Vol. 149, No. 31 — August 1, 2015

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

Statutory authority

Canadian Environmental Protection Act, 1999

Sponsoring departments

Department of the Environment and Department of Health

REGULATORY IMPACT ANALYSIS STATEMENT

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

Issues

On March 24, 2015, the House of Commons voted unanimously to take immediate measures to add microbeads to the List of Toxic Substances in Schedule 1 of the *Canadian Environmental Protection Act, 1999* (CEPA 1999). Following the vote, Environment Canada developed a Science Summary Report, which summarizes the available science and describes the potential impacts of microbeads on the environment. This report has undergone external peer review by international experts in microplastics, marine pollution and microbeads research and monitoring.

Based on available information, it is recommended that microbeads be considered toxic according to the criterion set out in paragraph 64(*a*) of CEPA 1999, as 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, it is recommended that microbeads be added to the List of Toxic Substances in Schedule 1 of CEPA 1999.

Microbeads are typically used in many personal care products, (see footnote 1) consumer products and industrial applications in Canada and are defined as synthetic polymer particles that, at the time of their manufacture, are greater than 0.1 µm and less than or equal to 5 mm in size.

Background

Uses and potential environmental impacts of microbeads

Microbeads are used in consumer products, including personal care products such as soaps, facial cleansers and toothpaste. Microbeads can be used in personal care products to remove dead skin cells and enhance scrubbing power. They are also used in medical and dental applications, such as tooth polish.

In 2015, the Canadian Cosmetic, Toiletry, and Fragrance Association (CCTFA) voluntarily surveyed its members and shared this usage information with the Government of Canada. The annual quantities reported to be used in Canada by CCTFA members ranged from 30 kg/year to 68 000 kg/year. CCTFA member companies cover the majority of personal care products sold in Canada that contain microbeads.

Microbeads are also used in industrial processes, for example as abrasive agents for removing paint from boats and ships and as drilling fluids in oil and gas exploration. Microbeads are also used as raw material in plastic production, but potential releases from this source are minimized through current industrial practices aimed at preventing them from entering the environment.

Due to their very small size, microbeads slip through wastewater treatment plants and end up in rivers, lakes, seas, and oceans. Microbeads are mainly made of polyethylene; therefore, they reside in the

environment for a long time and are a contributor to plastic litter in the environment. Once in the environment, microbeads can be ingested by a wide range of organisms, such as fish, seals, and birds. Therefore, it is possible that microbeads enter the food chain. Microplastics, which include microbeads, have been measured in Canadian waters and sediments.

In laboratory studies, microbeads have been shown to have adverse short-term and long-term effects in aquatic organisms. Some studies have shown that microplastics can impede feeding behaviour in aquatic species, leading to reduced body growth and reproduction. (see footnote 2) Polyethylene fragments have also been shown to cause liver stress and altered gene expression in fish. (see footnote 3)

In addition, microbeads can adsorb persistent organic pollutants (POPs) such as polychlorinated biphenyls (PCBs) and dichlorodiphenyltrichloroethane (DDT) from the marine environment and are harmful to organisms that eat them.

Adding microbeads to Schedule 1 of CEPA 1999

On March 24, 2015, members of Parliament debated the motion that "in the opinion of the House, microbeads in consumer products entering the environment could have serious harmful effects, and therefore the government should take immediate measures to add microbeads to the list of toxic substances managed by the government under the *Canadian Environmental Protection Act, 1999*." The House of Commons voted unanimously to take immediate measures to add microbeads to the List of Toxic Substances in Schedule 1 of CEPA 1999.

Following the vote in the House of Commons, Environment Canada prioritized the review of microbeads and collected evidence on the potential environmental impacts of microbeads from numerous scientific studies, including those briefly described above. This evidence, along with information on the use of microbeads, is presented in the Science Summary Report for microbeads. A full report is available at www.chemicalsubstanceschimiques.gc.ca.

As microbeads may reside in the environment for a long time, the continual release of these substances to the environment may result in long-term effects on biological diversity and ecosystems. Based on the available information, it is recommended that microbeads be considered toxic under paragraph 64(*a*) of CEPA 1999 so that appropriate preventative measures may be taken to reduce the release of microbeads into the environment. As a precautionary next step, the Government of Canada is proposing to add microbeads to the List of Toxic Substances under the *Canadian Environmental Protection Act, 1999*.

A review of scientific literature did not identify studies that indicated concerns for human health related to the presence of microbeads in personal care products. It is expected that microbeads, present in personal care products applied to the skin, are not absorbed by the body but rather are rinsed off, or leave the body when epidermal cells are sloughed off, and ultimately are released to the environment. While questions related to the potential effects on human health through consumption of seafood containing microbeads have been raised by the public, there is limited to no information on this source of exposure. Accordingly, the scope of the Science Summary Report was limited to environmental impacts.

Voluntary industry phase-out and existing control measures in other jurisdictions

In response to environmental lobbying and studies on the harmful environmental impacts of microbeads, many producers of microbead-containing personal care products have pledged to phase out the use of microbeads in the next few years. Of the 14 members of the CCTFA that responded to a voluntary survey and used or were using microbeads in 2015, 5 had already eliminated the use of microbeads and 9 had committed to do the same by 2018 or 2019. CCTFA member companies cover the majority of personal care products sold in Canada that contain microbeads.

In the United States, the states of Illinois, New Jersey, Colorado, Wisconsin, Indiana, Maine, and Maryland have introduced legislation to prohibit microbeads in personal care products. Other American states as well as the U.S. Congress are considering similar legislation.

In December 2014, at the European Union Environmental Council meeting, Austria, Belgium, the Netherlands, Luxembourg, and Sweden jointly called on European Union member states to ban the addition of microbeads to personal care products, in order to protect the aquatic environment from pollution. According to a petition response issued on April 29, 2015, an arm of the European Commission is gathering the necessary information and evidence for developing options to achieve a reduction of microplastics in cosmetic products. These efforts are being made in light of requests to ban microplastics

in cosmetic products from the European Union Environmental Council meeting.

Objectives

The objective of the proposed *Order Adding a Toxic Substance to Schedule 1 to the Canadian Environmental Protection Act, 1999* (the proposed Order) is to enable the Minister of the Environment (the Minister) to propose risk management activities under CEPA 1999 to manage environmental concerns associated with microbeads, should such activities be deemed necessary.

Description

The proposed Order would add "synthetic polymer particles that, at the time of their manufacture, are greater than 0.1 µm and less than or equal to 5 mm in size" to Schedule 1 of CEPA 1999.

The upper bound of the range is consistent with the findings of the Science Summary Report and with the definition of microbeads adopted by other jurisdictions taking action on microbeads in personal care products (e.g. State of Illinois). The lower bound of the range was selected so as to exclude engineered nanomaterials and differentiate between effects and properties unique to nanometre scale plastics and microplastics.

"One-for-One" Rule

The proposed Order would not trigger the "One-for-One" Rule as there are no requirements for industry and no administrative burden.

Small business lens

The proposed Order would not add a compliance or administrative burden on small business; therefore, it would not trigger the small business lens.

Consultation

High public awareness regarding microbeads/microplastics has fuelled discussions in public fora such as the House of Commons, and triggered voluntary actions from many producers of consumer products containing microbeads to phase out microbeads and regulatory actions from many U.S. jurisdictions to ban microbeads from personal care products.

Although consultations have not been conducted regarding the proposed Order to consider microbeads toxic under paragraph 64(*a*) of CEPA 1999 prior to prepublication of the proposed Order in the *Canada Gazette*, Part I, there is a strong consensus on the potential adverse impacts of microbeads on the environment. In addition, feedback has been received from some stakeholders regarding the use of microbeads and potential risk management actions to manage microbeads in Canada.

Stakeholders from the CCTFA, the CEPA Industry Coordinating Group (ICG), the Retail Council of Canada (RCC), and the Canadian Manufacturers & Exporters (CME) have been consulted on the commercial use of microbeads. The Government of Canada communicated the need to obtain this and other information in order to identify companies that use microbeads and products containing microbeads to inform possible future risk management actions.

The CCTFA, along with other associations, such as the Canadian Consumer Specialty Products Association (CCSPA) and the Canadian Plastics Industry Association (CPIA), has requested that Environment Canada consider regulating microbeads based on the model developed by the U.S. Council of State Governments and adopted in Illinois in June 2014.

The publication of the Science Summary Report, along with the publication of the proposed Order in the *Canada Gazette*, Part I, commences a 60-day public comment period. The Minister would address potential comments from stakeholders on the Science Summary Report and on the proposed Order following the prepublication of the proposed Order in the *Canada Gazette*, Part I.

Rationale

The Government of Canada has developed a Science Summary Report for microbeads, which describes the potential impacts of microbeads on the environment through a review of scientific literature. The Report concluded that microbeads may have long-term harmful effects on biological diversity and

ecosystems, given the current extensive use of microbeads in consumer products, personal care products and industrial applications, and releases to the environment. Therefore, it is recommended that microbeads be considered toxic under CEPA 1999 and added to Schedule 1 of CEPA 1999.

The proposed Order would add microbeads to the List of Toxic Substances, thereby enabling the Minister to propose appropriate risk management measures under CEPA 1999, should these measures be found necessary.

The proposed addition of microbeads to Schedule 1 of CEPA 1999 would not result in any incremental impacts (benefits or costs) on the public or industry, since the proposed Order would not impose any compliance requirements on stakeholders. Accordingly, there would be no compliance or administrative burden imposed on small businesses or businesses in general. Should risk management activities be determined necessary in the future, Environment Canada would conduct an analysis of the potential impacts and consult relevant stakeholders.

Implementation, enforcement and service standards

The proposed Order would add microbeads to Schedule 1 of CEPA 1999, thereby enabling the Minister to propose risk management activities respecting preventive or control actions under CEPA 1999, as required. As developing an implementation plan or an enforcement strategy or establishing service standards is only considered necessary when there is a specific risk management proposal, these measures are not considered necessary for the proposed Order.

Contacts

Greg Carreau
Program Development and Engagement Division
Environment Canada
Gatineau, Quebec
K1A 0H3
Substances Management Information Line:
1-800-567-1999 (toll-free in Canada)
819-953-7156 (outside of Canada)
Fax: 819-953-7155
Email: substances@ec.gc.ca

Brenda Tang
Regulatory Analysis and Valuation Division
Environment Canada
Gatineau, Quebec
K1A 0H3
Telephone: 819-997-5755
Email: RAVD.DARV@ec.gc.ca

PROPOSED REGULATORY TEXT

Notice is given, pursuant to subsection 332(1) (see footnote a) of the *Canadian Environmental Protection Act, 1999* (see footnote b), that the Governor in Council, on the recommendation of the Minister of the Environment and the Minister of Health, pursuant to subsection 90(1) of that Act, proposes to make the annexed *Order Adding a Toxic Substance to Schedule 1 to the Canadian Environmental Protection Act, 1999*.

Any person may, within 60 days after the date of publication of this notice, file with the Minister of the Environment comments with respect to the proposed Order or a notice of objection requesting that a board of review be established under section 333 of that Act and stating the reasons for the objection. All comments and notices must cite the *Canada Gazette*, Part I, and the date of publication of this notice, and be sent by mail to the Executive Director, Program Development and Engagement Division, Department of the Environment, Gatineau, Quebec, K1A 0H3 or by email to substances@ec.gc.ca.

A person who provides information to the Minister of the Environment may submit with the information a request for confidentiality under section 313 of that Act.

Ottawa, July 22, 2015

JURICA ČAPKUN
Assistant Clerk of the Privy Council

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

AMENDMENT

1. Schedule 1 to the *Canadian Environmental Protection Act, 1999* (see footnote 4) **is amended by adding the following:**

Synthetic polymer particles that, at the time of their manufacture, are greater than 0.1 µm and less than or equal to 5 mm in size

COMING INTO FORCE

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

[31-1-o]

Footnote 1
A personal care product is defined as a substance or mixture of substances that is generally recognized by the public for use in daily cleansing or grooming. Depending on how they are represented for sale and depending on their composition, personal care products may fall into one of three regulatory categories in Canada: cosmetics, drugs or natural health products.

Footnote 2
Cole, M., Lindeque, P., Fileman, E., Halsband, C., and Galloway, T. S. (2015). "The Impact of Polystyrene Microplastics on Feeding, Function and Fecundity in the Marine Copepod *Calanus helgolandicus*." *Environmental Science & Technology.*

Au, S. Y., Bruce, T. F., Bridges, W. C., and Klaine, S. J. (2015). "Responses of *Hyalella azteca* to acute and chronic microplastic." *Environmental Toxicology and Chemistry*.

Footnote 3
Rochman, C. M., Hoh, E., Kurobe, T., and Teh, S. J. (2013). "Ingested plastic transfers hazardous chemicals to fish and induces hepatic stress." *Scientific Reports*, 3.

Rochman, C. M., Kurobe, T., Flores, I., and Teh, S. J. (2014). "Early warning signs of endocrine disruption in adult fish from the ingestion of polyethylene with and without sorbed chemical pollutants from the marine environment." *Science of the Total Environment*, 493, 656–661.

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

Footnote b
S.C. 1999, c. 33

Footnote 4
S.C. 1999, c. 33

Date modified: 2015-08-01