

# Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

Chemical Review Committee  
Seventh meeting  
Rome, 28 March–1 April 2011

## Report of the Chemical Review Committee on the work of its seventh meeting

### Annex III

#### **Rationale for the chemical for which only one notification met the criteria of Annex II: rationale for the conclusion that the notification for pentachlorobenzene (QCB or PeCB) (CAS No. 608-93-5) submitted by Canada meets the criteria of Annex II to the Rotterdam Convention**

In reviewing the notification of final regulatory action by Canada to ban pentachlorobenzene as an industrial chemical, together with the supporting documentation provided by that party, the Committee was able to confirm that that action had been taken to protect the environment. The notification from that party was found to meet the information requirements of Annex I and the criteria set forth in Annex II to the Rotterdam Convention.

The notification and supporting documentation were made available to the Committee for its consideration in documents UNEP/FAO/RC/CRC.7/9, and Add.1 and Add.2.

#### **Canada**

##### **1. Scope of the notified regulatory action**

The notified regulatory action relates to pentachlorobenzene and its use as an industrial chemical. The decision made was to severely restrict the use of pentachlorobenzene. The regulatory action prohibits the manufacture, use, sale, offer for sale or import of pentachlorobenzene, with the exception of any use of pentachlorobenzene with any chlorobiphenyls that have the molecular formula  $C_{12}H_{10-n}Cl_n$  in which “n” is greater than 2.

The Prohibition of Certain Toxic Substances Regulations, 2005 (SOR/2005-41), as amended in 2006 (SOR/2006-279), prohibit the manufacture, use, sale and offer for sale of toxic substances listed in schedules 1 and 2 to the regulations. Pentachlorobenzene is found in schedule 2, which lists substances that are subject to prohibitions related to concentration or use.

The final regulatory action entered into force on 9 February 2007.

##### **2. Criterion Annex II (a)**

*Confirm that the final regulatory action has been taken in order to protect human health or the environment.*

The regulatory action was taken to protect the environment.

Before the regulatory action, pentachlorobenzene had been used in Canada in combination with polychlorinated biphenyls (PCBs) in dielectric fluids and as a laboratory reagent (UNEP/FAO/RC/CRC.7/9/Add.1: document No. 2, p. 4). Pentachlorobenzene has been found in products as impurities and to be unintentionally produced through waste incineration, but the regulatory action does not apply to products that incidentally contain pentachlorobenzene. Pentachlorobenzene may be released into the environment through accidental spillage of industrial chemicals, including dielectric fluids containing PCBs, waste incineration, deposition after long-range transport, the use of pentachloronitrobenzene (the pesticide quintozone, according to UNEP/POPS/POPRC.6/INF/21) or through waste streams of a range of industrial production sites, especially chemical plants and iron and steel mills (UNEP/FAO/RC/CRC.7/9/Add.1: document No. 2, pp. 5–6; 3, pp. 4–5).

The notification describes the specific risks: Pentachlorobenzene is considered to be persistent in soil, sediment and in air, bioaccumulative and toxic according to the criteria stipulated in the Canadian Environmental Protection Act (CEPA) 1999. In addition, pentachlorobenzene is subject to atmospheric transport from its sources to remote areas.

Pentachlorobenzene was found to be entering the environment in quantities or concentrations or under conditions that had or might possibly have had an immediate or long-term harmful effect on the environment (especially on sediment-dwelling benthic organisms) or its biological diversity.

The Canadian federal Government therefore proposed that pentachlorobenzene should be subjected to the virtual elimination provisions of CEPA 1999. The prohibition on the manufacture, use, sale, offer for sale, or import of pentachlorobenzene (except for its use in liquid for transformer maintenance with some chlorobiphenyls as specified in section 2.3.2 of the notification) is expected to work toward the objective of virtual elimination (document UNEP/FAO/RC/CRC.7/9: Canadian notification, chapters 2.3.2 and 2.4.2, UNEP/FAO/RC/CRC.7/9/Add.1: document No. 2, p. 4).

### 3. Criteria Annex II (b)

*Establish that the final regulatory action has been taken as a consequence of a risk evaluation. This evaluation shall be based on a review of scientific data in the context of the conditions prevailing in the Party in question. For this purpose, the documentation provided shall demonstrate that:*

- (i) Data have been generated according to scientifically recognized methods;*
- (ii) Data reviews have been performed and documented according to generally recognized scientific principles and procedures;*

Before the regulatory action, Canada undertook a first assessment of pentachlorobenzene (CRC.7/9/Add.1: document No. 2, published in 1993) to clarify whether pentachlorobenzene was entering the Canadian environment in quantities or under conditions that might be harmful to the environment or constitute a danger for human health and thus met the definition of “toxic” under paragraph 11 (a) of the CEPA.

This first assessment report was based on original data relevant to the assessment of risks to health associated with exposure to chlorinated benzenes. These data were reviewed from 1984–1987 by staff of Health Canada in the preparation of a draft IPCS environmental health criteria document (EHC). That assessment had been updated and expanded to emphasize data most relevant to the assessment of the risks associated with exposure to pentachlorobenzene in the general environment in Canada (CRC.7/9/Add.1: document No. 2, p. 1).

Information considered relevant to the assessment of whether PeCB was toxic to the environment was identified from online searches in scientific literature databases completed

in November 1990 (ASFA, BIOSIS, CAB Abstracts, Chemical Abstracts, CESARS, CIS, ENVIROLINE, Hazardous Substances, and IRPTC). Literature searches were repeated in 1995 and 1999 to prepare a follow-up report (CRC.7/9/Add.1: document No. 3). The National Pollutant Release Inventory (NPRI) and Accelerated Reduction/Elimination of Toxics databases supported by Environment Canada were also reviewed.

Both reports cite many references, more than half of which have been published in peer-reviewed scientific journals. They provide a summary and table of contents and explain the scientific methods used for generating and reviewing the data, along with possible limitations and uncertainties with regard to the issue to be clarified. Although the reports themselves were not published in peer-reviewed journals, they have been reviewed by scientific staff of Canadian authorities.

The Chemical Review Committee established that the scientific data on hazard and exposure used for the risk evaluation of pentachlorobenzene had been generated in accordance with scientifically recognized methods and that the data reviews had been performed and documented in accordance with generally recognized scientific principles and procedures.

(iii) *The final regulatory action was based on a risk evaluation involving prevailing conditions within the Party taking the action.*

The 2003 report, on which the regulatory action was based, evaluates the risks for sediment-dwelling and soil-dwelling organisms by comparing exposure data (reported pentachlorobenzene concentrations observed in Canadian soils and sediments) to hazard data (information on toxicity for these groups of organisms). Exposure of the Canadian environment to pentachlorobenzene was assessed by evaluating release paths in Canada, environmental fate and environmental concentrations, in addition to a characterization of its effects on sediment-dwelling and soil-dwelling organisms.

The 2003 report concluded that pentachlorobenzene was entering the Canadian environment in a quantity or concentration or under conditions that had or might have an immediate or long-term harmful effect on the environment or its biological diversity.

Concentrations of pentachlorobenzene in Canadian soil are unlikely to be causing harm to populations of soil-dwelling organisms. Pentachlorobenzene has, however, occurred in sediments from the St. Clair River, Ontario, Canada, near a waste disposal site at a chemical plant and an effluent outfall from an industrial area of Sarnia in concentrations that may have been harming benthic organisms.

The risk quotient of maximum exposure value versus estimated no-effects value for pentachlorobenzene in freshwater sediments exceeded a value of 1 in 23 per cent (9 of 39) of samples collected from the St. Clair River (CRC.7/9/Add.1: document No. 2, page 10 and document No. 3, pp. 15, 29 and 36).

The Chemical Review Committee established that the final regulatory actions had been taken on the basis of risk evaluation involving prevailing conditions in Canada.

#### **4. Criteria Annex II (c)**

*Consider whether the final regulatory action provides a sufficiently broad basis to merit listing of the chemical in Annex III, by taking into account:*

(i) *Whether the final regulatory action led, or would be expected to lead, to a significant decrease in the quantity of the chemical used or the number of its uses;*

The Committee considered that, by prohibiting the manufacture, use, sale, offer for sale, or import of pentachlorobenzene, with the exemption of uses with chlorobiphenyls, the final regulatory action would work towards the objective of virtual elimination of the substance (UNEP/FAO/RC/CRC.7/9, chapter 2.4.2.2 of the Canadian notification).

- (ii) *Whether the final regulatory action led to an actual reduction of risk or would be expected to result in a significant reduction of risk for human health or the environment of the Party that submitted the notification;*

As a consequence of the expected significant decrease in the use of pentachlorobenzene, the Committee considered that the associated risks would also be significantly reduced.

- (iii) *Whether the considerations that led to the final regulatory action being taken are applicable only in a limited geographical area or in other limited circumstances;*

The follow-up report concludes that pentachlorobenzene is persistent in soil, sediment and in air, is bioaccumulative and is “toxic” according to the criteria of the CEPA 1999. Furthermore, pentachlorobenzene is subject to long-range transport to remote areas, which results in low-level, widespread contamination (CRC.7/9/Add.1: document No. 3, page 18). Pentachlorobenzene may therefore cause problems also in other countries or regions.

The Committee concluded that the considerations that led to the regulatory action were applicable also to other regions.

- (iv) *Whether there is evidence of ongoing international trade in the chemical.*

The Committee concluded that, although there were no indications of ongoing international trade in pentachlorobenzene above laboratory scale, its reintroduction on international markets was possible (UNEP/FAO/RC/CRC.7/INF/10, p. 4).

## **5. Criterion Annex II (d)**

*Take into account that intentional misuse is not in itself an adequate reason to list a chemical in Annex III.*

Although the accidental spillage of dielectric fluids was cited as the main source of contamination with pentachlorobenzene in Canada (CRC.7/9/Add.1: document No. 3, page 4), there is no indication in the notification or supporting documentation that concerns for intentional misuse prompted the regulatory action.

The Committee concluded that the notification of final regulatory action by Canada met the information requirements of Annex I and the criteria set out in Annex II to the Convention.