Government of Canada / Gouvernement du Canada

Risk Management Scope

for:

Propane, 1-bromo- (1-bromopropane)

Chemical Abstracts Service Registry Number
CAS RN: 106-94-5

Environment and Climate Change Canada

Health Canada

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Canada

Summary of Proposed Risk Management

This document outlines the risk management options under consideration for 1-bromopropane, which has been proposed to be harmful to human health.

In particular, the Government of Canada is considering the actions below to address the health concerns:

Regulatory and/or non-regulatory measures to help reduce inhalation exposures to 1-bromopropane contained in certain products available to consumers such as silicone mold release spray, electronics cleaner spray, and automotive air conditioning (A/C) flush.

The risk management options outlined in this Risk Management Scope document may evolve through consideration of assessments and risk management options or actions published for other Chemicals Management Plan (CMP) substances as required, to ensure effective, coordinated, and consistent risk management decision-making.

Note: The above summary is an abridged set of options under consideration to manage this substance and to seek information on identified gaps. Refer to section 3 of this document for more complete details in this regard. It should be noted that the proposed risk management options may evolve through consideration of additional information obtained from the public comment period, literature and other sources.

Table of Contents

1. Context

The *Canadian Environmental Protection Act, 1999* (CEPA) (Canada 1999) provides the authority for the Minister of the Environment and the Minister of Health (the Ministers) to conduct assessments to determine if substances are toxic to the environment and/or harmful to human health as set out in section 64 of CEPA[1,2], and if so, to manage the associated risks.

2. Issue

Health Canada and Environment and Climate Change Canada conducted a joint scientific assessment on four substances in the Alkyl Halides Group including 1-bromopropane, in Canada. A notice summarizing the scientific considerations of the draft screening assessment for these substances was published in the *Canada Gazette*, Part I, on March 05, 2022. (Canada 2022). For further information on the draft screening assessment for the Alkyl Halides Group, refer to the draft screening assessment for the Alkyl Halides Group.

2.1 Draft Screening Assessment Conclusion

Considering all the information available, the draft screening assessment proposes that 1-bromopropane meets the criteria under paragraph 64(*c*) of CEPA as it is 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 (Canada 2022).

1-bromopropane is proposed not to meet the criteria under paragraphs 64(*a*) or (*b*) of CEPA as it is not entering the environment in a quantity or concentration or under conditions that have or may have an immediate or long-term harmful effect

[1] Section 64 of CEPA: *For the purposes of* [Parts 5 and 6 of CEPA]*, except where the expression "inherently toxic" appears, a substance is toxic if it is entering or may enter the environment in a quantity or concentration or under conditions that*

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

[2] A determination of whether one or more of the criteria of section 64 are met is based upon an assessment of potential risks to the environment and/or to human health associated with exposures in the general environment. For humans, this includes, but is not limited to, exposures from ambient and indoor air, drinking water, foodstuffs, and products used by consumers. A conclusion under CEPA is not relevant to, nor does it preclude, an assessment against the hazard criteria specified in the *Hazard Product Regulations*, which are a part of the regulatory framework for the Workplace Hazardous Materials Information System for products intended for workplace use. Similarly, a conclusion on the basis of the criteria contained in section 64 of CEPA does not preclude actions being taken under other sections of CEPA or other Acts.

on the environment or its biological diversity or that constitute or may constitute a danger to the environment on which life depends.

The draft screening assessment also proposes that 1-bromopropane meets the persistence criteria but does not meet the bioaccumulation criteria, as set out in the *Persistence and Bioaccumulation Regulations* of CEPA (Canada 2000).

The exposure sources of concern, identified in the draft screening assessment, are based on the potential release of 1-bromopropane from products available to consumers such as: silicone mold release spray, electronics cleaner spray, and automotive A/C flush. As such, this document will focus on these exposure sources of concern (refer to section 5).

Although a risk to human health or the environment has not been identified at current levels of exposure, there may be a concern to human health if exposures to bromoethane and chloroethane were to increase. As a result, these substances may be considered in future initiatives to track their commercial status or identify new uses.

2.2 Proposed Recommendation under CEPA

Based on the findings of the draft screening assessment, the Ministers propose to recommend that 1-bromopropane be added to the List of Toxic Substances in Schedule 1 of the Act[3].

The Ministers will take into consideration comments made by stakeholders during the 60-day public comment period on the draft screening assessment for 1-bromopropane and its associated Risk Management Scope document.

If the Ministers finalize the recommendation to add 1-bromopropane to Schedule 1, risk management instruments must be proposed and finalized within a set period of time as outlined in sections 91 and 92 of CEPA (refer to section 8 for publication timelines applicable to this group of substances).

[3] When a substance is found to meet one or more of the criteria under section 64 of CEPA, the Ministers can propose to take no further action with respect to the substances, add the substance to the Priority Substances List for further assessment, or recommend the addition of the substance to the List of Toxic Substances in Schedule 1 of the Act.

3. Proposed Risk Management

3.1 Proposed Human Health Objective

Proposed human health objectives are quantitative or qualitative statements of what should be achieved to address human health concerns.

For 1-bromopropane, the proposed objective is focused on addressing the risks and exposure sources of concern outlined in section 5 of this document. As such, the proposed human health objective for 1-bromopropane is to reduce exposure of the general population to this substance.

3.2 Proposed Risk Management Objective

Proposed risk management objectives set quantitative or qualitative targets to be achieved by the implementation of risk management regulations, instruments, and/or tools for a given substance or substances.

In this case, the proposed risk management objective for 1-bromopropane for the protection of human health is to reduce consumer exposures to 1-bromopropane from certain products available to consumers, such as silicone mold release spray, electronics cleaner spray, and automotive A/C flush.

The proposed risk management objective may be revised in the Risk Management Approach document that will be published concurrently with the screening assessment for this group of substances, or in subsequent risk management documents (e.g., consultation document on proposed instrument), as the case may be.

3.3 Proposed Risk Management Options under Consideration

To achieve the proposed risk management objective and to work towards achieving the proposed human health objective, the risk management options under consideration for 1-bromopropane are:

Regulatory and/or non-regulatory measures to help reduce inhalation exposures to 1-bromopropane contained in certain products available to consumers such as automotive A/C flush, silicone mold release spray, and electronics cleaner spray.

Following the publication of this Risk Management Scope document, additional information obtained from the public comment period and from other sources will be considered, along with the information presented in this document, in the instrument selection and development process[4]. The risk management options

[4] The proposed risk management regulation(s), instrument(s) or tool(s) will be selected using a thorough, consistent and efficient approach and take into consideration available information in

outlined in this document may evolve through consideration of assessments and risk management options published for other CMP substances to ensure effective, coordinated, and consistent risk management decision-making.

3.4 Risk Management Information Gaps

At this time, the following additional information is being requested from interested stakeholders to help fill any information gaps and to inform risk management decision-making regarding 1-bromopropane use in Canada:

Ranges of concentrations of 1-bromopropane used in certain products available to consumers in Canada, such as silicone mold release spray, electronics cleaner spray and automotive A/C flush.

Should stakeholders have such further information, they are invited to provide it on or before May 04, 2022, within the timelines (and to the contact) identified in section 8 of this document.

3.5 Performance Measurement and Evaluation

Performance measurement evaluates the ongoing effectiveness and relevance of the actions taken to manage risks from toxic substances. The aim is to determine whether human health and/or environmental objectives have been met and whether there is a need to revisit the risk management approach for that substance, to ensure that risks are managed effectively over time. To achieve this, the Government of Canada will review the effectiveness of the risk management actions for 1-bromopropane.

The results of performance measurement and evaluation will be used to inform whether further risk management action is warranted and will be made available to Canadians along with recommendations for further action, if applicable.

4. Background

4.1 General Information on the 1-bromopropane

1-bromopropane is an organic substance which is part of the Alkyl Halides Group. 1-bromopropane is naturally occurring and it is produced by algae. In addition, 1-bromopropane is synthesized commercially in Canada.

4.2 Current Uses and Identified Sectors

line with the Government of Canada's Cabinet Directive on Regulation (TBS 2018), Red Tape Reduction Action Plan (TBS 2012) and the Red Tape Reduction Act (Canada, 2015).

According to information submitted in response to a CEPA section 71 survey (reported in 2009), 1-bromopropane was reported to be manufactured in Canada in 2008 at a volume of 1000 kg to 10 000 kg. 1-bromopropane was reported to be imported in Canada in total quantities up to 257 000 kg in 2008.

Identified major commercial and consumer uses in Canada of 1-bromopropane include: in cleaning and furnishing care; automotive care; lubricants; degreasers; and munitions.

5. Exposure Sources and Identified Risks

The purpose of the Risk Management Scope is to present Environment and Climate Change Canada's and Health Canada's early proposal to manage the risks identified in the screening assessment. As such, the exposure sources of concern are further discussed in this document.

As per the draft screening assessment (Canada 2022) the exposure sources of concern for the general population in Canada to 1-bromopropane occurs primarily from the use of certain products available to consumers such as silicone mold release spray, electronics cleaner spray, and automotive A/C flush.

According to the draft screening assessment (Canada 2022), inhalation exposure scenarios to 1-bromopropane in silicone mold release spray, electronics cleaner spray, and automotive A/C flush resulted in critical health effect endpoint of developmental toxicity. A comparison of estimated levels of exposure to 1-bromopropane and critical effect levels resulted in margins of exposure that are considered inadequate to account for uncertainties in the health effects and exposure databases.

6. Risk Management Considerations

6.1 Alternatives and Alternate Technologies

There are a number of alternatives to 1-bromopropane as a degreaser, including alcohols and water-based alkaline degreasing. These alternatives generally require higher investment costs, more process, and cleaning steps as well as increased energy costs (TemaNord 2005). Liquid CO_2 is a newer alternative degreasing agent, which requires higher installation requirements as it must operate under pressure in closed systems (TemaNord 2005).

A comparative study of 1-bromopropane and its alternatives for vapor degreasing indicated that all of the alternative solvents tested cleaned in the range of, or better than 1-bromopropane. In addition, the study parameters were that the alternatives needed to meet a variety of other requirements such as not being an ozone depleting substance (NASA 2012).

In addition, there are other 1-bromopropane alternatives used in industrial settings advertised as direct drop-in replacement to 1-bromopropane for several applications, such as heavy-duty flux removal, vapour degreasing, cold-cleaning operations, precision cleaning of PCB boards, and removal of greases and oils (Miller-Stephenson 2016).

6.2 Socio-economic and Technical Considerations

No information on socio-economic or technical considerations was identified. We ask that stakeholders submit information on these considerations, if known.

Socio-economic factors will be considered in the selection process for a regulation and/or instrument respecting preventive or control actions, and in the development of the risk management objective(s). Socio-economic factors will also be considered in the development of regulations, instrument(s) and/or tool(s) as identified in the Cabinet Directive on Regulatory Management (TBS 2012a) and the guidance provided in the Treasury Board document: Assessing, Selecting, and Implementing Instruments for Government Action (TBS 2007).

7. Overview of Existing Risk Management

7.1 Related Canadian Risk Management Context

Occupational exposure limits have been identified for 1-bromopropane by a few provincial Governments (e.g., Ontario 2019).

The proposed *Volatile Organic Compound (VOC) Concentration Limits for Certain Products Regulations* were published in the Canada Gazette, Part I on July 6, 2019 under CEPA, 1999 and would apply to Canadian manufacturers and importers. Once finalized, they will establish VOC concentration limits for approximately 130 product categories and subcategories, including electronics cleaner. The regulations would set a VOC concentration limit for the total amount of VOCs in a certain product, but will not specifically control 1-bromopropane.

7.2 Pertinent International Risk Management Context

In the European Union (EU), 1-bromopropane is identified under the REACH program as a substance of very high concern requiring authorization. As such, it cannot be placed on the market or used after a given date ("sunset date") unless

an authorization is granted for its specific use, or the use is exempted from authorization (EU – ECHA 2019).

In the United States (US), the US Department of Labour, Occupational Safety and Health Administration (OSHA) has set occupational exposure limits to 1-bromopropane (US OSHA 2019). In addition, 1-bromopropane is regulated federally under the Toxic Substances Control Act which requires the US Environmental Protection Agency (US EPA) to address unreasonable risks found from 1-bromopropane. The assessment for 1-bromopropane was subject to the Canada-US Regulatory Cooperation Council (RCC) work plan, which aimed to facilitate and enhance collaboration between the Government of Canada and the US EPA and ensure consistency between risk assessment approaches and conclusions.

1-bromopropane is also subject to the Environmental Protection Act in the US, which sets national volatile organic compound emission standards for consumer and commercial products, the US Emergency Planning and Community Right-To-Know Act which requires that 1-bromopropane to be reportable under the Toxics Release Inventory program, and the Clean Air Act that regulates air toxic standards for source categories that emit 1-bromopropane. There are also applicable State laws and regulations.

8. Next Steps

8.1 Public Comment Period

Industry and other interested stakeholders are invited to submit comments on the content of this Risk Management Scope or other information that would help to inform decision-making. Please submit additional information and comments prior to May 04, 2022.

The Risk Management Approach document, which will outline and seek input on the proposed risk management instrument(s), will be published at the same time as the final screening assessment. At that time, there will be further opportunity for consultation.

Comments and information submissions on the Risk Management Scope should be submitted to the address provided below:

Environment and Climate Change Canada
Gatineau, Quebec K1A 0H3
Telephone: 1-800-567-1999 (in Canada) or 819-938-3232
Email: substances@ec.gc.ca

Companies who have a business interest in 1-bromopropane are encouraged to identify themselves as stakeholders. The stakeholders will be informed of future decisions regarding 1-bromopropane and may be contacted for further information.

8.2 Timing of Actions

Electronic consultation on the draft screening assessment and Risk Management Scope: March 05, 2022 to May 04, 2022. This should include the submission of public comments, additional studies, and/or information on 1-bromopropane.

Publication of responses to public comments on the draft screening assessment and Risk Management Scope: concurrent to the publication of the screening assessment and, if required, the Risk Management Approach document.

Publication of responses to public comments on the Risk Management Approach, if applicable and if required, the proposed instrument(s): At the latest, 24 months from the date on which the Ministers recommended that 1-bromopropane be added to Schedule 1 of CEPA.

Consultation on the proposed instrument(s), if required: 60-day public comment period starting upon publication of the proposed instrument(s).

Publication of the final instrument(s), if required: At the latest, 18-month from the publication of the proposed instrument(s)

These are planned timelines, and are subject to change. Please consult the schedule of risk management activities and consultations for updated information on timelines.

9. References

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Ontario 2019. Air Contaminants Benchmarks List

EU – ECHA, 2019. European Chemical Agency - List of substances included in Annex XIV of REACH ("Authorisation List")

EU – ECHA, 2019. Candidate List of substances of very high concern for Authorisation

US OSHA, 2019. US Department of Labour, Occupational Safety and Health Administration: 1-Bromopropane

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Miller-Stephenson, 2016. Specialty Fluids: Optimized nPB replacement

TemaNord 2005. Potential Ozone Depleting Substances Uses and Alternatives in the Nordic Countries