



Government
of Canada

Gouvernement
du Canada

CONSULTATION DOCUMENT

Proposed Risk Management Measure for Polybrominated Diphenyl Ethers (PBDEs)

PBDE	CAS RN ¹
tetrabromodiphenyl ethers (tetraBDE)	40088-47-9
pentabromodiphenyl ethers (pentaBDE)	32534-81-9
hexabromodiphenyl ethers (hexaBDE)	36483-60-0
heptabromodiphenyl ethers (heptaBDE)	68928-80-3
octabromodiphenyl ethers (octaBDE)	32536-52-0
nonabromodiphenyl ethers (nonaBDE)	63936-56-1
decabromodiphenyl ether (decaBDE)	1163-19-5

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¹ Chemical Abstracts Service Registry Number

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1. OBJECTIVE OF CONSULTATION

The objective of this consultation document and the corresponding 60 day electronic public comment period is to solicit feedback from stakeholders and the public regarding the proposed risk management measure for polybrominated diphenyl ethers (PBDEs), specifically the DecaBDE commercial mixture. Comments received will help to inform the development of the proposed risk management measure for publication in *Canada Gazette*, Part I.

2. BACKGROUND

2.1 Substance and Release Information

PBDEs contain an identical base chemical structure but differ in the number of attached bromine atoms (ranging from 1 to 10). PBDEs are additive flame retardants used in polymer resins and plastics and, to a lesser extent, adhesives, sealants and coatings to slow the ignition and spread of fire. They are not manufactured in Canada, but are used in three commercial mixtures: PentaBDE, OctaBDE and DecaBDE (see Table 1).

Table 1: Typical compositions of the PBDE commercial mixtures

Commercial Mixtures	PBDE Groups						
	tetraBDE	pentaBDE	hexaBDE	heptaBDE	octaBDE	nonaBDE	decaBDE
PentaBDE	24-38%	50-62%	4-12%	Trace	-	-	-
OctaBDE	-	0.5%	12%	45%	33%	10%	0.7%
DecaBDE	-	-	-	-	Trace	0.3-3%	97-98%

Release of PBDEs into the environment may occur during manufacture, processing, transportation, use, handling, storage or containment, product usage and disposal of the substance or products containing the substance.

2.2 Final Screening Assessment Report Conclusion for PDBEs

The final screening assessment report (Environment Canada, 2006) concluded that the PBDE groups of tetraBDE, pentaBDE, hexaBDE, heptaBDE, octaBDE, nonaBDE and decaBDE, meet the criteria under paragraph 64(a) of the *Canadian Environmental Protection Act, 1999* (CEPA 1999) as they are entering or may enter the environment in a quantity or a concentration or under conditions that have or may have an immediate or long-term harmful effect on the environment or its biological diversity. The report also concluded that tetraBDE, pentaBDE and hexaBDE meet the criteria for persistence and meet the criteria for bioaccumulation, as defined in the *Persistence and Bioaccumulation Regulations* made under CEPA 1999. The presence of these PBDEs in the environment results primarily from human activity.

For further information on the final screening assessment report conclusion for PBDEs, refer to the final screening assessment report, available at:

<http://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=0DDA2F24-1>.

2.3 Existing Domestic Risk Management

Polybrominated Diphenyl Ethers Regulations

The Government of Canada finalized the *Polybrominated Diphenyl Ethers Regulations*, which came into force on June 19, 2008. The PBDE Regulations prohibit the manufacture of the PBDE groups, tetraBDE, pentaBDE, hexaBDE, heptaBDE, octaBDE, nonaBDE and decaBDE, including mixtures, polymers and resins that contain them.

The Regulations also prohibit the use, sale, offer for sale and import of those PBDEs that meet the criteria for persistence and bioaccumulation under the *Persistence and Bioaccumulation Regulations* (Canada 2000) under CEPA 1999 (tetraBDEs, pentaBDEs and hexaBDEs), as well as mixtures, polymers and resins that contain them. As a result, the commercial mixtures PentaBDE and OctaBDE containing these substances are prohibited (see Table 1).

2.4 Revised Risk Management Strategy

In December 2006, Environment Canada and Health Canada published a Risk Management Strategy for PBDEs with the objective of reducing the concentration of PBDEs in the Canadian environment to the lowest level possible.

A State of the Science Report on the Bioaccumulation and Transformation of DecaBDE (Environment Canada, 2010b) was published in August 2010 based on new information that became available after the publication of the final PBDE assessment. The Report concluded that:

- decaBDE is not sufficiently bioaccumulative to meet the criteria for bioaccumulation stated in the *Persistence and Bioaccumulation Regulations* under CEPA 1999;
- it is reasonable to conclude that decaBDE may also contribute to the formation of bioaccumulative and/or potentially bioaccumulative transformation products, such as lower brominated BDEs, in organisms and the environment.

The outcome of this review and comments received from the public provided justification for the development of additional regulatory controls and the revision of the PBDE Risk Management Strategy.

In August 2010, Environment Canada and Health Canada published a Final Revised Risk Management Strategy for PBDEs

(<http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=34DCDBA9-9C86-4EB2-AA93-81B6755321F9>)

(Environment Canada, 2010a) which reiterated the objective of reducing the concentration of PBDEs in the Canadian environment to the lowest level possible.

The Final Revised Risk Management Strategy broadens controls on all forms of PBDEs, to:

1. Extension of the existing PBDEs Regulations to prohibit the use, sale, offer for sale and import of all PBDEs,
2. Prohibition of PBDEs in products,
3. Voluntary phase-out commitment for DecaBDE commercial mixture,
4. Monitoring of PBDEs in the Canadian environment, landfills and at wastewater treatment plants,
5. Development of Federal Environmental Quality Guidelines (FEQGs) for PBDEs, and
6. Develop a strategy which includes undertaking research, evaluating findings from new studies, collecting information and investigating potential releases of toxic substances from waste sector and implementing further risk management activities, if warranted (has been modified slightly from the Final Revised Risk Management Strategy due to direction being taken).

This consultation document addresses item 1 of the Final Revised Risk Management Strategy, and the extension of existing PBDEs Regulations to prohibit the use, sale, offer for sale and import of all PBDEs.

Additional risk management measures to prohibit the manufacture and import of products containing PBDEs (item 2) are being considered. Separate consultations will be undertaken for products containing PBDEs.

Item 3, the voluntary phase-out commitment for the DecaBDE commercial mixture, has been completed as noted below.

Item 4, the monitoring of PBDEs in the Canadian environment is ongoing, and is reported through the CEPA 1999 Annual Report (Environment Canada, 2012) and the Federal Sustainable Development Strategy (Environment Canada, 2011). The latest reports are available at:

CEPA 1999 Annual Report:

<http://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=3632BE44-1&offset=6&toc=show#tab1>

The Progress Report on the Federal Sustainable Development Strategy:

<http://www.ec.gc.ca/dd-sd/default.asp?lang=en&n=917F8B09-1>

Item 5, the development of the FEQGs, has been completed and the guidelines are available at:

<http://www.ec.gc.ca/scitech/default.asp?lang=En&xml=E2E4D8FD-32C7-42A1-B1D8-500D18E86718#tab1>.

Voluntary Phase-Out of DecaBDE (item 3 of Final Revised Risk Management Strategy for PBDEs)

This Final Revised Risk Management Strategy noted a proposal by three large international producers of DecaBDE to voluntarily phase-out the export of DecaBDE to Canada. This proposal followed an announcement by these three manufacturers of DecaBDE of their intention to phase-out the production and import of DecaBDE in the United States. These commitments will mean a reduction in the importation of this substance into Canada.

The proposal to phase-out the export of DecaBDE to Canada has now been followed up voluntarily with letters of commitment from the three large producers of DecaBDE. These letters contain the following commitments:

- Phase-out of DecaBDE exports and sales for electrical and electronic equipment by the end of 2010.
- Phase-out of DecaBDE exports and sales for all other uses, except transportation and military, by the end of 2012.
- Phase-out of DecaBDE exports and sales for transportation and military uses by the end of 2013.

These voluntary commitments are an important step in reducing the exposure of the Canadian environment to this substance.

2.5 International Risk Management

International risk management of PBDEs is underway. In May 2009, the Fourth Conference of the Parties listed tetraBDE, pentaBDE, hexaBDE, and heptaBDE (components that make up the PentaBDE and OctaBDE commercial mixtures) to Part 1 of Annex A of the Stockholm Convention, with specific exemptions for recycling articles, until 2030 at the latest. In December 2009, these components of the PentaBDE and OctaBDE commercial mixtures were also added to Annex I of the Long Range Transboundary Air Pollution Protocol on Persistent Organic Pollutants. Canada has ratified the amendments listing PBDEs to both these treaties.

Risk management actions are currently underway or exist in the United States and European Union. Recently, the United States Environmental Protection Agency (USEPA) proposed additional controls for DecaBDE (USEPA 2012). Annex A contains additional information on the proposed controls. Information on existing international risk management can be found in the risk management strategy available at:

(<http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=34DCDBA9-9C86-4EB2-AA93-81B6755321F9>).

2.6 Alternatives

Many alternatives to DecaBDE exist and are commercially available. While PBDEs have been used for a wide array of applications, a variety of different alternatives are being used as replacements such as other brominated flame retardants and halogen free flame retardants. Work is currently underway under the US EPA Design for the Environment programme to identify alternatives to DecaBDE and assess risks they may pose. The draft report was published in July 2012 (<http://www.epa.gov/dfe/pubs/projects/decaBDE/index.htm>).

A move away from DecaBDE towards alternative flame retardants and, in certain cases, flame retardant barriers in products, in lieu of chemicals, means that many of the applications no longer use DecaBDE, especially in view of the phase-out in the US and the broad controls proposed in other jurisdictions.

3. PROPOSED RISK MANAGEMENT

3.1 Proposed Measure

To achieve the risk management objective, and as outlined in the Revised Final *Risk Management Strategy for Polybrominated Diphenyl Ethers (PBDEs)*, 2010 (Environment Canada, 2010a), the Government of Canada is proposing to align substance based controls for all PBDEs assessed under CEPA. As such, prohibitions would apply to the manufacture, use, sale, offer for sale, import and export of all PBDEs (tetraBDE, pentaBDE, hexaBDE, heptaBDE, octaBDE, nonaBDE and decaBDE) and any resin or polymer containing these substances.

Therefore, the Government of Canada proposes to implement regulations to extend the existing PBDE prohibition to prohibit the use, sale, offer for sale, and import to heptaBDE, octaBDE, nonaBDE and decaBDE. As a result, the commercial mixture DecaBDE would be prohibited.

The proposed risk management measure would apply to all Canadians, including chemical manufacturers, material processors, importers of product components, and the general public.

It is anticipated that the coming into force date for the final regulations, in *Canada Gazette*, Part II, will be when the regulations are published.

To ensure Canada meets its international obligations, the addition of PBDEs to the *Export Control List* (Schedule 3 of CEPA 1999) will be evaluated in due course to consider the implementation of export restrictions.

4. SOCIO-ECONOMIC CONSIDERATIONS

Socio-economic factors have been considered in the selection process for a regulation and/or instrument respecting preventive or control actions, and in the development of the risk management objective(s). Socio-economic factors will also be considered in the development of regulations, instrument(s) and/or tool(s) as identified in the *Cabinet Directive on Streamlining Regulation* (Treasury Board of Canada Secretariat, 2007) and the guidance provided in the Treasury Board document *Assessing, Selecting, and Implementing Instruments for Government Action*.

The Government of Canada is moving forward with the implementation of a “One-for-One” Rule to control administrative burden on business, following the release of the Red Tape Reduction Commission’s Recommendations Report, January 2012 (<http://www.tbs-sct.gc.ca/media/nr-cp/2012/0118-eng.asp>). It provides specific advice to departments and agencies on how to reduce unnecessary burdens on business. It also proposes that the Government make systemic changes to the way it regulates businesses while ensuring that the environment and the health and safety of Canadians are not compromised.

In moving forward with this initiative, the “One-for-One” Rule will reduce administrative burden (i.e. the time and resources spent by business to show compliance with government regulations) in two ways:

- It requires regulators to remove a regulation each time they introduce a new regulation that imposes administrative burdens.
- When a new or amended regulation increases administrative burden on business, regulators will be required to offset—from their existing regulations—an equal amount of administrative burden costs on business.

5. NEXT STEPS AND TIMELINES

Actions	Date
60-day electronic public consultation period on this Consultation Document	February 5, 2013 – April 6, 2013
Publication of the proposed regulations in <i>Canada Gazette</i> , Part I	
Formal public comment period on the proposed regulations	
Publication of the final regulations in <i>Canada Gazette</i> , Part II	18 months following the publication of the proposed instrument
Coming into force of the regulations	

Industry and other interested stakeholders are invited to submit comments on the content of this consultation document or provide other information that would help to inform decision making. Industry and other interested stakeholders are also invited to submit information on how they wish to receive information from Environment Canada on existing and new regulations. Please submit comments prior to April 6, 2013, since the development of the proposed regulations for PBDEs will be moving forward after this date. Comments and information submissions should be submitted to the address provided below:

Chemicals Management Division
 Gatineau Quebec K1A 0H3
 Tel: 1-888-228-0530 / 819-956-9313
 Fax: 819-953-7155
 Email: GR-RM@ec.gc.ca

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Annex A: Summary of United States Environmental Protection Agency Actions for PBDEs

In June 2006, the United States Environmental Protection Agency (EPA) promulgated a Significant New Use Rule (SNUR) in the Federal Register to require notification to EPA ninety days prior to US manufacture or import, for any use, of the commercial products pentaBDE and octaBDE after January 1, 2005. This action was a follow-up to a voluntary phase-out of these chemicals by the only U.S. manufacturer of pentaBDE and octaBDE. Production in the United States of these two chemicals ceased at the end of 2004.

This regulation ensured that no new manufacture or import of pentaBDE or octaBDE could occur after January 1, 2005, without first being subject to EPA evaluation.

In March 2012, as part of the implementation of EPA's 2010 Action Plan on PBDEs, EPA proposed to amend this existing SNUR, and simultaneously proposed a TSCA section 4 test rule.

One component of the proposed EPA amendment is the inclusion of designating manufacturing, importing, or processing of DecaBDE for any use which is not ongoing after December 31, 2013, as a significant new use. The proposed TSCA section 4 test rule is for the three commercial mixtures PentaBDE, OctaBDE, and DecaBDE. The test rule would require development of information necessary to determine the effects of manufacturing, processing, or other activities involving these commercial PBDEs on human health or the environment. EPA intends to promulgate the test rule if it determines that manufacture (including import) or processing of these commercial PBDE mixtures, including in articles, has not ceased by December 31, 2013.

EPA accepted comments on this proposed amendment and rule until July 31, 2012.