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 July 23, 2011, a copy of the proposed Prohibition of Certain Toxic Substances Regulations, 2012, substantially in the annexed form, and persons were given an opportunity to file comments with respect to the proposed Regulations or to file a notice of objection requesting that a board of review be established and stating the reasons for the objection;

Whereas, pursuant to subsection 93(3) of that Act, the National Advisory Committee has been given an opportunity to provide its advice under section 6 (see footnote c) of that Act;

And whereas, in the opinion of the Governor in Council, pursuant to subsection 93(4) of that Act, the proposed Regulations do not regulate an aspect of a substance that is regulated by or under any other Act of Parliament in a manner that provides, in the opinion of the Governor in Council, sufficient protection to the environment and human health;

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 93(1) of the Canadian Environmental Protection Act, 1999 (see footnote d), makes the annexed Prohibition of Certain Toxic Substances Regulations, 2012.

PROHIBITION OF CERTAIN TOXIC SUBSTANCES REGULATIONS, 2012

APPLICATION

Application

1. Subject to sections 2 and 3, these Regulations apply to toxic substances that are both specified in the List of Toxic Substances in Schedule 1 to the Canadian Environmental Protection Act, 1999 and set out in either Schedule 1 or 2 to these Regulations.

Non-application — substance

2. These Regulations do not apply to any toxic substance that

(a) is contained in a hazardous waste, hazardous recyclable material or non-hazardous waste to which Division 8 of Part 7 of the Canadian Environmental Protection Act, 1999 applies;

(b) is contained in a pest control product as defined in subsection 2(1) of the Pest Control Products Act; or

(c) is present as a contaminant in a chemical feedstock that is used in a process from which there are no releases of the toxic substance and on the condition that the toxic substance is destroyed or completely converted in that process to a substance that is not a toxic substance set out in either Schedule 1 or 2.

Non-application — use

3. (1) These Regulations, except for subsections (2) to (4), do not apply to any toxic substance or to any product containing it that is to be used in a laboratory for analysis, in scientific research or as a laboratory analytical standard.

Information to Minister — more than 10 g

(2) Every person must submit to the Minister in any calendar year the information set out in Schedule 3 for each toxic substance or a product containing it that they intend to use for a purpose referred to in subsection (1) as soon as feasible before the use of more than 10 g of the substance in that calendar year. The information must be submitted only once in a calendar year in respect of each substance or product.

On-going use

(3) Any person that, on the day on which these Regulations come into force, is using a toxic substance or product referred to in subsection (1) for a purpose referred to in that subsection must, if the quantity of the toxic substance used, by itself or in a product, exceeded 10 g in the calendar year of the coming into force of these Regulations, submit to the Minister, within 60 days after the day on which these Regulations come into force, the information referred to in Schedule 3. The information must be submitted only once in a calendar year in respect of each...
substance or product.

Addition of substance

(4) If, after the coming into force of these Regulations, a toxic substance is added to Schedule 1 or 2, any person that, on the day on which the Regulations adding the toxic substance come into force, is using the toxic substance or a product containing it for a purpose referred to in subsection (1) must, if the quantity of the toxic substance used, by itself or in a product, exceeded 10 g in the calendar year of the coming into force of the Regulations adding the toxic substance, submit to the Minister, within 60 days after the day on which those Regulations come into force, the information referred to in Schedule 3. The information must be submitted only once in a calendar year in respect of each substance or product.

PROHIBITIONS AND PERMITTED ACTIVITIES

Toxic substance — Schedule 1

4. (1) Subject to sections 5 and 9, a person must not manufacture, use, sell, offer for sale or import a toxic substance set out in Schedule 1 or a product containing it unless the toxic substance is incidentally present.

Non application

(2) Subsection (1) does not apply to a product that is a manufactured item that is formed into a specific physical shape or design during its manufacture and that has, for its final use, a function or functions dependent in whole or in part on its shape or design, if a toxic substance set out in Part 2 of Schedule 1 is present in that product.

Exception — manufactured or imported before coming into force

5. A person may use, sell, or offer for sale a product containing a toxic substance set out in item 11 or 12 of Part 1 of Schedule 1 if the product is manufactured or imported before the day on which these Regulations come into force.

Toxic substance — Schedule 2

6. (1) Subject to subsections (2) and (4) and sections 7 and 9, a person must not manufacture, use, sell, offer for sale or import a toxic substance set out in column 1 of Part 1, 2 or 3 of Schedule 2 or a product containing it unless the toxic substance is incidentally present.

Permitted activities — Schedule 2

(2) The prohibition to manufacture, use, sell, offer for sale or import a toxic substance set out in column 1 of Part 1, 2 or 3 of Schedule 2 or a product containing it does not apply if

   (a) the toxic substance set out in column 1 of Part 1 of Schedule 2 or a product containing it, other than a substance or product set out in item 3 or 4, is designed for a use set out in column 2;

   (b) the toxic substance set out in column 1 of Part 2 of Schedule 2 or a product containing it is designed for a use set out in column 2 and that activity occurs before the date set out in column 3; or

   (c) a product set out in column 2 of Part 3 of Schedule 2 containing the toxic substance set out in column 1 in a concentration less than or equal to that set out in column 3 including any incidental presence of the substance.

Exception — incidental presence

(3) For greater certainty, the exception of the incidental presence referred to in subsection (1) does not apply in the case of a product described in paragraph (2)(c).

Exception — permitted use

(4) The prohibition to use a product that contains a toxic substance set out in column 1 of Part 1 of Schedule 2 does not apply to a product set out in item 3 or 4 of column 2.

Exception — personal use

(5) Subsection (1) does not apply to the use or import of a product containing a toxic substance set out in item 1 of Part 2 of Schedule 2, if the product is used or intended to be used for a personal use.

Exception — temporary permitted uses

7. (1) A person may use, sell, or offer for sale a product set out in column 2 of Part 2 of Schedule 2 containing a toxic substance set out in column 1 of Part 2 of Schedule 2 if the product is manufactured or imported before the expiry date set out in column 3 of Schedule 2.

Exception — Tributyltins

(2) A person may use, sell, or offer for sale a product containing a toxic substance set out in column 2 of Part 3 of Schedule 2 if it is manufactured or imported before the day on which these Regulations come into force.

Exception — manufacture or import under permit
8. A person may use, sell or offer for sale a toxic substance or a product containing it, if the substance or the product is manufactured or imported in accordance with a permit that is issued under section 10.

PERMITS

APPLICATION

Requirement for permit

9. (1) Any person that is a manufacturer or importer of a toxic substance or a product containing it that is prohibited under section 4 or 6, on the day on which these Regulations come into force, may continue to manufacture or import the substance or product if they have been issued a permit under section 10.

Addition of substance

(2) In the case of a toxic substance added either to Schedule 1 and prohibited under section 4, or added to Schedule 2 and prohibited under section 6, any person that is a manufacturer or importer of a toxic substance or a product containing it, on the day on which the Regulations adding the toxic substance come into force may continue to manufacture or import the substance or a product containing it if they have been issued a permit under section 10.

Temporary permitted uses

(3) Any person that manufactures or imports a toxic substance set out in Part 2 of Schedule 2 or a product containing it under paragraph 6(2)(b), on the day on which the period set out under that paragraph for which a temporary permitted use expires, may continue that activity if they have been issued a permit under section 10.

Required information

(4) An application for a permit must be submitted to the Minister and contain the information referred to in Schedule 4.

CONDITIONS OF ISSUANCE

Issuance

10. (1) Subject to subsection (2), the Minister must issue the permit if the following conditions are met:

(a) there is no technically or economically feasible alternative or substitute available to the applicant at the time of the application, other than a substance regulated under these Regulations, for the toxic substance;

(b) the applicant has taken the necessary measures to minimize or eliminate any harmful effect of the toxic substance on the environment and human health; and

(c) a plan has been prepared respecting the toxic substance identifying the measures that will be taken by the applicant to comply with these Regulations, and the period within which the plan is to be implemented does not exceed three years after the day on which a permit is first issued to the applicant.

Grounds for refusing permit

(2) The Minister must refuse to issue a permit if

(a) the Minister has reasonable grounds to believe that the applicant has provided false or misleading information in support of their application; or

(b) information required under subsection 9(4) has not been provided or is insufficient to enable the Minister to process the application.

Expiry and permit renewal

(3) A permit expires 12 months after the day on which it is issued unless, at least 30 days before the day on which the permit expires, the applicant submits an application for renewal to the Minister that contains the information referred to in Schedule 4. The validity of the first permit may only be extended twice, subject to the same conditions.

REVOCATION

Revocation

11. (1) The Minister must revoke a permit if the conditions set out in paragraphs 10(1)(a) to (c) are no longer met or if the Minister has reasonable grounds to believe that the permit holder has provided false or misleading information to the Minister.

Conditions for revocation

(2) The Minister must not revoke a permit unless the Minister has provided the permit holder with

(a) written reasons for the revocation; and
(b) an opportunity to be heard, by written representation, in respect of the revocation.

ANNUAL REPORTS

Certain substances

12. Every person that manufactures or imports a toxic substance set out in column 1 of Part 4 of Schedule 2 or a product containing it, whether incidentally or not, must submit to the Minister a report that contains the information referred to in Schedule 5 by March 31 following the end of the calendar year during which either the toxic substance or a product containing it was manufactured or imported if, in that year

(a) the total annual quantity of the toxic substance manufactured or imported was equal to or greater than that set out in column 2, if any;

(b) the product imported contained the toxic substance in an annual weighted average concentration equal to or greater than that set out in column 3, if any; or

(c) the total annual quantity of the toxic substance contained in a product manufactured or imported and its annual weighted average concentration in the product were equal to or greater than those set out in column 4, if any.

ACCREDITED LABORATORY

Accredited laboratory

13. Any concentration or quantity to be determined under these Regulations must be determined, in accordance with generally accepted standards of scientific practice, by a laboratory that is accredited under the International Organization for Standardization standard ISO/IEC 17025:2005, entitled General requirements for the competence of testing and calibration laboratories, as amended from time to time, or by a laboratory that meets an equivalent standard.

PRESENTATION OF INFORMATION

Certification

14. (1) Any information or an application for a permit required to be submitted to the Minister under these Regulations must bear the signature of the interested person or their authorized representative and be accompanied by a certification dated and signed by the interested person or the person authorized to act on their behalf, stating that the information is accurate and complete.

Writing or electronic format

(2) The information, application for a permit and certification may be submitted either in writing or in an electronic format that is compatible with the one that is used by the Minister.

RECORD KEEPING

Records

15. (1) Every person that submits information to the Minister under these Regulations must keep a record containing a copy of that information, a copy of the certification and any documents supporting the information, including test data if applicable, for a period of at least five years beginning on the date of the submission of the information.

Location

(2) The records must be kept at the person’s principal place of business in Canada or, on notification to the Minister, at any other place in Canada where the records can be inspected.

TRANSITIONAL

Activity referred to in Prohibition of Certain Toxic Substances Regulations, 2005

16. A permit must not be obtained under these Regulations for an activity prohibited under the Prohibition of Certain Toxic Substances Regulations, 2005.

REPEAL

17. The Prohibition of Certain Toxic Substances Regulations, 2005 (see footnote 1) are repealed.

COMING INTO FORCE

Three months after registration

18. These Regulations come into force three months after the day on which they are registered.

SCHEDULE 1

(Sections 1 to 5 and 9 and Schedule 3)
## PART 1

### PROHIBITED TOXIC SUBSTANCES

<table>
<thead>
<tr>
<th>Item</th>
<th>Toxic Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dodecachloropentacyclo[5.3.0.0(^2,6.0(^3),9.0(^4,8)] decane (Mirex)</td>
</tr>
<tr>
<td>2</td>
<td>Polybrominated Biphenyls that have the molecular formula (C_{12}H_{(10-n)}Br_{n}) in which “n” is greater than 2</td>
</tr>
<tr>
<td>3</td>
<td>Polychlorinated Terphenyls that have the molecular formula (C_{18}H_{(14-n)}Cl_{n}) in which “n” is greater than 2</td>
</tr>
<tr>
<td>4</td>
<td>Bis(chloromethyl) ether that has the molecular formula (C_2H_4Cl_2O)</td>
</tr>
<tr>
<td>5</td>
<td>Chloromethyl methyl ether that has the molecular formula (C_2H_5ClO)</td>
</tr>
<tr>
<td>6</td>
<td>((4E\text{-chlorophenyl})) cyclopropylmethanone, (O)-((4E\text{-nitrophenyl})) methyl oxime that has the molecular formula (C_{17}H_{15}ClN_2O_3)</td>
</tr>
<tr>
<td>7</td>
<td>(N)-(\text{Nitrosodimethylamine}), which has the molecular formula (C_2H_6N_2)</td>
</tr>
<tr>
<td>8</td>
<td>Hexachlorobutadiene, which has the molecular formula (C_4Cl_6)</td>
</tr>
<tr>
<td>9</td>
<td>Dichlorodiphenyltrichloroethane (DDT), which has the molecular formula (C_{14}H_9Cl_5)</td>
</tr>
<tr>
<td>10</td>
<td>Hexachlorobenzene</td>
</tr>
<tr>
<td>11</td>
<td>Polychlorinated naphthalenes, which have the molecular formula (C_{10}H_{8-n}Cl_{n}) in which “n” is greater than 1</td>
</tr>
<tr>
<td>12</td>
<td>Chlorinated alkanes that have the molecular formula (C_nH_{2}Cl_{(2n+2-x)}) in which 10 ≤ n ≤ 13</td>
</tr>
</tbody>
</table>

## PART 2

### PROHIBITED TOXIC SUBSTANCES UNLESS PRESENT IN MANUFACTURED ITEMS

<table>
<thead>
<tr>
<th>Item</th>
<th>Toxic Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hexane, 1,6-diisocyanato-, homopolymer, reaction products with alpha-fluoro-omega-2-hydroxyethyl-poly(difluoromethylene), C16-20-branched alcohols and 1-octadecanol</td>
</tr>
<tr>
<td>2</td>
<td>2-Propenoic acid, 2-methyl-, hexadecyl ester, polymers with 2-hydroxyethyl methacrylate, gamma-omega-perfluoro-C10-16-alkyl acrylate and stearyl methacrylate</td>
</tr>
<tr>
<td>3</td>
<td>2-Propenoic acid, 2-methyl-, 2-methylpropyl ester, polymer with butyl 2-propenoate and 2,5 furandione, gamma-omega-perfluoro-C8-14-alkyl esters, tert-Bu benzenecarboperoxoate-initiated</td>
</tr>
<tr>
<td>4</td>
<td>2-Propen-1-ol, reaction products with pentafluoroiodoethane tetrafluoroethylene telomer, dehydroiodinated, reaction products with epichlorohydrin and triethylene tetramine</td>
</tr>
</tbody>
</table>

### SCHEDULE 2

(Sections 1 to 3, 6, 7, 9 and 12 and Schedule 3)
**PERMITTED USES, CONCENTRATION LIMITS AND REPORTING THRESHOLDS**

**PART 1**

**PERMITTED USES**

<table>
<thead>
<tr>
<th>Item</th>
<th>Toxic Substance</th>
<th>Permitted Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Benzidine and benzidine dihydrochloride that have the molecular formulas ( \text{C}<em>{12}\text{H}</em>{12}\text{N}<em>{2} ) and ( \text{C}</em>{12}\text{H}<em>{12}\text{N}</em>{2}\cdot\text{2HCl} ), respectively</td>
<td>(a) Staining for microscopic examination, such as immunoperoxidase staining, histochemical staining or cytochemical staining; (b) Reagent for detecting blood in biological fluids; (c) Niacin test to detect some micro-organisms; and (d) Reagent for detecting chloralhydrate in biological fluids.</td>
</tr>
<tr>
<td>2.</td>
<td>2-Methoxyethanol, which has the molecular formula ( \text{C}<em>{3}\text{H}</em>{8}\text{O}_{2} )</td>
<td>(a) Adhesives and coatings for aircraft refinishing; and (b) Semiconductor manufacturing process.</td>
</tr>
<tr>
<td>3.</td>
<td>Pentachlorobenzene, which has the molecular formula ( \text{C}<em>{6}\text{HCl}</em>{5} )</td>
<td>Use with chlorobiphenyls contained in equipment or liquids in the service of such equipment in which their use is permitted under the <em>PCB Regulations</em>.</td>
</tr>
<tr>
<td>4.</td>
<td>Tetrachlorobenzenes, which have the molecular formula ( \text{C}<em>{6}\text{H}</em>{2}\text{Cl}_{4} )</td>
<td>Use with chlorobiphenyls contained in equipment or liquids in the service of such equipment in which their use is permitted under the <em>PCB Regulations</em>.</td>
</tr>
<tr>
<td>5.</td>
<td>Benzenamine, ( \text{N}- )phenyl-, reaction products with styrene and 2,4,4-trimethylpentene</td>
<td>Additive in rubber, except in tires</td>
</tr>
</tbody>
</table>

**PART 2**

**TEMPORARY PERMITTED USES**

<table>
<thead>
<tr>
<th>Item</th>
<th>Toxic Substance</th>
<th>Permitted Uses</th>
<th>Expiry date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Benzenamine, ( \text{N}- )phenyl-, reaction products with styrene and 2,4,4-trimethylpentene</td>
<td>Additive in lubricants</td>
<td>2 years after the coming into force of these Regulations</td>
</tr>
</tbody>
</table>

**PART 3**

**PERMITTED CONCENTRATION LIMITS**

<table>
<thead>
<tr>
<th>Item</th>
<th>Toxic Substance</th>
<th>Product Containing the Toxic Substance</th>
<th>Concentration Limit of the Toxic Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2-Methoxyethanol, which has the molecular formula ( \text{C}<em>{3}\text{H}</em>{8}\text{O}_{2} )</td>
<td>Diethylene glycol methyl ether, which has the molecular formula ( \text{C}<em>{5}\text{H}</em>{12}\text{O}_{3} )</td>
<td>0.5 % (w/w)</td>
</tr>
<tr>
<td>2.</td>
<td>Tributyltins, which contain the grouping ( \text{C}<em>{4}\text{H}</em>{9}\text{Sn} )</td>
<td>Tetrabutyltin, which has the molecular formula ( \text{C}<em>{4}\text{H}</em>{9}\text{Sn} )</td>
<td>30 % (w/w)</td>
</tr>
</tbody>
</table>

**PART 4**
### REPORTING THRESHOLDS

<table>
<thead>
<tr>
<th>Item</th>
<th>Toxic Substance</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Annual Quantity</td>
<td>Annual Weighted Average Concentration</td>
<td>Annual Quantity and Annual Weighted Average Concentration</td>
</tr>
<tr>
<td>1.</td>
<td>Benzidine and benzidine dihydrochloride that have the molecular formulas $C_{12}H_{12}N_2$ and $C_{12}H_{12}N_2\cdot2HCl$, respectively</td>
<td>1 kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Chlorinated alkanes that have the molecular formula $C_nH_xCl(2n+2Ex)$ in which $10 \leq n \leq 13$</td>
<td></td>
<td>1 kg and 0.5% (w/w)</td>
<td></td>
</tr>
</tbody>
</table>

### SCHEDULE 3
(Subsections 3(2) to (4))

**INFORMATION RELATED TO THE USE OF CERTAIN TOXIC SUBSTANCES IN A LABORATORY FOR ANALYSIS, IN SCIENTIFIC RESEARCH OR AS A LABORATORY ANALYTICAL STANDARD**

1. Information respecting the laboratory where a toxic substance or a product containing it is used or is to be used:
   (a) the name, civic and postal addresses, telephone number and, if any, email address and fax number of the laboratory; and
   (b) the name, title, civic and postal addresses, telephone number and, if any, email address and fax number of any person authorized to act on the laboratory’s behalf.

2. Information respecting each toxic substance set out in Schedule 1 or 2, and each product containing it that is used or is to be used:
   (a) the name of the toxic substance and the name of the product, if applicable;
   (b) the anticipated period of its use;
   (c) the estimated quantity of the toxic substance to be used in a calendar year and its unit of measurement;
   (d) the identification of each proposed use and each actual use, as the case may be; and
   (e) in the case of a product,
     (i) the estimated quantity of the product to be used in a calendar year and its unit of measurement, and
     (ii) the estimated concentration of the toxic substance in that product and its unit of measurement.

### SCHEDULE 4
(Subsection 9(4) and 10(3))

**INFORMATION REQUIRED IN AN APPLICATION FOR A PERMIT OR AN APPLICATION FOR RENEWAL OF A PERMIT**

1. Information respecting the applicant:
   (a) their name, civic and postal addresses, telephone number and, if any, email address and fax number; and
   (b) the name, title, civic and postal addresses, telephone number and, if any, email address and fax number of any person authorized to act on the applicant’s behalf.

2. In the case of a toxic substance referred to in either section 4 or 6 of these Regulations or a product containing it, the following information:
   (a) the name of the toxic substance and the name of the product, if applicable;
   (b) the quantity of the toxic substance manufactured or imported during the 12 months before the day on which the application is submitted, and its unit of measurement;
   (c) the estimated quantity of the toxic substance to be manufactured or imported during the period to
which the permit will apply, and its unit of measurement;

(d) in the case of a product,
   (i) the quantity of the product manufactured or imported during the 12 months before the day on which the application is submitted, and its unit of measurement,
   (ii) the estimated quantity of the product to be manufactured or imported during the period to which the permit will apply, and its unit of measurement, and
   (iii) the estimated concentration of the toxic substance in that product and its unit of measurement;

(e) the identification of each proposed use, if known; and

(f) if the applicant is a manufacturer or importer, the name, civic and postal addresses, telephone number and, if any, email address and fax number of each person in Canada to whom the applicant intends to sell a toxic substance or a product containing it and the name of each toxic substance or product.

3. Information that demonstrates that there is no technically or economically feasible alternative or substitute available to the applicant at the time of the application, other than a substance regulated under these Regulations, for the toxic substance.

4. Information that explains what measures have been taken to minimize or eliminate any harmful effect of the toxic substance on the environment and human health.

5. A description of the plan prepared respecting the toxic substance identifying the measures that will be taken by the applicant to comply with these Regulations and the period within which the plan is to be implemented, which must not exceed three years after the day on which the permit is first issued.

SCHEDULE 5
(Section 12)

INFORMATION RELATING TO THE MANUFACTURE OR IMPORT OF A TOXIC SUBSTANCE OR THE IMPORT OF A PRODUCT CONTAINING IT

1. Information respecting the manufacturer or importer:
   (a) their name, civic and postal addresses, telephone number of their principal place of business and, if any, email address and fax number; and
   (b) the name, title, civic and postal addresses, telephone number and, if any, email address and fax number of any person authorized to act on behalf of the manufacturer or importer.

2. Information respecting each toxic substance referred to in column 1 of Part 4 of Schedule 2 that is imported or manufactured and each product containing it that is imported or manufactured during a calendar year:
   (a) the name of the toxic substance and the name of the product, if applicable;
   (b) the calendar year;
   (c) the total quantity of the toxic substance manufactured, and its unit of measurement;
   (d) the total quantity of the toxic substance sold in Canada, and its unit of measurement;
   (e) the total quantity of the toxic substance imported, and its unit of measurement;
   (f) the identification of each proposed use of the toxic substance and the product, if applicable;
   (g) the annual weighted average concentration of the toxic substance in the product and its unit of measurement, if applicable;
   (h) the analytical method used to determine the concentration of the toxic substance in the product, if applicable;
   (i) the analytical method detection limit used to determine the concentration of the toxic substance in the product, if applicable; and
   (j) the name, civic and postal addresses, telephone number and, if any, email address and fax number of each person in Canada to whom the manufacturer or importer sold the toxic substance or the product.

3. The name, civic and postal addresses, telephone number and, if any, email address and fax number of the laboratory that determined the concentration of the toxic substance in the product, if applicable.

REGULATORY IMPACT ANALYSIS STATEMENT
1. Executive summary

**Issue:** Risk assessments on four substances — Benzenamine, N-phenyl- reaction products with styrene and 2,4,4-trimethylpentene (BNST), short-chain chlorinated alkanes, polychlorinated napthalenes (PCNs) and tributyltins (TBTs) for non-pesticidal uses — were conducted under the *Canadian Environmental Protection Act, 1999* (CEPA 1999). These assessments concluded that all of these substances may be harmful to the environment. Short-chain chlorinated alkanes were also found to constitute a danger in Canada to human life or health. Risk management measures are necessary to prevent harm to the environment and/or human health associated with these substances. In addition, all of these substances were found to meet the criteria for persistence and bioaccumulation potential as set out in the *Persistence and Bioaccumulation Regulations*.

**Description:** The *Prohibition of Certain Toxic Substances Regulations, 2012* (hereafter the Regulations) repeal and replace the *Prohibition of Certain Toxic Substances Regulations, 2005* (hereafter referred to as the former Regulations).

The Regulations prohibit the manufacture, use, sale, offer for sale or import of BNST, short-chain chlorinated alkanes, PCNs and TBTs in Canada, and of products containing them with a limited number of exemptions. These substances are added to the list of substances already controlled under the former Regulations.

The Regulations also address a number of issues related to the clarity and consistency of the regulatory requirements which were identified by stakeholders and by the Standing Joint Committee for the Scrutiny of Regulations. The Regulations also include additional provisions on reporting of short-chain chlorinated alkanes as well as other minor changes.

As well, the Regulations modify the restrictions on hexachlorobenzene (HCB).

**Cost-benefit statement:** A cost-benefit analysis was conducted to evaluate the impact of the Regulations. In general, most of the regulatory impacts occur as a result of controlling BNST. Short-chain chlorinated alkanes and PCNs are no longer manufactured or imported into Canada and TBTs for non-pesticidal uses are not in commercial use in their pure form in Canada. These impacts are summarized below.

Most of the costs will be incurred by Canadian manufacturers of lubricant oils as they are expected to pay a higher price to acquire BNST-free chemical additive products to produce their lubricant oils. The present value of the total incremental cost to industry is estimated to be about $20 million over the 25-year period of analysis or an average of $0.8 million in present value per year. However, on a per-facility basis, this cost represents only 0.01% of production cost. It is assumed that these costs will be passed on to consumers of lubricant oils.

The federal government is expected to incur costs to administer and enforce the Regulations. The present value of the incremental cost to Government is estimated to be about $0.40 million over 25 years.

Due to a lack of monitoring data, it is challenging to accurately estimate the impact of the Regulations, but positive benefits are expected in terms of the protection to the environment and its aquatic ecosystems. In addition, the Regulations are expected to prevent potential harm to human health as a result of reduced exposure to short-chain chlorinated alkanes. Overall, the net impact of the Regulations is expected to be positive.

**“One-for-One” Rule and small business lens:** The “One-for-One” Rule applies to the Regulations and the Regulations have a net removal of burden of about $1,200 or an average savings per business of $2.

The retailers of lubricants containing BNST are expected to incur a higher cost of about $0.8 million per year for purchasing a substitute product for sale. It is expected that the retailers will pass this cost onto consumers in the form of higher prices. Also, a total cost of under $500 in aggregate in annualized present-value terms is expected on laboratories which have to report to the Minister of Environment.

**Domestic and international coordination and cooperation:** Recent amendments to the Protocol on Persistent Organic Pollutants (POPs) under the United Nations Economic Commission for Europe (UNECE) Convention on Long-range Transboundary Air Pollution (LRTAP) have included the addition of PCNs and short-chain chlorinated alkanes. The Regulations allow Canada to consider ratifying the amendments to the Protocol on POPs.

2. Background

The Chemicals Management Plan (CMP) is an important policy in Canada for the control of chemical substances. The CMP is a commitment to conduct, within a timeline, scientific assessments of substances of priority. Further, where applicable, the *Canadian Environmental Protection Act, 1999* (CEPA 1999) requires control and preventive measures...
for substances that are determined to meet the criteria under section 64 of CEPA 1999. These commitments are an integral part of the development of the *Prohibition of Certain Toxic Substances Regulations, 2012* (hereafter the Regulations).

The following substances are part of the CMP and have been assessed as potentially harmful to the environment and/or human health as per section 64 of CEPA 1999:

- Benzenamine, \(N\)-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene (BNST);
- Short-chain chlorinated alkanes, previously identified as short-chain chlorinated paraffins;
- Polychlorinated naphthalenes (PCNs) [chlorinated naphthalenes containing between two and eight chlorine atoms]; and
- Tributyltins (TBTs) for non-pesticidal uses. (see footnote 2)

### 2.1 Background and context for BNST

The substance BNST was included in the Challenge initiative under the CMP as one of approximately 200 substances identified as high priorities for action. The final screening assessment report for BNST concluded that BNST is potentially harmful to the environment and meets the criterion set out under paragraph 64(a) of CEPA 1999 and the criteria for persistence and bioaccumulation potential. (see footnote 3) A notice summarizing the scientific considerations of the final screening assessment report for BNST was published in the *Canada Gazette*, Part I, on August 1, 2009. In addition, BNST also met the criteria for virtual elimination as set out under subsection 77(4) of CEPA 1999. BNST was added to the List of Toxic Substances in Schedule 1 of CEPA 1999 on March 2, 2011, which enabled its prohibition under the Regulations.

#### 2.1.1 Current uses

The substance BNST is an organic substance and is part of the diarylamine class of antioxidants. In many types of lubricant formulations, diarylamine antioxidants are used at rates of 0.2% to 1.0% by weight. (see footnote 4) BNST is used mainly as an antioxidant additive in vehicle engine oil, but is also used in commercial and industrial lubricants. Over 90% of the 482 tonnes of BNST consumed in Canada annually is used in vehicle engine oil formulations. Sales of BNST are estimated to represent 15% to 18% of the overall market for diarylamine antioxidants.

Available information suggests that there may also be a minor use of BNST as an additive in rubber applications for industrial equipment and machinery and in rubber parts used in vehicles. (see footnote 5)

#### 2.1.2 Release profile

Approximately 98.3% of the BNST contained in engine oils and lubricants in Canada is either chemically transformed, combusted during use of the engine, or reprocessed into industrial fuels or base oils following collection of waste engine oil. The remaining 1.7% of BNST used in Canada is released to the environment from leaks, spills, and improper disposal of lubricants, and from industrial wastewater discharge. The estimated environmental releases of BNST used as additives in lubricants are as follows:

<table>
<thead>
<tr>
<th>Release mechanism</th>
<th>Percentage of the quantity of BNST used in Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleaning containers used to transport lubricant additives — to sewer</td>
<td>0.2%</td>
</tr>
<tr>
<td>Spills, leaks, and improper disposal of lubricants — to soil, sewer or storm water system</td>
<td>1.3%</td>
</tr>
<tr>
<td>Improper disposal of lubricants — to landfill</td>
<td>0.2%</td>
</tr>
</tbody>
</table>


Rubber parts containing BNST are not manufactured in Canada but are imported in vehicle components. About 75% of the weight of today’s vehicles is recycled at the end of the vehicle’s lifespan through a network of vehicle salvage and shredder facilities. The remaining 25% of the weight of the vehicle, made up largely of plastics, glass and textiles, is sent to landfills. (see footnote 6) BNST contained in rubber parts is expected to remain in the rubber parts, rather than leach into the environment. As a result, rubber parts containing BNST are not expected to contribute to environmental releases.
Current release information is based on modelled data. However, as part of the CMP monitoring, it is planned that the presence of BNST will be monitored in municipal wastewater, sediment and biota.

2.1.3 Other Canadian risk management activities

**Federal**

BNST is not directly subject to any other federal risk management measures.

**Provinces and territories**

There are no specific control measures regarding the release of BNST at the provincial and territorial level; however, all provinces and territories have put in place risk management measures for used engine oils (such as crankcase oils). These measures, however, do not control the diffuse releases (leaks and spills) of BNST during the use of vehicle engine oil and other lubricants. These measures include

- Prohibitions for land, landfill and sewer disposal of used oils;
- Permits or approval systems to control burning of used oils;
- Prohibitions or guidelines for re-use of used oils in dust suppression;
- Controls for used oil reprocessing and re-refinery operations; and
- Programs to collect and manage used oil.

Ontario has also set specific allowable “oil and grease” concentration limits for wastewater discharge for certain refineries and chemical manufacturing facilities and these measures contribute to limiting industrial releases of BNST.

**Municipalities**

Municipal sewer use bylaws describe existing limits on the concentration of “oil and grease” in wastewater discharged to municipal wastewater systems. These bylaws effectively control releases of BNST from manufacturing, lubricant blending and industrial use at facilities. However, these control measures address only industrial releases and do not control the diffuse releases of BNST.

2.1.4 Risk management activities in other jurisdictions

**United States**

The substance BNST is part of the United States Environmental Protection Agency (U.S. EPA) High Production Volume (HPV) Challenge Program which requires companies to provide and make public basic hazard information on the chemical. There are currently no control measures in place for BNST in the United States.

**Europe**

Under the European Union Registration, Evaluation, Authorisation and Restriction of Chemicals substances (REACH) Program, BNST was pre-registered in 2008. As a result, by December 10, 2010, manufacturers and importers were required to submit a technical dossier to the European Chemicals Agency containing available information on chemical properties, persistence, bioaccumulation and toxicity. The European Union may undertake action on substances considered of concern after evaluation of the technical dossier.

**Australia**

Since July 2012, Australia’s National Industrial Chemicals Notification and Assessment Scheme began assessing around 3 000 existing chemicals, including BNST.

2.1.5 Profile of industrial sectors
The petroleum and chemical manufacturing sectors are the primary industrial sectors involved with BNST. Manufacturers of BNST and manufacturers and importers of lubricants in Canada are subject to the Regulations. There is a minor use of BNST in rubber parts in the automotive industry, but given there are no expected releases from this use, it is exempted from the Regulations. BNST represents a very small portion of Canadian organic chemical manufacturing.

2.2 Background and context for short-chain chlorinated alkanes

Chlorinated alkanes are chlorinated hydrocarbons (n-alkanes) that can have carbon chain lengths ranging from 10 to 38. They are grouped by chain length: short-chain chlorinated alkanes (10–13 carbon atoms), medium-chain chlorinated alkanes (14–17 carbon atoms) and long-chain chlorinated alkanes (18 or more carbon atoms). Assessed under section 68 of CEPA 1999, short-chain chlorinated alkanes are potentially toxic to both the environment and human health, and meet the criteria set out under paragraphs 64(a) and 64(c) of CEPA 1999. (see footnote 7) As a result, short-chain chlorinated alkanes were added to the List of Toxic Substances in Schedule 1 of CEPA 1999 on September 30, 2011, enabling prohibition under the Regulations. Furthermore, these substances meet the criteria for persistence and bioaccumulation potential as set out in the Persistence and Bioaccumulation Regulations.

2.2.1 Current uses

Short-chain chlorinated alkanes were primarily used in Canada as extreme pressure additives in metalworking fluids. In 2010, total quantity of short-chain chlorinated alkanes imported into Canada was estimated to be 33 tonnes. However, companies involved reported that the use of the substances was phased out at the end of that year. (see footnote 8) While products containing short-chain chlorinated alkanes, including paints, adhesives, sealants, rubber and plastics, may be imported into Canada, the volume of such imports is believed to be small.

2.2.2 Release profile

Estimates indicate that in 2009 approximately 15 tonnes of short-chain chlorinated alkanes were released in Canada in a dispersed manner, likely from manufacturing, use and disposal of products containing these substances. (see footnote 9) The possible sources of releases to water from manufacturing include spills, facility wash-down and drum rinsing/disposal. Estimates suggest that metalworking activities accounted for the majority of short-chain chlorinated alkanes released to the environment. Although these substances have been recently phased out, there is a potential for re-introduction and a risk of future releases of short-chain chlorinated alkanes to the environment.

2.2.3 Other Canadian risk management activities

There are no other risk management measures on the use of short-chain chlorinated alkanes in Canada at the federal level.

2.2.4 Risk management activities in other jurisdictions

United States

In December 2009, the U.S. EPA published its Short-Chain Chlorinated Paraffins (SCCPs) and Other Chlorinated Paraffins Action Plan, stating that "the EPA intends to initiate action to address the manufacturing, processing, distribution in commerce and use of SCCPs." (see footnote 10) Furthermore, in March 2012, the U.S. EPA published a significant new use rule for certain SCCPs that would require companies to notify the EPA of plans to manufacture, import or process these chemicals and would provide the EPA an opportunity to review new uses and take action needed to protect human health or the environment.

European Union

The European Union adopted restrictions on the formulation and use of short-chain chlorinated alkanes in metalworking fluids and leather finishing products under the European Union Existing Substances Regulations (EEC 793/93). These Regulations prohibit placing short-chain chlorinated alkanes on the European Union market beginning January 6, 2004, in concentrations greater than 1% for use in metalworking fluids or fat liquoring of leather.

International organizations
In December 2009, Parties to the United Nations Economic Commission for Europe (UNECE) Convention on Long-range Transboundary Air Pollution (LRTAP) amended the Protocol on Persistent Organic Pollutants (POPs) to add seven new substances, including short-chain chlorinated paraffins. (see footnote 11) The amendment adding short-chain chlorinated paraffins, defined specifically in Annex 1 as chlorinated alkanes with carbon-chain length of 10 to 13 atoms (i.e. short-chain chlorinated alkanes), require all Parties ratifying the amendment, to eliminate their production and use, except for listed permitted uses. In addition, short-chain chlorinated paraffins were nominated for addition to the Stockholm Convention on POPs.

2.3 Background and context for PCNs

Polychlorinated naphthalenes (PCNs) are chlorinated naphthalenes containing two to eight chlorine atoms. The substances have been used in applications such as cable insulation, capacitors, gauge and heat exchange fluids, instrument seals, solvents and other uses. Although PCNs are not currently manufactured or used in Canada, there is potential for their re-introduction into commerce if not managed.

The final screening assessment report for PCNs concluded that they meet the criterion set out under paragraph 64(a) of CEPA 1999 as having an immediate or long-term harmful effect on the environment or its biological diversity. PCNs were added to the List of Toxic Substances in Schedule 1 of CEPA 1999 on October 10, 2012, which enabled their prohibition under the Regulations. In addition, PCNs meet the criteria for persistence and bioaccumulation potential as set out in the Persistence and Bioaccumulation Regulations.

2.3.1 Release profile

PCNs are not currently in commercial use in Canada, the U.S. and many other member countries of the Organization for Economic Co-operation and Development.

PCNs can be unintentionally generated and released into the environment from several industrial processes involving heat and/or chlorine. These processes include waste incineration, cement and magnesium production, and refining of metals such as aluminum. PCNs are also incidentally present in commercial polychlorinated biphenyl (PCB) formulations. Other sources responsible for releases of PCNs to the environment may include disposal of products containing PCNs in landfill sites and old industrial sites where PCNs were used.

Most unintentional releases of PCNs are to air. Within Canada, PCNs have been detected in arctic and urban air, water from Lake Ontario, fish and birds from the Great Lakes and environs, Pacific coast killer whales, seals and whales from the Canadian Arctic and Vancouver Island marmots. (see footnote 12)

2.3.2 Other Canadian risk management activities

There are no other risk management measures in Canada aimed specifically at addressing PCNs, but there are various guidelines and standards targeting other chemicals [Polychlorinated Dibenzo-p-dioxins, Polychlorinated Dibenzofurans (PCDD/Fs) and PCB] that may also impact unintentional releases of PCNs.

Measures to control emissions of PCDD/Fs are thought to also control the release of PCNs in some sectors, because PCNs are often associated with the formation of PCDD/Fs and exhibit similar formation pathways.

With respect to the waste incineration sector, there is a Canada-Wide Standard under the Canadian Council of Ministers of the Environment in place for incineration facilities that process municipal, medical and hazardous wastes that sets stringent emission limits for PCDD/Fs. A detailed review of 2000 and 2005 annual dioxins and furans air emissions from incineration showed that releases to air were reduced from 29.4 to 3.7 g I-TEQ (see footnote 13)/year (a reduction of 87%). (see footnote 14)

PCNs may also be incidentally present in PCB formulations. The PCB Regulations made under CEPA 1999 set specific dates for the destruction of PCBs in service and in storage, and therefore work toward the gradual elimination of PCBs and of other substances incidentally present in them, including PCNs.

2.3.3 Risk management actions in other jurisdictions

United States

No actions have been undertaken in the United States as the production of PCNs ceased in the 1980s.

Japan, Switzerland and the European Union

The import and manufacture of PCNs has been banned in Japan since 1979. All halogenated naphthalenes, including
2.4 Background and context for TBTs

Tributyltins are a class of chemical substances in the family of "organotins" having three butyl groups attached to the tin atom. The final follow-up ecological risk assessment report for non-pesticidal organotin compounds concluded that TBTs for non-pesticidal uses have the potential to cause harm to the environment or its biological diversity in Canada, and meet the criterion set out under paragraph 64(a) of CEPA 1999. (see footnote 15) TBTs were added to the List of Toxic Substances in Schedule 1 of CEPA 1999 on June 23, 2011. In addition, they were found to meet the criteria for persistence and bioaccumulation potential as set out in the Persistence and Bioaccumulation Regulations.

2.4.1 Current uses

Tributyltins in their pure form are currently not in commercial use in Canada, but they may be found in products that are mainly used in the polyvinyl chloride (PVC) processing industry, and as pesticides. Minor uses of products containing TBTs include glass coatings and catalysts.

Tributyltins for non-pesticidal uses may be present in tetrabutyltin (up to 30%) and in mono- and dibutyltin compounds (less than 1%). During the manufacturing of the mono- and dibutyltins, the TBTs contained in the tetrabutyltin, along with the tetrabutyltin, are converted into the mono- and dibutyltins with a large part of the TBTs eliminated. Therefore, TBTs are present in tetrabutyltin as a by-product.

With respect to pesticidal uses of TBTs, five pest control products containing TBTs are currently registered as pesticides (material preservatives) under the authority of the Pest Control Products Act (PCPA) by Health Canada. Under the PCPA, no person shall manufacture, possess, handle, store, transport, import, distribute or use a pest control product that is not registered under this Act, except as otherwise authorized.

2.4.2 Release profile

Tributyltins have entered the environment mostly from their pesticidal uses. However, measures are in place to address these releases. TBTs for non-pesticidal uses may enter the environment because of their presence in other butyltin products (mono- and di-, and tetrabutyltin) and from the environmental breakdown of tetrabutyltin.

In the past, the largest environmental releases of organotins from non-pesticidal uses occurred as a result of loss of liquid residues from shipping containers, with smaller release occurring from storage tanks and transfer lines associated with the manufacturing and use of mono- and dibutyltins. This created the potential for significant concentrations of organotins in local receiving waters and sediments. However, in recent years, facilities using mono- and dibutyltins have adopted product stewardship practices that have led to a decrease in the potential release of organotins. Furthermore, these releases are now being managed by risk management measures in place.

2.4.3 Other Canadian risk management activities

Federal

Tributyltins for non-pesticidal uses are intermediate chemicals that are generated and consumed during the manufacture of mono-, di- and tetrabutyltin, and cannot be entirely eliminated during the process. However, other initiatives are in place to manage any potential release of substances where TBTs may be present:

- The *Environmental Performance Agreement Respecting the Use of Tin Stabilizers in the Vinyl Industry* has been in place since March 10, 2008, to manage the release of tin stabilizers (mono- and dibutyltins) into the environment, including any TBTs that may be present in the stabilizers; (see footnote 16)
- A Code of Practice was published on November 5, 2011, under section 54 of CEPA 1999 to minimize releases of tetrabutyltin to the aquatic environment, including any potential release of TBTs that may be present in tetrabutyltin. This applies to all importers, distributors, manufacturers, and users of tetrabutyltin in Canada.
- Ministerial Condition No. 13618 issued by the Minister of the Environment under section 84 of CEPA 1999 is currently in place for tetrabutyltin. (see footnote 17) The Condition imposes restrictions on the use and disposal of this substance to limit its release to the environment, and currently applies to one facility. Environment
Canada is considering rescinding the Ministerial Condition given that the Code of Practice incorporates most of the relevant elements included in the Condition; and

- With respect to pesticidal uses of TBTs, the use of TBTs in anti-fouling paints on ship hulls has been prohibited in Canada since 2002, following the special review by Health Canada’s Pest Management Regulatory Agency (PMRA). (see footnote 18) On December 7, 2010, the PMRA announced its final re-evaluation decision to phase out all remaining pesticidal uses of TBT compounds as a material preservative.

2.4.4 Risk management activities in other jurisdictions

European Union

The European Commission adopted a decision on May 28, 2009, that prohibits the use of triorganotin compounds (which includes TBTs) and of dibutyltins in articles for either consumer or professional use, where the concentration in the article, or part thereof, is greater than the equivalent of 0.1% by weight of tin. The prohibition for triorganotins has been in effect since July 1, 2010, and the one for dibutyltins has been in effect since January 1, 2012.

International organizations

The International Maritime Organization’s International Convention on the Control of Harmful Anti-Efouling Systems on Ships was adopted in October 2001 and came into force in September 2008. The Convention stipulates that, effective January 1, 2003, ships shall not apply or re-apply organotin compounds (including TBTs) that act as biocides in anti-Efouling systems. The Convention also stipulates that, effective January 1, 2008, ships shall either not bear such compounds on their hulls or external parts or surfaces, or shall bear a coating that forms a barrier to such compounds leaching from underlying non-compliant anti-Efouling systems. To implement the terms of the Convention, Parties are required to put in place measures to prohibit and/or restrict the use of harmful anti-Efouling systems on ships. Canada is a Party to this Convention and in order to meet its obligations under the Convention, Health Canada prohibited the use of TBTs in anti-Efouling paints in 2002.

3. Issue

The substances BNST, short-chain chlorinated alkanes, PCNs, and TBTs for non-pesticidal uses were assessed under CEPA 1999 to determine whether they meet any of the criteria set out under section 64 of CEPA 1999.

The scientific evaluations for each of these substances found that

- The substance BNST may be harmful to aquatic organisms at low concentrations and it may biomagnify in food chains;
- Short-chain chlorinated alkanes may be harmful to certain aquatic species (for example, Daphnia magna) at low concentrations and are potentially harmful to humans via environmental exposure;
- PCNs may be harmful to aquatic organisms at relatively low concentrations, as well as mammals (particularly cattle) after short-term exposure at relatively low doses; and
- TBTs for non-pesticidal uses may harm various aquatic species, such as fish and molluscs, and have the potential to induce sex reversal in some marine fish at low concentrations.

In addition, all of these substances were found to meet the criteria for persistence and bioaccumulation potential as set out in the Persistence and Bioaccumulation Regulations.

The final risk assessment reports on these substances concluded that they are entering or may enter the environment in a quantity or concentration or under conditions that have or may have an immediate or long-term harmful effect on the environment or its biological diversity. Therefore, they meet the criterion set out under paragraph 64(a) of CEPA 1999. In addition, short-chain chlorinated alkanes are also entering or may enter the environment in a quantity or concentration or under conditions that constitute or may constitute a danger in Canada to human life or health. Therefore, short-chain chlorinated alkanes further meet the criterion set out under paragraph 64(c) of CEPA 1999. Risk management measures need to be put in place to prevent harmful effects on the environment and, in the case of short-chain chlorinated alkanes, harmful effects on human health associated with these substances.

In addition, Environment Canada has identified improvements that could be made to modify or clarify restrictions as described in the Prohibition of Certain Toxic Substances, 2005 (former Regulations) for hexachlorobenzene (HCB), pentachlorobenze and tetrachlorobenzene. Also, a number of issues related to regulatory requirements were identified by stakeholders and by the Standing Joint Committee for the Scrutiny of Regulations and need to be addressed.

4. Objectives

The Regulations, developed under subsection 93(1) of CEPA 1999 have the following objectives:

- preventing potential risks of harm to the Canadian environment and, where applicable, human health by
prohibiting the manufacture, use, sale, offer for sale or import of BNST, short-chain chlorinated alkanes, PCNs, TBTs for non-pesticidal uses, and all the substances listed under the former Regulations as well as products containing these substances;

- modifying the existing restrictions on HCB; and
- address issues on consistency and clarity from stakeholders and the Standing Joint Committee for the Scrutiny of Regulations.

5. Description

5.1 The former Regulations

The former Regulations prohibited the manufacture, use, sale, offer for sale or import of the toxic substances — or products containing them — listed in Schedules 1 and 2. Schedule 1 listed toxic substances that were subject to total prohibition with the exception of incidental presence. Schedule 2 listed toxic substances that were subject to prohibitions with exemptions for certain uses or use below a certain concentration.

5.2 The Regulations

The Regulations are developed to manage the risks to the environment and, where applicable, to human health posed by BNST, short-chain chlorinated alkanes, PCNs, TBTs and all the chemicals listed under the former Regulations. In addition, in light of the issues identified with respect to the former Regulations, the Regulations provide more clarity and consistency. The main changes compared to the former Regulations are described below.

5.2.1 Addition of substances to Part 1 of Schedule 1

The Regulations add short-chain chlorinated alkanes and PCNs to Part 1 of Schedule 1 as well as move HCB from Schedule 2 to Part 1 of Schedule 1, thereby prohibiting the manufacture, use, sale, offer for sale or import of short-chain chlorinated alkanes, PCNs and HCB, as well as products containing these substances, unless incidentally present. In addition, the prohibition on the use, sale or offer for sale of a product containing short-chain chlorinated alkanes and PCNs does not apply if the product was manufactured or imported before the coming into force of the Regulations.

5.2.2 Introduction of temporary (time-limited) permitted uses

Under the former Regulations, time-limited permitted uses of toxic substances were not allowed. The Regulations introduce temporary permitted uses, which would allow an element of flexibility in the risk management of substances. The use listed in column 2 of Part 2 of Schedule 2 is allowed until the expiry date listed in column 3 of Part 2 of Schedule 2. After the expiry date, the prohibition on that activity will apply, unless a permit is issued under section 10.

5.2.3 Addition of BNST to Part 1 and Part 2 of Schedule 2

The Regulations add BNST to Part 1 and Part 2 of Schedule 2, thereby prohibiting the manufacture, use, sale, offer for sale or import of BNST as well as products containing it, unless incidentally present. Some exemptions apply as follows:

- the prohibition on the manufacture, use, sale, offer for sale or import does not apply to the use of BNST as an additive in rubber, except in tires;
- the prohibition on the manufacture, use, sale, offer for sale or import does not apply for a period of two years after the coming into force of the Regulations to BNST used as an additive in lubricants; and
- the prohibition on use, sale or offer for sale of a product containing BNST does not apply if the product is manufactured or imported before the coming into force of the Regulations, or, in the case of BNST, used as an additive in lubricants within two years after the coming into force of the Regulations or according to a permit issued under section 10 of the Regulations.

As mentioned in the release profile of BNST in section 2.1.2, BNST in rubber parts is not expected to contribute to environmental releases. Consequently, it is exempted from the Regulations.

The two-year temporary permitted uses allow companies a reasonable amount of time to reformulate products with alternative additives and to obtain certifications of engine oil containing substitute to BNST. After the temporary permitted uses expire, companies can apply for an annual permit, which can be renewed twice to accommodate unforeseen circumstances.
5.2.4 Addition of TBTs to Part 3 of Schedule 2

The Regulations add TBTs to Part 3 of Schedule 2, thereby prohibiting the manufacture, use, sale, offer for sale, or import of these substances or products containing them. However, this prohibition does not apply to the following:

(a) tetrabutyltin containing a concentration of less than or equal to 30% by weight of TBTs; and

(b) mono- and dibutyltins (in applications such as PVC processing, glass coating or as catalysts), because TBTs are incidentally present in these products.

Although the overall objective is to manage any potential releases of TBTs to the environment, the above-noted applications in which TBTs are present are not prohibited as any associated potential releases are either being addressed by other risk management measures, or have limited environmental impact.

In addition, the prohibition on use, sale or offer for sale of a product containing TBTs does not apply if the product is manufactured or imported before the coming into force of the Regulations.

It should also be noted that the Regulations do not apply to TBTs for pesticidal uses within the meaning of section 2 of the Pest Control Products Act, so as to avoid duplication of regulatory requirements.

5.2.5 Exemption for personal use

The Regulations include an exemption for the use or import of a product containing BNST if it is used by an individual for their personal use.

5.2.6 Changes to permit provisions

The Regulations streamline the permit provisions by specifying that only persons who are manufacturing or importing a toxic substance subject to the Regulations, or a product containing it, on the day on which the Regulations come into force may continue that activity if they have been issued a permit under section 10 of the Regulations. In addition, the Regulations add a requirement regarding the provision of additional information as part of a permit application.

Furthermore, the prohibition on use, sale or offer for sale of a toxic substance or a product containing it does not apply if they were manufactured or imported by a person to whom a permit has been issued.

5.2.7 Listing of substances subject to reporting in Part 4 of Schedule 2

The Regulations add short-chain chlorinated alkanes to Part 4 of Schedule 2. As a result, manufacturers or importers of short-chain chlorinated alkanes or a product containing these substances have to submit reports on these activities above the reporting thresholds specified. For short-chain chlorinated alkanes, the threshold is set at 1 kg annually and a concentration level greater than 0.5% by weight. The information obtained on short-chain chlorinated alkanes will aid in the determination of potential future controls on the incidental presence of short-chain chlorinated alkanes.

As HCB is added to Part 1 of Schedule 1, reporting requirements for HCB are no longer required and have therefore been removed.

5.2.8 Use of toxic substances in a laboratory for analysis, for scientific research or as a laboratory analytical standard

The reporting requirements for laboratories using the listed substances for analysis, scientific research, or as a laboratory analytic standard are set out in Schedule 3. The Regulations modify the requirements by outlining the specific information regarding the products containing the substances to be reported separately from that of the toxic substance, where applicable. These modifications limit duplication of reporting and improve the quality of the data received regarding laboratory use of the toxic substances.

Applicable to all information provided pertaining to a product, the Regulations require that both the concentration of the toxic substance in that product and the unit of measurement be provided for the information to be considered complete.
5.2.9 Other changes

Miscellaneous changes throughout the regulatory text provide greater clarity on the requirements of the former Regulations. For example, the term “annual weighted” is added in front of “average concentration” to clarify that the average to be reported is not an arithmetic average but a weighted average. In addition, the term “total annual” is added to paragraphs 12(a) and 12(c) of the Regulations so that it is clear that it is the total quantity of all imports and manufacturing during a calendar year that is required to be reported. Minor wording changes have also been applied to the description of the permitted uses for pentachlorobenze and tetrachlorobenze that are identified in Part 1 of Schedule 2.

5.2.10 Changes in response to recommendations from the Standing Joint Committee for the Scrutiny of Regulations

In response to the recommendations of the Standing Joint Committee for the Scrutiny of Regulations, the word “mixture” is removed from the regulatory text. It is important to note that while the word “mixture” is no longer used, mixtures are captured in the Regulations by reference to substances and products containing substances.

In addition, the Committee identified two areas where the French version of the former Regulations differed from the English version. These discrepancies are rectified by the Regulations.

5.2.11 Coming into force

The Regulations repeal and replace the former Regulations and come into force three months after the day on which they are registered.

6. Regulatory and non-regulatory options considered

Several regulatory and non-regulatory options have been considered, and the rationales for rejecting or accepting them are provided below.

6.1 BNST

Status quo

BNST has been found to meet the criteria for persistence and bioaccumulation potential and toxicity to non-human organisms. Taking no action would result in the continued release of BNST into the Canadian environment which would further exacerbate the risks identified above. Therefore, maintaining the status quo is rejected.

Market-based instruments

Market-based instruments which were taken into consideration are environmental fees or charges. Environmental charges can be applied to persons manufacturing, importing, selling or using the substance or products containing the substance. For example, a charge on products containing BNST would provide the incentive for industry to modify their process or to use a substitute for BNST. However, a charge would not provide the certainty that the substance would be phased out entirely. Therefore, these instruments do not appear to be appropriate to achieve the lowest level of release of BNST to the environment. Consequently, they have not been considered any further.

Non-regulatory measures

Non-regulatory measures such as codes of practice, guidelines and pollution prevention plans were also considered for the management of BNST. Given the risks associated with BNST there is no guarantee that, being voluntary, these measures would achieve the lowest level of release of BNST to the environment. Hence, these measures were not considered appropriate.

Regulations
Prohibiting the manufacture, use, sale, offer for sale or import of BNST or products containing BNST provides certainty that the release of BNST is reduced to the lowest level. In addition, the Regulations provide flexibility to affected parties to continue to use the substance, on a temporary basis, in order to allow adequate substitutes to be selected and placed on the market. Regulations were considered the best option.

6.2 Short-chain chlorinated alkanes, PCNs, TBTs, and other changes

Short-chain chlorinated alkanes, PCNs, and TBTs for non-pesticidal uses were assessed as meeting one or more of the criteria set out under section 64 of CEPA 1999 with potential risks to the environment or human health. Since short-chain chlorinated alkanes and PCNs are no longer in use or manufactured in Canada, and, in the case of TBTs for non-pesticidal uses, are not currently in commercial use in their pure form in Canada, a regulation is the preferred instrument to prevent the potential for re-introduction in the Canadian marketplace of these three substances.

With respect to TBTs, the potential releases from the activities for which the Regulations would not apply are being addressed by other risk management measures.

In addition, short-chain chlorinated alkanes and PCNs have been added to the POPs Protocol under the UNECE Convention on LRTAP, requiring all Parties ratifying the amendment to the Protocol to eliminate their production and use. The Regulations allow Canada to consider ratifying the amendments to the Protocol on POPs.

Furthermore, the issues identified by the Standing Joint Committee for the Scrutiny of Regulations and other stakeholders can only be addressed through the Regulations.

7. Benefits and costs

An analysis of benefits and costs was conducted to assess the impacts of the Regulations on stakeholders including the Canadian public, industry and government. Following comments received during the Canada Gazette, Part I, publication, some changes have been made to the analysis to reflect stakeholders’ concerns and suggestions, as well as newly available data. These changes are discussed below.

Analytical framework

The approach to the cost-benefit analysis identifies, quantifies and monetizes, to the extent possible, the incremental costs and benefits associated with the Regulations. The cost-benefit framework consists of the following elements:

Incremental impact: Incremental impacts are analyzed in terms of release reductions and costs and benefits to interested parties and the economy as a whole. The incremental impacts were determined by comparing two scenarios: one without the Regulations and the other with the Regulations. The two scenarios are presented below.

Timeframe for analysis: The time horizon used for evaluating the impacts is 25 years. The first year of the analysis is 2013.

Approach to cost and benefit estimates: To the extent possible, all costs and benefits have been estimated in monetary terms and are expressed in 2010 Canadian dollars. Where this was not possible due either to a lack of appropriate data or to difficulties in valuing certain components or data inputs, the costs and benefits have been evaluated in qualitative terms.

Discount rate: A real discount rate of 3% was used for this analysis. Sensitivity analysis varying the discount rate from 3% to 7% to test the volatility of the estimates to the discount rate was also conducted.

Cost and benefit estimates for BNST are based on a 2011 study conducted for Environment Canada by HDR Corporation. [see footnote 19]

7.1 Impacts of prohibiting BNST

Business-as-usual scenario

The substance BNST is a relatively inexpensive additive; the substance has very desirable antioxidant characteristics resulting in improved performance of lubricant products. For these reasons, industry would have no incentive to switch to an alternative substance in the absence of federal regulations. It was therefore assumed, under the business-as-usual (BAU) scenario, that the current pattern of manufacture, import and use of BNST by the industry would continue and the total quantity used yearly would be determined by the demand for final products for which the use of the substance is intended. In the absence of regulatory measures, production of BNST in Canada is expected to increase on average at a level equivalent to the growth rate of the chemical sector, which is 0.9%. Total release of BNST over the period 2013–2037 is estimated to be approximately 200 tonnes.
Regulatory scenario

The Regulations will come into force in 2013. Under the regulatory scenario, the manufacture, use, sale, offer for sale or imports of BNST or products containing BNST are prohibited. For the years 2013 and 2014, BNST releases are expected to continue as a result of the temporary two-year period in which the Regulations allow permitted uses of BNST as an additive in lubricants. These temporary permitted uses allow companies a reasonable amount of time to reformulate products with alternative additives and to obtain international certifications of engine oil containing substitute to BNST. After the expiration of the temporary permitted uses period, manufacturers and importers can apply for an annual permit, which can be renewed twice to accommodate unforeseen circumstances. However, comments received from industry stakeholders indicate that reformulation and the testing process for alternatives is expected to be completed within the two-year temporary permitted use period. Therefore, no permit applications are expected and industry is assumed to use the substitute starting in 2015.

Benefits to Canadians

At the end of the exemption period, releases of BNST into the environment will be almost entirely eliminated. It is estimated that over the 2015–2037 period, releases of approximately 200 tonnes of BNST into the environment will be avoided.

Environmental benefits are expected as a result of these avoided releases. The reduction of BNST in the environment is likely to improve water quality, indirectly stimulating aquatic biodiversity and improving the health of an entire ecosystem. However, it is challenging to accurately estimate the impact of the Regulations on the quality of these water bodies in order to value the subsequent improvements, given that no monitoring data on receiving water bodies is yet available. While specific site data is not available, a study, by Johnston et al. (2005), estimates the willingness to pay for a marginal improvement in water quality for aquatic species in the U.S. Conducting a meta-analysis of over 30 U.S. studies on the willingness to pay (WTP) for aquatic resources improvements that affect fish and other aquatic species, the study finds that for a small improvement in water quality that affects fish (an improvement of 0.5 on the 10-point Water Quality Ladder, index from 7.0 to 7.5), households would be willing to pay between $3.07 to $6.89 annually in 2002 U.S. dollars ($5.54 to $12.44 in 2010 Canadian dollars). Given the similarities between the environmental quality in both Canada and the U.S. and the integrated nature of our economies, it is assumed that citizens in both countries would have similar willingness to pay for environmental improvement. In light of the lack of data on the number, location and quality of receiving environment, a total value of benefits could not be provided using the above WTP estimates. However, it is expected that the Regulations will result in an improvement in environmental quality by contributing to the elimination of BNST released.

Cost to industry

Manufacturers of BNST and of lubricants using chemical additive products that contain BNST in Canada are expected to incur costs to meet the requirements of the Regulations. The present value of the total cost to industry is estimated to be about $20 million, or $0.8 million in present value per year. These costs are analyzed below.

Product line substitution and initial preparation costs

In order to meet the requirements of the Regulations, regulatees are expected to incur initial transition costs such as assessing the applicability of the regulation to the particular establishment and evaluating the need for other process transformations, including training needs.

For the manufacturers of BNST, costs are also expected to be incurred for substituting the production of BNST with the production of another substance. In general, most specialty chemical manufacturing companies are set up to quickly change products to meet new demands by clients. It is assumed that the equipment used for manufacturing of BNST can also be used for manufacturing other chemicals and therefore no capital costs are expected. In addition, manufacturers are likely to have a good knowledge of the existing market and trends and will be able to quickly identify options. However, there may be a cost associated with marketing and other activities related to informing their customers about the uses of the substitutes in their particular applications.

The associated costs to undertake these activities over the 25-year period are estimated to be about $60,000 in present value terms.

Cost of reformulated chemical additive products

Substituting BNST in lubricant formulations with alternative antioxidants is possible as other diarylamine
antioxidants as well as phenolic or zinc based antioxidants exist. Substitution costs are expected to be incurred as a result of the substitution ratio between BNST and the substitute substance in specific products. According to stakeholders, the prices of substitutes are similar to that of BNST, but greater quantity of the substitute may be required to achieve the same performance. Environment Canada estimates the price of BNST to be about $5 per kg. This price is used as a proxy to calculate the incremental cost associated with using a substitute.

Comments received from industry stakeholders indicate that the substitution of BNST in chemical additive products will begin before the end of 2015. Manufacturers of lubricants are expected to clear existing inventories of products containing BNST and use the substitute once it becomes available.

While reformulation costs are incurred by manufacturers of chemical additive products outside of Canada, it is conservatively assumed that these costs will be passed onto the lubricant manufacturers in Canada. According to stakeholders, each product requires two or more years to reformulate and certify.

Overall, it is estimated that the present value of the costs to industry to use reformulated chemical additive products is $19.34 million. It is expected this cost will be passed onto Canadian lubricant manufacturers that use these chemical additive products.

**Distributional and competitiveness impacts**

The Regulations are not expected to have any effect on industry’s competitiveness. While domestic lubricant manufacturers are prohibited from using chemical additive products containing BNST, import of products that contain BNST are prohibited as well, creating a level playing field for lubricant manufacturers.

The competitiveness of Canadian manufacturers of BNST may be impacted by the prohibition of BNST. However, the industry has indicated that potential BNST substitutes are available and these will be manufactured instead for use in the production of lubricants.

In foreign markets, domestic manufacturers who export lubricants may be at a competitive disadvantage should they have to increase the price of their products in these markets relative to competing products containing BNST. However, the average annual incremental cost to Canadian lubricant manufacturers is estimated to be close to $120,000, which represents 0.01% of average production costs per facility. Therefore, the resulting impact on the ability of domestic manufacturers to produce at a competitive price in foreign markets is expected to be minimal.

Consumers are expected to be impacted to the extent that manufacturers pass on a fraction or all of their increased costs further down the distribution chain in the form of a price increase. To be conservative, it is assumed that all of the cost increase would be passed on to consumers.

The quantity of lubricants containing BNST used annually in Canada is estimated to be about 182 million litres per year. Using this quantity and the assumption above, it is estimated that the annual average incremental cost increase for automotive lubricants amounts to about half a cent per litre.

### 7.2 Impacts of prohibiting short-chain chlorinated alkanes

**Benefits**

As discussed in the description of the Regulations (section 5), the use of short-chain chlorinated alkanes has recently been phased out by the industry. As a result, releases of short-chain chlorinated alkanes are assumed to be negligible. One of the benefits of the Regulations is preventing the re-introduction of the substance into commerce, thereby eliminating the potential risks of future damage to the environment and human harm.

Short-chain chlorinated alkanes have been added to the POPs Protocol under the UNECE Convention on LRTAP, requiring all Parties ratifying the amendment to eliminate their production and use. The Regulations allow Canada to consider ratifying the amendments to the POPs Protocol.

**Costs**

There are currently no manufacturers of short-chain chlorinated alkanes in Canada. During the consultations held in late 2009, the sole U.S. manufacturer of short-chain chlorinated alkanes indicated a possible phase-out of production in the short term. Furthermore, the remaining users of the substance in Canada phased out their use in early 2010.

A study conducted for Environment Canada concluded that there are no imports of products containing short-chain chlorinated alkanes from the United States or Europe. (see footnote 22) While products containing the substance may be imported from other regions of the world, none of these imports have been reported to Environment Canada. As a result, imports from these regions are expected to be small. Therefore, imports of products containing these substances are expected to be negligible under the status quo.
7.3 Impacts of prohibiting PCNs and TBTs

The substances PCNs and TBTs for non-pesticidal uses are not currently manufactured or used in their pure form in Canada. Furthermore, current activities involving TBTs which are present in other organotin compounds are not prohibited. As a result, the Regulations are not expected to result in any incremental costs to industries. However, the Regulations prevent a re-introduction of these substances and of products containing them in the Canadian market, thereby eliminating the risk of release of PCNs and resulting ecological harm. Furthermore, they serve to reduce any potential transboundary emissions of PCNs and protect the environment from its risks on a global level, signalling Canada’s commitment to take action on PCNs to its international partners.

7.4 Other impacts

The impacts of the wording changes contained in the Regulations are expected to be minimal. Limited cost savings are expected for industry as a result of the reduced reporting requirements. Reporting activities should already be in place for all regulated businesses, with the changes expected to be reflected in slight modifications of their existing practices. Negligible record keeping costs are expected to be incurred from changes in reporting requirements for laboratories performing scientific research and facilities submitting permit applications.

7.5 Impacts on the federal government

The federal government is expected to incur costs totalling about $400,000 over 25 years in present value. This cost is expected to be incurred for compliance promotion and enforcement of the provisions of the Regulations, but this cost is covered under the current funding of CMP.

Compliance promotion

Compliance promotion activities are intended to encourage the regulated community to achieve compliance. Compliance promotion costs include distributing the Regulations, developing and distributing promotional materials (such as a fact sheet and Web material), advertising in trade and association magazines and attending trade association conferences. The present value of this cost is about $160,000 in present value over 25 years.

Enforcement

Government of Canada enforcement activities are intended to ensure compliance with the Regulations. In 2013, an estimated one-time cost of $53,000 is expected to be required for the training of enforcement officers and $2,500 to meet information management requirements. The present value of this cost is about $240,000 in present value over 25 years. This cost includes inspections, investigations, measures to deal with alleged violations and prosecutions.

7.6 Overall impacts

As presented above, the Regulations result in both costs and benefits to stakeholders. Most of the costs are expected to be incurred as a result of controlling BNST. This is estimated to result in a present value of incremental cost of $20 million or $0.8 million in present value per year. For short-chain chlorinated alkanes, PCNs and TBTs for non-pesticidal uses, the Regulations are estimated to impose negligible costs on regulatees since these substances are not manufactured or currently not in commercial use in their pure form in Canada.

Costs to the Government associated with managing releases of these substances are estimated to be low.

While it is not possible to quantify the benefits associated with the Regulations, positive benefits are expected in terms of the protection to the environment and its aquatic ecosystem, and protection of the health of Canadians against exposure to short-chain chlorinated alkanes. Furthermore, the Regulations demonstrate Canada’s commitment to meet its international obligations by reducing releases of POPs.

Overall, the net impact of the Regulations is expected to be positive.

The present value of the monetized incremental costs, and the qualitative costs and benefits of the Regulations are summarized in the following table:

Table 2: Incremental cost-benefit statement (in millions of 2010 dollars)

<table>
<thead>
<tr>
<th>Cost-benefit statement</th>
<th>2013</th>
<th>2023</th>
<th>Final Year: 2037</th>
<th>Total Present Value</th>
<th>Average Annual</th>
</tr>
</thead>
</table>
A. Quantified costs (BNST)

<table>
<thead>
<tr>
<th>Industry costs</th>
<th>3%</th>
<th>7%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of reformulated chemical additive products</td>
<td>$8.00</td>
<td>$0.49</td>
</tr>
<tr>
<td>BNST production line substitution and initial preparation cost</td>
<td>$0.06</td>
<td>$0.00</td>
</tr>
<tr>
<td>Total industry cost</td>
<td>$8.06</td>
<td>$0.49</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Government costs</th>
<th>3%</th>
<th>7%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enforcement</td>
<td>$0.07</td>
<td>$0.02</td>
</tr>
<tr>
<td>Compliance promotion</td>
<td>$0.05</td>
<td>$0.00</td>
</tr>
<tr>
<td>Total government costs</td>
<td>$0.12</td>
<td>$0.00</td>
</tr>
<tr>
<td>Total costs</td>
<td>$8.18</td>
<td>$0.49</td>
</tr>
</tbody>
</table>

B. Qualitative impacts

Environment: Protecting the environment and its ecosystem against damages from BNST, short-chain chlorinated alkanes, PCNs, and non-pesticidal uses of TBTs by preventing future releases of these substances.

Human health: Protecting the health of Canadians against future releases of short-chain chlorinated alkanes.

Industry: Reducing administrative burden with respect to reporting and improving the clarity of the regulatory text.

Government: A small cost is expected to be incurred by the federal government with respect to monitoring the presence of BNST in some environmental media. Canada will be in a position to consider ratifying the amendments to the POPs Protocol.

7.7 Sensitivity analysis

A sensitivity analysis has been conducted by varying the discount rate from 3% to 7% to determine the direction and magnitude of changes to the final estimates of incremental costs associated with the Regulations. The results, presented in Table 3, indicate that changes in the estimates of costs were proportional to changes in the discount rate and the magnitude of these changes is relatively small.

<table>
<thead>
<tr>
<th>Discount rate</th>
<th>Undiscounted</th>
<th>3%</th>
<th>7%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs</td>
<td>$23.6</td>
<td>$20.0</td>
<td>$17.2</td>
</tr>
</tbody>
</table>
8. “One-for-One” Rule

The federal government has implemented a “One-for-One” Rule to reduce administrative burden (i.e., the time and resources spent by business to show compliance with government regulations). The “One-for-One” Rule requires that regulatory changes that increase administrative burden need to be offset with equal administrative burden reductions. Since the Regulations result in a net decrease in administrative burden on business, they are considered an “OUT” under the rule.

The Regulations require manufacturers or importers to submit reports if short-chain chlorinated alkanes are incidentally present above the reporting thresholds specified. Information gathered through these reports will aid in determining whether potential future controls will be required to address incidental presence of short-chain chlorinated alkanes in other substances.

The Regulations also require reporting when a toxic substance is used above a threshold in a laboratory for analysis, in scientific research or as a laboratory standard. Information gathered through these reports will aid in determining whether additional controls are required for these uses.

As a flexibility mechanism, such as in the case of an unforeseen situation in the substitution process of a substance, the Regulations allow manufacturers and importers to apply for a permit in order to temporarily allow for ongoing manufacture and import of a substance. Although there would be costs associated with applying for permits, industry has indicated that they do not expect to apply for any permits.

The Regulations remove the reporting requirements for activities in which HCB is incidentally present as this information is no longer necessary. This removes administrative burden on firms which were previously reporting.

The Regulations have a net removal of burden of about $1,200 or an average savings per business of $2. (see footnote 23)

9. Small business lens

The Regulations are expected to have minimal impacts upon small businesses in Canada. The retailers of lubricants containing BNST (i.e., gas stations and petroleum wholesalers and distributors) are expected to incur a higher cost of about $0.8 million per year for purchasing a substitute product for sale. These two sectors contain over 10,000 companies, most of which are small businesses. It is expected that the retailers will pass this cost onto consumers in the form of higher prices.

Also, laboratories which use a toxic substance above a threshold are required to submit reports to the Minister. An estimated 50 small laboratories in this sector will be impacted by the Regulations. The total cost of these reporting requirements on laboratories is estimated to be under $500 in annualized present value terms.

10. Consultation

10.1 Comments received prior to publication in the Canada Gazette, Part I

Public consultations were held during the development of the Regulations and prior to the publication of the proposed Prohibition of Certain Toxic Substances Regulations, 2012 (proposed Regulations). A summary of comments received prior to the proposed Regulations can be found below.

Addition of BNST

In September 2010, Environment Canada informed the governments of the provinces and territories through the Canadian Environmental Protection Act National Advisory Committee (CEPA NAC) about the proposed Regulations and provided them with an opportunity to consult. No comments were received from CEPA NAC members.

Environment Canada has also consulted with stakeholders (including industry, and environmental non-governmental organizations [ENGOs]) on the addition of BNST to the proposed Regulations through a consultation document sent to stakeholders and published on the CEPA Registry Web site on November 17, 2010, for a 30-day comment period. Furthermore, on November 18, 2010, a multi-stakeholder consultation meeting via conference call was held, to discuss the proposed path forward for the risk management of BNST in Canada.

In addition to comments provided during the consultation via conference call, two submissions were also received. Those comments were considered in the development of the proposed Regulations. Overall, stakeholders do not oppose the proposed measure for BNST. A summary of the comments and responses of Environment Canada is provided below.

Comment: Stakeholders asked if Environment Canada plans to measure BNST presence in the environment.

Response: Environment Canada indicated that BNST would be part of the monitoring and surveillance activities that come under the CMP. This would be conducted after the analytical method for detection is developed.
Comment: Stakeholders asked how Environment Canada will consider the social and economic aspect of the proposed Regulations.

Response: Environment Canada indicated that the impact of the proposed Regulations would be evaluated within a cost-benefit framework that includes socio-economic considerations and a summary of the findings would be presented in the Regulatory Impact Analysis Statement that would accompany the publication of the proposed Regulations.

Comment: Industrial stakeholders and ENGOs representatives had questions about the length of time before BNST will be totally prohibited under the proposed Regulations.

Response: Environment Canada clarified that the proposed Regulations would include a provision for temporary permitted uses for BNST to provide time to industry to conduct additional research for substitutes or to reformulate their products.

Comment: An organisation representing some users of lubricants containing BNST expressed their concern about the potential impact of the proposed measures on their company members. They wondered about the availability of alternative substances.

Response: Environment Canada responded that information received from BNST manufacturer and chemical additive product manufacturers suggested there are identified potential substitutes to BNST. Environment Canada believes that the impacts on businesses would be manageable given the existence of BNST substitutes coupled with the provision for temporary permitted uses.

Comment: The same organization also recommended that suppliers of products containing BNST be identified and engaged in the development process of the proposed risk management measure.

Response: Environment Canada indicated that manufacturers, importers and users were identified in 2007 as part of the mandatory survey set out under section 71 of CEPA 1999, and then engaged in multilateral discussions. The information and input provided by them were used in the risk management development process in order to address the different potential impacts related to the proposed measure.

Addition of short-chain chlorinated alkanes

On August 30, 2008, the Proposed Risk Management Approach for Chlorinated Paraffins was published on Environment Canada’s Web site for a 60-day public comment period. Furthermore, on October 22, 2009, a multi-stakeholder consultation meeting was held in Toronto, to discuss a proposed path forward for the risk management of chlorinated paraffins in Canada. In addition, stakeholders were invited to provide written comments to Environment Canada on the related consultation document that was also available online.

Thirteen written submissions regarding the risk management of all chlorinated alkanes were received from industry, ENGOs and other government departments during the consultation period. However, one comment specific to the risk management for short-chain chlorinated alkanes was made. The full text of the responses to comments can be viewed on the chlorinated paraffin Web page on Environment Canada’s Pollution and Waste Web site at www.ec.gc.ca/toxiques-toxics/Default.asp?lang=En&n=98E80CC6-18&xml=148DE7B6-5B9A-42D8-884F-920978DC3C99.

Comment: An industry stakeholder indicated that there was no need to include exemptions on the use of short-chain chlorinated alkanes as these substances were already phased out or were being phased out in Canada.

Response: The Government of Canada has considered the above noted comment and has determined that short-chain chlorinated alkanes would not be subject to any specific exemptions under the proposed Regulations.

Addition of PCNs

On July 2, 2009, Environment Canada informed the governments of the provinces and territories through the CEPA NAC about proposed control measures that would prohibit the manufacture, use, sale, offer for sale or import of PCNs and products containing PCNs and provided them with an opportunity to provide feedback. No comments were received from CEPA NAC members.

At the same time, Environment Canada consulted with stakeholders on the proposed control measures to prohibit the manufacture, use, sale, offer for sale or import of PCNs and products containing PCNs through a consultation document sent to stakeholders and published on Environment Canada’s Web site. No comments opposing the proposed control measures were received.

Addition of TBTs

On December 21, 2010, Environment Canada informed the governments of the provinces and territories through the CEPA NAC about the addition of TBTs to the proposed Regulations and provided them with an opportunity to
consult. No comments were received from CEPA NAC members.

Environment Canada has also consulted with stakeholders on the addition of TBTs to the proposed Regulations through a consultation document sent to stakeholders and published on the Web on January 19, 2011, for a 30-day comment period. Industry indicated that they supported this proposal.

In August 2009, the Proposed Risk Management Approach for Non-Pesticidal Organotin Compounds (see footnote 24) was published by Environment Canada and Health Canada for a 60-day public comments period. During the consultation period, four submissions were received: two from the industry, one from an industry association and one from an ENGO. A summary of the main issues raised as well as Environment Canada’s responses to them are presented below.

Comment: Industry supported the exclusion of activities where TBTs may be present and recommended that these activities be specifically identified as exemptions in the proposed Regulations, including exemptions for storage, transportation and disposal of tin stabilizers, given that they would be covered by the existing environmental Performance Agreement.

Response: Environment Canada has examined these recommendations and indicated that the proposed Regulations would not prohibit the identified activities.

Comment: An ENGO representative expressed concern regarding the permitted uses of products where TBTs are present and recommended adding the associated activities to Part 2 of Schedule 2 of the Prohibition Regulations and to prescribe specific limits for TBTs that may be present in products or food as contaminants.

Comment: An ENGO representative disagreed with the decision to rely on the Environmental Performance Agreement Respecting the Use of Tin Stabilizers in the Vinyl Industry to reduce the release of organotins (which would include the potential release of TBTs that may be present in other organotin compounds) into the environment.

Response: In response to these two comments, Environment Canada indicated that the result of the verifications that have been conducted to date on close to half of the facilities covered by the Environmental Performance Agreement revealed that measures are currently in place, or in a few cases are being developed, to prevent the potential releases of these substances at these facilities. Furthermore, in 2005, a Ministerial Condition was published under subsection 84(5) of CEPA 1999, which imposes restrictions on the use and disposal of tetrabutyltin, thereby limiting the release of this substance to the environment. In addition, the proposed Code of Practice would identify best management practices that will seek to limit any potential releases of tetrabutyltin. The facilities that would be covered by the Code are expected to apply these practices. It is noted that the Conditions and the Code also address any potential release of TBTs present in tetrabutyltin or resulting from its environmental breakdown.

As a result, Environment Canada concluded it is not necessary to prescribe specific limits to control the potential releases of TBTs from these activities because they are being addressed by the other risk management measures, or have limited environmental impact.

With respect to the comment pertaining to adding limits to prevent TBTs from being transferred to food as a contaminant, Health Canada has set a tolerable daily intake of 0.25 µg/kg bw/day for TBTs in foods. Any risk management would be performed on a case-by-case basis if contamination of a food were found.

Administrative changes

On December 18, 2007, a consultation document on the proposed administrative changes was posted on Environment Canada’s CEPA Registry for a 38-day comment period. In addition, a letter was sent to stakeholders informing them of the publication and consultation period. The consultation document provided an overview of the regulatory amendments that were being considered.

Environment Canada informed provincial and territorial governments about the proposed Regulations via an email to the CEPA NAC dated December 3, 2008, in which a formal opportunity to consult was offered. Comments received from CEPA NAC have been considered in developing the proposed Regulations.

The main views that were raised by stakeholders, Environment Canada’s response to them and how they have been taken into account when developing the proposed Regulations are summarized below. Complete responses to the comments received are available at www.ec.gc.ca.

Prohibition of substances and products listed in Part 1 of Schedule 2

Comment: Industry stakeholders had concerns with the proposed rewording of paragraph 5(a) of the former Regulations. They indicated the proposed wording of section 5 could be misinterpreted to mean that products other than those set out in Part 1 of Schedule 2 would be prohibited.

Response: After consideration, Environment Canada determined that the modification was not necessary but will instead provide clarity on the requirements of paragraph 5(a) in compliance promotion materials. It should be noted that the prohibition applies to the toxic substances listed in column 1 of Part 1 of Schedule 2 and only to the
products listed in column 2 that contain the toxic substances above the specified concentration limit. The prohibition also applies when the substance is incidentally present.

**Reporting requirements**

Comment: Industry stakeholders raised concerns about the availability of information with respect to the country of origin, and questioned the necessity to provide quantities exported. In addition, manufacturers were also concerned about the new requirement to provide customer specific sales data.

Response: Environment Canada has considered these concerns, and the proposed Regulations would remove these requirements.

Comment: Some industry stakeholders have indicated to Environment Canada that multiple reporting on the same quantity of a substance is required under the current Regulations, including when a substance is first imported and later when a product containing the same substance imported is manufactured.

Response: Environment Canada has considered these concerns and as a result, the proposed Regulations would remove duplication of reporting.

**Mixtures**

Comment: A non-governmental organization had concerns about the removal of the word “mixture” as they felt that this may reduce the scope of the Regulations.

Response: Environment Canada clarifies that the proposed Regulations applicable to substances and products containing them would also apply to mixtures of listed substances.

**Weighted average**

Comment: A provincial government representative requested that a definition be added to the proposed Regulations for the term “weighted average.”

Response: While a definition was not added to the proposed Regulations, compliance promotion materials will provide guidance on how to calculate a weighted average for those subject to the Regulations.

10.2 Comments received since publication in the *Canada Gazette*, Part I

The proposed Regulations were published on July 23, 2011, in the *Canada Gazette*, Part I, for a 75-day public comment period. Approximately 20 submissions were received on the proposed Regulations from over 18 industry stakeholders, a non-governmental organization and an Aboriginal organization. A number of stakeholders have forwarded positive comments on the Regulations such as supporting either the addition of certain substances or other changes and clarifications that have been made. In addition, a number of specific comments relating to the following toxics are summarized below.

**BNST use in lubricants**

Comment: Industry stakeholders have expressed that substitutes for BNST are available and that the two-year temporary permitted use exemption period should be sufficient. However, the temporary permitted use exemption period should exceed two years to allow for unexpected delays that may occur in the substitution process. A non-governmental organization was concerned that two years was too long for temporary permitted usage.

Response: The Government of Canada is providing a two-year exemption for the use of BNST as an additive in lubricants. If required regulatees can apply for an annual permit after the end of the two-year exemption period under conditions specified in the Regulations.

Comment: An industry stakeholder proposed that the temporary permitted use period be applicable to the use of BNST as an anti-oxidant in other lubricants such as motor vehicle power steering fluids, transmission fluids, and various grease.

Response: The intent is that the temporary permitted use exemption would apply to the use of BNST in all types of lubricants; therefore, the Regulations have been modified in order to clarify the intent.
BNST use in rubber

Comment: Some industry stakeholders have provided information indicating that BNST is used in automobile and vehicle rubber parts. They also requested an exemption for this use on the basis that the use of BNST in rubber poses less risk to the environment than it does in vehicle engine oil.

Response: The use of BNST in rubber parts is not expected to contribute to environmental releases. Thus, an exemption has been added to the Regulations for the use of BNST in rubber products, with the exception of tires. No use of BNST in tires was identified by industry. This use was not exempted to avoid future introduction.

Short-chain chlorinated alkane use in paints

Comment: An industry association stated that medium-chain chlorinated alkanes are used in paints found in pools. Since short-chain chlorinated alkanes are found in trace amounts in medium-chain chlorinated alkanes, they suggested that an exemption should be provided for the use of paints found in pools.

Response: Short-chain chlorinated alkanes are not used intentionally in paints within Canada; however, they may be incidentally present in small amounts. In such instances, the prohibition on manufacture, use, sale, offer for sale and import of short-chain chlorinated alkanes would not apply.

Products in use

Comment: Industry stakeholders noted that there should be an exemption for products that were manufactured and imported prior to the coming into force of the Regulations.

Response: An exemption has been added for the use, sale and offer for sale of products containing BNST, short-chain chlorinated alkanes, PCNs and TBTs that were manufactured or imported prior to the coming into force of the Regulations. This is intended to allow the sale of existing products and to allow ongoing use of products, such as underground cables, that were already in place prior to the coming into force of the Regulations.

Laboratory use

Comment: An industry stakeholder proposed that the Regulations should allow for the continuation of the use of substances in laboratories, as it would be beneficial for research and development. Another stakeholder suggested that the Regulations clarify the restrictions on the distribution of substances in research labs, schools and industrial labs.

Response: The prohibitions under sections 4 and 6 do not apply to any substance or any product containing it that is used in a laboratory for analysis, in scientific research or as a laboratory analytical standard.

Incidental presence

Comment: An industry stakeholder supported the text in the Regulations regarding the prohibition of HCB "unless incidentally present"; however, the text in the Regulatory Impact Analysis Statement (RIAS) could be interpreted otherwise.

Response: The description of the Regulations (section 5.2.1) has been updated to better capture that the exemption for incidental presence applies to HCB.

Permits

Comment: An Aboriginal organization reinforced that if a permit could potentially impact Aboriginal rights, the Government of Canada must first consult First Nations.

Response: Consultations with First Nations will be undertaken as per existing policies relating to Aboriginal consultations, such as the Updated Guidelines for Federal Officials to Fulfill the Duty to Consult, available at www.aadnc-aandc.gc.ca/eng/1100100014664.
Reports

Comment: A non-governmental organization proposed that the reporting of all substances listed in the Regulations should be required regardless of threshold and should also include information on alternatives.

Response: The reporting requirements focus on those areas where there may be ongoing use as per one of the exemptions. The Regulations prohibit the manufacture, import, use, sale and offer for sale of toxic substances or products containing them with a limited number of exemptions.

Comment: An industry stakeholder suggested that the exemption for incidental presence should be universal, applying to all situations, including reporting for substances listed in Schedule 2, Part 4.

Response: There are only two substances listed in Schedule 2, Part 4 for which reporting could be required. These reporting requirements are limited in scope and are intended to gather information that can be used to assess whether additional control measures should be considered for these substances.

Comment: An industry stakeholder noted that there is an inconsistency between the original section 71 notice of a 100 kg reporting threshold and the new requirement of a 1 kg reporting threshold for BNST. Environment Canada should not lower the reporting threshold of 100 kg to 1 kg annually.

Response: Reporting requirements associated with regulations and section 71 notices are intended to serve different purposes. The proposed Regulations had included a reporting requirement for manufacture and import of BNST in quantities greater than 1 kg. However, given that the main use of BNST is now expected to be phased out within two years, the reporting requirements for BNST have been removed from the Regulations.

Comment: An industry association stated that the raw materials used to make medium-chain chlorinated alkanes usually specify the short-chain chlorinated alkanes content to 1%; thus, the 0.5% reporting threshold is difficult to meet.

Response: The intent of this requirement is to gather information on the incidental presence of short-chain chlorinated alkanes in medium-chain chlorinated alkanes. This information will be used to assess the potential need to take action to address potential exposure or release from this source. While it may be difficult to meet the 0.5% threshold, it should be noted that the European Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals requires reporting if short-chained chlorinated alkanes are present in a concentration above 0.1%.

Confidential business information

Comment: An industry stakeholder noticed that there is no reference to protection of confidential business information. Provisions should be included in the Regulations to ensure that confidential business information will be protected.

Response: Under section 313 of CEPA 1999, any person submitting information under the Act may request that it be treated as confidential. The guidance materials on the Regulations include information to promote greater awareness of the protections under this section.

Accredited laboratories

Comment: Several industry stakeholders stated that it is unclear whether the government or the regulatees are required to report using an accredited laboratory. Regulatees should not be limited only to using accredited laboratories.

Response: In order to comply with the Regulations, regulatees must use a laboratory accredited to the ISO/IEC 17025:2005 standard or a laboratory that meets an equivalent standard, as prescribed in the Regulations.

International jurisdictions

Comment: Several industry stakeholders suggested that the Government of Canada align the requirements pertaining to short-chain chlorinated alkanes and those for BNST with those of the United States, the European Union and other jurisdictions.

Response: The controls for BNST and short-chain chlorinated alkanes are consistent with those in other jurisdictions as described in the regulatory cooperation section (Section 11).

CAS registry numbers
Comment: Several industry associations recommended that the Chemical Abstracts Service (CAS) registry numbers be included in the Regulations so that specific substances and groups of substances can be clearly identified.

Response: It may not be possible to list the CAS registry numbers (RNs) in the Regulations for the following reasons: not all substances have a CAS number, it can be difficult to identify an exhaustive list of CAS numbers, and CAS numbers may change over time. However, a non-exhaustive list of known CAS RNs is provided as part of the guidance materials for the Regulations.

Life cycle management

Comment: A non-governmental organization proposed that regulatory measures be developed to address wastes containing BNST and PCNs.

Response: The Regulations prohibit the manufacture, use, sale, offer for sale and import of BNST and PCNs and products containing these substances. In addition, in the case of BNST, provinces and territories have already put measures in place to manage the risks associated with the disposal of used engine oils, including those containing BNST. Monitoring of these substances is occurring under a comprehensive monitoring and surveillance strategy under the Chemicals Management Plan. This monitoring will be used to determine whether further action needs to be taken with respect to these substances.

Benefits and costs

Comment: An industry stakeholder commented that the incremental costs to consumers as described in the Canada Gazette, Part I, publication of 0.5 cents per litre may not be negligible in some markets.

Response: The wording in the RIAS has been reviewed and the incremental costs to consumers are now described as minimal; however, as described in the CBA, this price increase is not expected to place a significant burden on consumers because the magnitude should be small relative to the overall price of the product.

Comment: An industry stakeholder stated that since new reporting systems will be created for the substances added to the Regulations, there will be additional costs and compliance risks. Both of these factors should be recognized in the RIAS.

Response: It is expected that new reporting requirements would not result in significant additional costs since many organizations, such as laboratories are already submitting reports for substances that were included in the former Regulations. In addition, the costs associated with new reporting requirements for short-chain chlorinated alkanes are expected to be limited. The Regulations also remove the reporting requirements for activities in which HCB is incidentally present, and thereby reduce the burden to reporting firms.

11. Regulatory cooperation

The Regulations either are consistent with actions taken by the international community or have been put in place to ensure the protection of the health and environment of Canadians.

BNST

The Regulations are the first in the international community to prohibit activities involving BNST. However, other governing bodies, such as the European Union, may undertake action on BNST since information on BNST had been submitted under the REACH program. (see footnote 25) Also, Australia had published a list of 3000 chemicals, which included BNST to be assessed. Given that BNST has potential to harm the Canadian aquatic environment, and may biomagnify in food chains, Canada’s approach is considered necessary to protect the environment from the risks posed by this substance.

PCNs and short-chained chlorinated alkanes

The U.S. EPA published a significant new use rule for certain short-chain chlorinated alkanes that would require companies to notify the EPA of plans to manufacture, import or process these chemicals. The EPA will review new uses and take action as needed to protect human health or the environment. In addition, the European Union has prohibited the marketing of short-chain chlorinated alkanes in concentrations greater than 1% for use in metalworking fluids or fat liquoring of leather. Also, PCNs are prohibited in Japan and Switzerland. In December 2009, Parties to the UNECE Convention on LRTAP amended the Protocol on POPs to add seven new substances, including short-chain chlorinated alkanes and PCNs. The amendment requires all Parties ratifying the amendment to eliminate their production and use, except for listed permitted uses. In addition, short-chain chlorinated paraffins and PCNs were nominated for addition to the Stockholm Convention on POPs.
TBTs

With respect to the pesticidal use of TBTs, there is an international Convention prohibiting the use of TBTs in anti-fouling systems, and Canada has prohibited the use of TBTs in anti-fouling paints since 2002. In addition, the Banning of anti-fouling substances (BNSTs) Convention prohibits the use of triorganotin compounds and dibutyltin in articles for either consumer or professional use, above a certain percentage. However, there are currently no risk management activities in other jurisdictions targeting TBTs for non-pesticidal uses. Given that these substances have the potential to harm the Canadian aquatic environment, Canada's approach is considered necessary to protect the environment and prevent their future re-introduction in their pure form.

12. Rationale

Scientific assessments found that the substances BNST, short-chain chlorinated alkanes, PCNs and TBTs for non-pesticidal uses have or may have an immediate or long-term harmful effect on the environment or its biological diversity. In addition, short-chain chlorinated alkanes constitute or may constitute a danger to human life or health. Developing the Regulations to protect the environment and human health is therefore the most appropriate course of action to respond to these risks. The Regulations were developed based on consultation with stakeholders and modifications have been made to address stakeholder concerns regarding the proposed Regulations as published in the Canada Gazette, Part I.

The impacts associated with the implementation of the Regulations on the various substances and affected sectors were evaluated and analyzed. With regard to BNST, the Regulations are estimated to result in minimal impacts on manufacturers of the substance and of final products that contain the substance. The present value of the incremental cost of meeting the requirements is estimated to be around $20 million or $0.8 million in present value per year. It was not possible to estimate the total benefits associated with preventing future releases of BNST. However, it is expected that the Regulations will result in an improvement in environmental quality.

For short-chain chlorinated alkanes, PCNs, and TBTs for non-pesticidal uses, the Regulations are estimated to impose negligible cost on regulatees as these substances are not manufactured or currently used in their pure form in Canada. The costs to meet the requirements of the Regulations impacts on consumers of final products are expected to be minimal given the lack of activity involving these substances. On the other hand, the Regulations provide protection to the environment and its ecosystem as well as to human health by preventing the possible re-introduction of these substances into commerce.

Costs to the government associated with managing releases of the four substances are estimated to be low to negligible.

13. Implementation and enforcement

Implementation

The Regulations come into force three months following the registration date. The compliance promotion approach for the main parts of the Regulations is similar to that taken for the former Regulations, which includes maintaining a database of stakeholders; maintaining a Web site on CEPA Registry for the Regulations; and responding to inquiries from stakeholders. In addition, promotional material (such as fact sheets and web materials) will be distributed. Environment Canada will undertake outreach activities to raise potential industry stakeholder awareness of the prohibition and associated requirements.

Enforcement

As the Regulations are promulgated under CEPA 1999, enforcement officers will, when verifying compliance with the Regulations, apply the Compliance and Enforcement Policy implemented under the Act. When verifying compliance, enforcement officers will abide by the Compliance and Enforcement Policy. The Compliance and Enforcement Policy also sets out the range of possible responses to alleged violations, including warnings, directions, environmental protection compliance orders, ticketing, ministerial orders, injunctions, prosecution, and environmental protection alternative measures (which are an alternative to a court trial after the laying of charges for a violation under the Act). In addition, the Policy explains when Environment Canada will resort to civil suits by the Crown for costs recovery. A copy of the Policy may be obtained from the following Web site:

www.ec.gc.ca/CEPARegistry/documents/policies/candepolicy/toc.cfm

When, following an inspection or an investigation, an enforcement officer discovers an alleged violation, the officer will choose the appropriate enforcement action based on the following factors:

- Nature of the alleged violation: This includes consideration of the damage, the intent of the alleged violator, whether it is a repeat violation, and whether an attempt has been made to conceal information or otherwise subvert the objectives and requirements of the Act.
- Effectiveness in achieving the desired result with the alleged violator: The desired result is compliance within the shortest possible time and with no further repetition of the violation. Factors to be considered include the violator's history of compliance with the Act, willingness to cooperate with enforcement officers, and evidence of corrective action already taken.
Consistency: Enforcement officers will consider how similar situations have been handled in determining the measures to be taken to enforce the Act.

Service standards

The Regulations include provisions for regulatees to request permits from the Minister of the Environment. The applications for permits will be reviewed by Environment Canada. The administrative procedure may take up to 60 working days. Environment Canada will make every effort to respond quickly to permit applications.

14. 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. 2002, c. 7, s. 124

Footnote d
S.C. 1999, c. 33

Footnote 1
SOR/2005-41

Footnote 2
Pesticidal uses of TBTs are regulated under the Pest Control Products Act (PCPA), whereas non-pesticidal uses are to be regulated under CEPA 1999.

Footnote 3

Footnote 4

Footnote 5
Ibid.

Footnote 6

Footnote 7

Footnote 8
Socio-Economic Study on Chlorinated Linear Alkanes that Have the Molecular Formula CnHxCl(2n+2-4x) in which 10 ≤ n ≤ 20 in Canada, Cheminfo Services, 2011.

Footnote 9
Approximation based on the report Analysis of Options to Mitigate Chlorinated Paraffin Releases in Canada, Cheminfo Services, 2005.

Footnote 10
Short-chain chlorinated alkanes are also known as short-chain chlorinated paraffins.

Footnote 11
For more information on LRTAP, visit www.unece.org/env/lrtap/pops_h1.htm (select “Amendments to annexes I and II”).
Footnote 12

Footnote 13
International Toxic Equivalents

Footnote 14

Footnote 15

Footnote 16
This EPA is available at www.ec.gc.ca/epe-eapa/default.asp?lang=En&n=7F317BDF-1.

Footnote 17

Footnote 18
Anti fouling paints are used to coat the bottoms of ships to prevent sealife such as algae and molluscs attaching themselves to the hull, whose attachment would slow down the ship and increase fuel consumption.

Footnote 19

Footnote 20

Footnote 21
The Water Quality Ladder (WQL) index represents poor to excellent water quality that is assessed in terms of its suitability for swimming, aquatic life and safety of fish and shellfish for human consumption, and whether the water meets guidelines for drinkable water. The WQL is measured on a scale from 1 to 10 where 1 represents the worst possible water quality equivalent to raw untreated effluent and 10 represents the best water quality.

Footnote 22
Socio-Economic Study on Chlorinated Linear Alkanes that have the Molecular Formula CnHxCl(2n+2−x) in which 10≤n≤20 in Canada, Final Report, Cheminfo, May 2011.

Footnote 23
These estimates are annualized values calculated using a 7% discount rate and a 10-year time period with a 2012 present value base year.

Footnote 24
This document is available at www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=98F99990-1.

Footnote 25
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals

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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