

[See page 3, << Annex F - Regulatory Impact Analysis Statement for Pentachlorobenzene.pdf>>]

Pentachlorobenzene is not manufactured in Canada, and there is no commercial domestic demand for this substance. There are also no known natural sources of pentachlorobenzene. This substance is present in products as impurities or is unintentionally produced through waste incineration.

Various initiatives indirectly contribute to reductions in pentachlorobenzene emissions in Canada, such as:

- the Canada-wide Standards for dioxins and furans;
- the regulatory approaches in other Canadian jurisdictions to either prohibit open burning, or permit it only under pre-approved conditions;
- proposed revisions to the PCB regulatory framework;
- the Wood Preservation Strategic Options Process; and
- the regulations for the control of tetrachloroethylene from the dry-cleaning sector.

The purpose of adding pentachlorobenzene to Schedule 2, Part 2 of the Prohibition Regulations is to ensure the prohibition of the manufacture, use, sale, offer for sale and import of pentachlorobenzene or any mixture or product containing these substances but allow use exemptions where they are used with PCBs.

As a consequence, no significant incremental costs or benefits will accrue to the Canadian economy and federal government as a result of placing this substance on Schedule 2, Part 2 of the Regulations.

[See page 13, << Annex F - Regulatory Impact Analysis Statement for Pentachlorobenzene.pdf>>]

Explanatory notes:

19. Actions or measures taken could include prohibitions, phase-outs, restrictions, cleanup of contaminated sites, waste disposal, economic incentives, and other non-legally binding initiatives.
20. Information could include details on whether these control actions have been cost-effective in providing the desired benefits and have had a measurable impact on reducing levels in the environment and contributed to risk reduction.

H. Other relevant information for the risk management evaluation:

Detailed information is provided in the following documents submitted by Canada:

1. Risk Management Strategy for Pentachlorobenzene and Tetrachlorobenzenes, June 2005. Chemicals Control Branch, Environmental Protection Service, Gatineau, Canada

Submitted as electronic file: << Annex F - Pentachlorobenzene Risk Management Strategy.pdf>>
2. Government of Canada. 2006. Regulations Amending the Prohibition of Certain Toxic Substances Regulations, 2005 (2-Methoxyethanol, Pentachlorobenzene and Tetrachlorobenzenes). Canada Gazette Part II, vol. 140, no. 24, pp. 1889-1904. 29 November 2006. <http://canadagazette.gc.ca>.

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Explanatory notes:

21. The above list of items is only indicative. Any other relevant information for the risk management evaluation should also be provided.

I. Other information requested by the POPRC:

[Note to the Secretariat]

- **Information related to environmental burden caused by intentional use of pentachlorobenzene**

Pentachlorobenzene is not manufactured in Canada, and there is no commercial domestic demand for this substance. There are also no known natural sources of pentachlorobenzene. This substance is present in products as impurities or is unintentionally produced through waste incineration.

[See page 13, << Annex F - Regulatory Impact Analysis Statement for Pentachlorobenzene.pdf>>]