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Registration

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CANADIAN ENVIRONMENTAL PROTECTION ACT, 1999

Order Adding Toxic Substances to Schedule 1 to the Canadian Environmental Protection Act, 1999

P.C. 2012-1454 November 1, 2012

Whereas, pursuant to subsection 332(1) ([see footnote a](#)) of the *Canadian Environmental Protection Act, 1999* ([see footnote b](#)), the Minister of the Environment published in the *Canada Gazette*, Part I, on December 10 and 17, 2011, two proposed Orders entitled *Order Adding a Toxic Substance to Schedule 1 to the Canadian Environmental Protection Act, 1999*, substantially in the form set out in the annexed Order, and persons were given an opportunity to file comments with respect to the proposed Orders or to file a notice of objection requesting that a board of review be established and stating the reasons for the objection;

And whereas, pursuant to subsection 90(1) of that Act, the Governor in Council is satisfied that the substances set out in the annexed Order are toxic substances;

Therefore, His Excellency the Governor General in Council, on the recommendation of the Minister of the Environment and the Minister of Health, pursuant to subsection 90(1) of the *Canadian Environmental Protection Act, 1999* ([see footnote c](#)), hereby makes the annexed *Order Adding Toxic Substances to Schedule 1 to the Canadian Environmental Protection Act, 1999*.

ORDER ADDING TOXIC SUBSTANCES TO SCHEDULE 1 TO THE CANADIAN ENVIRONMENTAL PROTECTION ACT, 1999

AMENDMENT

1. Schedule 1 to the *Canadian Environmental Protection Act, 1999* ([see footnote 1](#)) is amended by adding the following in numerical order:

127. Hexabromocyclododecane, which has the molecular formula $C_{12}H_{18}Br_6$

128. Quinoline, which has the molecular formula C_9H_7N

COMING INTO FORCE

2. This Order comes into force on the day on which it is registered.

REGULATORY IMPACT ANALYSIS STATEMENT

(*This statement is not part of the Order.*)

1. Background

Canadians depend on chemical substances that are used in hundreds of goods, from medicines to computers, fabrics and fuels. Unfortunately, some substances, such as hexabromocyclododecane (HBCD) and quinoline, can negatively affect human health and/or the environment when they are released in a certain quantity or concentration into the environment.

The substance HBCD was anticipated to be persistent, bioaccumulative, and inherently toxic to

non-human organisms. In addition, quinoline was anticipated to be persistent and inherently toxic to both human and non-human organisms. Using information from surveys conducted under section 71 of the *Canadian Environmental Protection Act, 1999* (CEPA 1999) and other available information, screening assessments were conducted to determine the potential for the two substances to cause harm to the environment and human health — that is, whether HBCD and quinoline meet one or more of the criteria set out in section 64 of CEPA 1999 — whether the two substances are entering or may enter the environment in a quantity or concentration or under conditions that

- (a) have or may have an immediate or long-term harmful effect on the environment or its biological diversity;
- (b) constitute or may constitute a danger to the environment on which life depends; or
- (c) constitute or may constitute a danger in Canada to human life or health.

The draft screening assessments and risk management scope documents for HBCD and quinoline were published on the Chemical Substances Web site along with notices, published in the *Canada Gazette*, Part I, on August 28 and July 31, 2010, respectively, signalling the intention of the Minister of the Environment and of the Minister of Health (the ministers) with regard to further risk management. ([see footnote 2](#)) Summaries of the final screening assessment reports on HBCD and quinoline were published in the *Canada Gazette*, Part I, on November 12 and 19, 2011, respectively. Concurrently, the proposed risk management approach documents and the responses to comments received on the draft screening assessment reports and risk management scope documents were published on the Chemical Substances Web site. These reports may be obtained from the Chemical Substances Web site or from the Program Development and Engagement Division, Environment Canada, Gatineau, Quebec K1A 0H3; 819-953-7155 (fax); or by email at substances@ec.gc.ca.

Screening assessment conclusions

HBCD

This substance has demonstrated adverse effects in both aquatic and terrestrial species, with significant adverse effects on survival, reproduction and development reported in algae, daphnids and annelid worms. It is also potentially harmful for fish and mammals. As a result, the final screening assessment concluded that HBCD meets the criteria as set out under paragraph 64(a) of CEPA 1999.

In addition, because the presence of HBCD in the environment results primarily from human activity and the available data regarding persistence and bioaccumulation indicate that it meets the criteria set out in the *Persistence and Bioaccumulation Regulations* made under CEPA 1999, HBCD thus also meets the criteria for virtual elimination as set out under subsection 77(4) of the Act.

Quinoline

This substance is potentially harmful to groundwater microorganisms, organisms living at the sediment-water interface, and early life stages of fish found on spawning grounds near contaminated sites. It is also considered to constitute or may constitute a danger in Canada to human life or health as it can cause cancer and may cause damage to genetic material. As a result, the final screening assessment concluded that quinoline meets the criteria as set out under paragraphs 64(a) and 64(c) of CEPA 1999.

In addition, it is concluded that quinoline meets the criteria for persistence, but not the criteria for bioaccumulation, as set out in the *Persistence and Bioaccumulation Regulations*.

Substance descriptions

HBCD

The substance HBCD is an industrial chemical which may pose a risk to the environment. It is primarily used as a flame retardant in expanded and extruded polystyrene used as thermal insulation in the construction industry. A secondary application is as a flame retardant in textiles, with common end products including residential and commercial upholstered furniture, transportation seating, wall coverings and draperies. Other minor uses could include use as an addition to latex binders, adhesives and paints, and to high-impact polystyrene and styrene-acrylonitrile resins for electrical and electronic equipment.

A survey conducted under section 71 of CEPA 1999 indicated that HBCD was not manufactured in Canada in 2000; however, between 100 000 and 1 000 000 kilograms (kg) were imported. Globally, the available data indicated that demand for HBCD has increased since 2000; for example, global demand for HBCD was estimated at 16 700 tonnes (t) in 2001 and 22 000 t in 2003.

HBCD has been detected in air, water, soil, sediment, biota and sewage biosolids, with the highest concentrations in the environment reported near urban and industrial sources. Analyses of sediment core samples show a clear trend in increasing concentrations of HBCD since the 1970s, confirming the stability of the substance in deep sediments for periods of more than 30 years. As well, there is evidence of increasing HBCD levels in North American and European biota, both within species and along food chains.

Quinoline

The substance is naturally present in coal and coal-derived compounds and may be formed as a trace pollutant during incomplete combustion of nitrogen-containing substances. It is a component of coal tar-based products such as sealcoats, which are used on parking lots and driveways, and also creosote, which is used as a preservative in the lumber and wood industries.

A survey conducted under section 71 of CEPA 1999 for the year 2000 indicated that manufacturing and importation of quinoline was in excess of 20 000 kg, in the form of mixtures containing quinoline at a composition of less than 1%.

According to the National Pollutant Release Inventory (NPRI), in 2009, 390 kg of quinoline were released on site to the atmosphere, 82 t were transferred off site as waste for incineration, and 578 kg were transferred off site for landfill disposal. However, no release to water was reported. Potential sources of quinoline release to water include discharges of creosote, coal tar and associated contaminated groundwater from contaminated sites at former coal gasification plants (or gasworks); former and existing steel plants equipped with coke ovens; coal tar distillation facilities; wood impregnation plants; and aluminum smelters. Quinoline may be emitted to the environment from automobile exhaust and tobacco smoke during the incomplete combustion of nitrogen-containing substances.

Exposure of the general population in Canada to quinoline is expected to be mainly through air inhalation. Canadians are exposed to quinoline from incomplete combustion of nitrogen-containing substances (e.g. tobacco, petroleum, or coal) and from the use of consumer products containing quinoline. However, exposure of quinoline to Canadians is expected to be low.

2. Issue and objectives

According to the conclusions of the scientific assessments, both HBCD and quinoline may be harmful to the Canadian environment because both substances have been shown to have the potential to harm non-human organisms. Furthermore, on the basis of the carcinogenicity of quinoline, together with the potential for general population exposure, it was also concluded that quinoline may constitute a danger in Canada to human life or health.

Given these assessment conclusions, action should be taken to ensure that control measures are available to the ministers to appropriately manage the risks posed by HBCD and quinoline.

The objective of the *Order Adding Toxic Substances to Schedule 1 to the Canadian Environmental Protection Act, 1999* (the Order) is to enable the ministers to develop risk management instruments under CEPA 1999 to address the environmental risks posed by HBCD and the environmental and human health risks posed by quinoline.

3. Description

The Order adds HBCD and quinoline to Schedule 1 of CEPA 1999.

The addition of the two substances to Schedule 1 (or the List of Toxic Substances) of CEPA 1999 enables the ministers to develop risk management instruments within two years of publication of the final assessment conclusion and to finalize the instruments 18 months later.

4. Consultation

The ministers published summaries of the draft scientific assessments for HBCD and quinoline on August 28, 2010, and July 31, 2010, respectively, in the *Canada Gazette*, Part I, for a 60-day public comment period. Risk management scope documents outlining the preliminary options being examined for the management of each substance were also released on the same dates. Prior to these publications, Environment Canada and Health Canada had informed the governments of the provinces and territories through the CEPA National Advisory Committee (NAC) of the release of the draft screening assessment reports, the risk management scope documents, and the public comment periods mentioned above. No comments were received from CEPA NAC.

During the 60-day public comment periods, no comments were received on the screening assessment report and the risk management scope document for quinoline.

For the draft screening assessment report on HBCD, six submissions were received from two companies and four non-governmental organizations (NGOs). All comments were considered in finalizing the screening assessment.

Comments were also received on the risk management scope document for HBCD. They were considered when developing the proposed risk management approach document, which was also subject to a 60-day public comment period.

Below is a summary of the key comments received on the draft screening assessment of HBCD, followed by their responses. The complete responses to comment documents are available on the Government of Canada's Chemical Substances Web site, or from the address, fax number or email provided earlier.

Summary of comments and responses on the draft screening assessment of HBCD

Comment: A manufacturer disagreed with the draft assessment's interpretation of degradation product data, especially the persistence data for 1,5,9-cyclododecatriene (CDT). The commenter maintained that studies cited in the screening assessment demonstrate CDT is not persistent.

Response: The lack of evidence for complete mineralization of HBCD, along with other factors, supports the conclusion that HBCD is persistent in sediment. The assessment examined primary degradation products of HBCD (e.g. CDT) in sediment to more fully characterize the potential ecological impacts of HBCD. The studies cited in the screening assessment have demonstrated that CDT is subject to primary degradation, and that low concentrations of CDT biodegrade to carbon dioxide under enhanced aerobic biodegradation testing conditions. However, information is not available on CDT's biodegradation under the low oxygen conditions that are most likely to prevail in subsurface soil and sediment compartments (to which HBCD preferentially partitions). Environment Canada recognizes that, due to limited information, there remains some uncertainty with respect to CDT's stability in sediment. The final assessment has been modified to reflect clearly that CDT's stability in sediment remains uncertain due to limited information.

Comment: An industry manufacturer and two NGOs commented that further clarity on the oral-exposure-from-mouthing-textiles scenario for infants and toddlers was necessary.

Response: The oral-exposure-from-mouthing-textiles scenario was updated in the final screening assessment report; two approaches for characterizing potential exposure via the oral route from textiles were presented.

Comment: Four NGOs commented that the HBCD assessment does not take into account vulnerable populations, including Arctic populations.

Response: The Government of Canada disagreed and clarified that the information and approach used for the HBCD assessment included environmental media and human biomonitoring data from the Canadian Arctic, use of conservative inputs, conducting age-specific exposure assessments as well as consideration of vulnerable life stages in the selection of critical effects for the characterization of risk to human health.

Comments received following publication of the proposed orders in the Canada Gazette, Part I

On December 10, 2011, and December 17, 2011, the ministers published two proposed orders entitled *Order Adding a Toxic Substance to Schedule 1 to the Canadian Environmental Protection Act, 1999* in the *Canada Gazette*, Part I, for HBCD and quinoline, respectively.

No comments were received during the 60-day public comment periods on the proposed orders.

5. “One-for-One” Rule

The Order is not expected to have any impact on industry that could result in administrative costs. Therefore, the “One-for-One” Rule is not applicable.

6. Small business lens

The Order enables the ministers to develop risk management measures with respect to HBCD and quinoline, but does not impose any compliance requirements on businesses, including small businesses. Thus, no costs will be imposed on small businesses. Therefore, the small business lens does not apply to this Order.

7. Rationale

As described in the “Background” section, HBCD and quinoline are used in various applications in Canada and these uses result in exposure of the general population and the environment. Furthermore, the screening assessments conclude that quinoline is harmful to human health and both quinoline and HBCD have the potential to cause harm to non-human organisms. Given these concerns, the screening assessments conclude that HBCD and quinoline meet the criteria set out in paragraph 64(a) of CEPA 1999; quinoline also meets the criteria set out in paragraph 64(c) of CEPA 1999.

Three measures can be taken after an assessment is conducted under CEPA 1999:

- Adding the substance to the Priority Substances List for further assessment (when additional information is required to determine whether a substance meets the criteria in section 64 or not);
- Taking no further action in respect of the substance; or
- Recommending that the substance be added to Schedule 1 of CEPA 1999 and, where applicable, recommending the implementation of virtual elimination.

Adding HBCD and quinoline to Schedule 1 of CEPA 1999 enables the ministers to develop risk management instruments to control the risks posed by them, and is therefore the preferred option among the three alternatives.

No concerns were raised by stakeholders, during the two 60-day public comment periods, on the proposed orders adding HBCD and quinoline to Schedule 1 of CEPA 1999 published on December 10 and 17, 2011, respectively.

The addition of HBCD and quinoline to Schedule 1 of CEPA 1999 does not result in any incremental impacts (benefits or costs) on the public or on industry, since there are no compliance requirements. Accordingly, there is no compliance or administrative burden on small businesses or businesses in general. The ministers will assess the costs and benefits and consult with the public and other stakeholders during the development of risk management proposals for each of the substances.

8. Implementation, enforcement and service standards

The Order adds HBCD and quinoline to Schedule 1 of CEPA 1999, thereby allowing the ministers to meet their obligation to publish proposed regulations or other management instruments no later than November 2013, and to finalize them no later than May 2015. Developing an implementation plan or a compliance strategy or establishing service standards is not considered necessary, as no specific risk management proposals are made. Appropriate assessments of implementation, compliance and enforcement will be undertaken during the development of proposed regulations or control instruments respecting preventive or control actions for HBCD and quinoline.

9. Contacts

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[Footnote a](#)

S.C. 2004, c. 15, s. 31

[Footnote b](#)

S.C. 1999, c. 33

[Footnote c](#)

S.C. 1999, c. 33

[Footnote 1](#)

S.C. 1999, c. 33

[Footnote 2](#)

The Chemical Substances Web site can be found at www.chemicalsubstanceschimiques.gc.ca/plan/approach-approche/other_chem-autres_sub-eng.php.

NOTICE:

The format of the electronic version of this issue of the *Canada Gazette* was modified in order to be compatible with extensible hypertext markup language (XHTML 1.0 Strict).

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