

Summary of Risk Assessment Conducted Pursuant to subsection 83(1) of the *Canadian Environmental Protection Act, 1999*

New Substances Notification No. 18667: Butanedioic acid, 2-methylene-, telomer with sodium phosphinate (1:1), sodium zinc salt

Regulatory Decisions

Under the provisions for Substances and Activities New to Canada in Part 5 of the *Canadian Environmental Protection Act, 1999* (CEPA), and pursuant to section 83 of the Act, the Minister of the Environment and the Minister of Health have assessed information in respect of the substance, and have determined that it is not anticipated to 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, constitute or may constitute a danger to the environment on which life depends, or constitute or may constitute a danger in Canada to human life or health.

Substance Identity

The polymer, butanedioic acid, 2-methylene-, telomer with sodium phosphinate (1:1), sodium zinc salt) (Chemical Abstracts Service Registry No. 1662663-05-9), can be classified as an anionic vinyl polymer. The substance does not meet the Reduced Regulatory Requirements criteria according to the *New Substances Notification Regulations* because the substance contains zinc greater than 0.2% by weight.

Notified and Potential Activities

The substance is proposed to be manufactured in and/or imported into Canada in quantities greater than 10 000 kg/yr for use as an odour reducer in consumer, commercial and industrial applications. No other activities are anticipated in Canada.

Environmental Fate and Behaviour

Based on its physical and chemical properties, if released to the environment, the substance will tend to partition to water. The organic portion of substance is not expected to be persistent in water based on its high biodegradability (60-85% over 3-4 days). However, the zinc counterion contained in the substance is considered to be persistent. The substance is not expected to bioaccumulate based on its high molecular weight which will limit its ability to cross biological membranes.

Ecological Assessment

Based on the available hazard information on structurally related chemicals, the organic portion of the substance has low to moderate acute toxicity in algae (median inhibition concentration and median effective concentration (EC₅₀) >1 mg/L) and low acute toxicity in aquatic invertebrates (EC₅₀ >100 mg/L). The long-term Canadian Water Quality Guideline (CWQG) for zinc for the

protection of aquatic life (based on a species sensitivity distribution) of 12 µg zinc/L was used to estimate the ecological risk.

The notified activities in Canada were assessed to estimate the environmental exposure potential of the substance throughout its life cycle. Exposure from the organic portion of the substance is expected to be low due to its removal in waste treatment plants, and the high biodegradability of the substance (60-85% over 3-4 days). The zinc counter ion component of the substance is persistent and is used to represent the potential environmental risk of the substance.

Environmental exposure to zinc from the notified activities is expected to be mainly from use by release of the substance to water. The predicted environmental concentration (PEC) for zinc from the notified activities is estimated to be 0.1-1 µg zinc/L for consumer applications and 1-10 µg zinc/L for industrial applications. No other potential activities were identified.

Comparing the PEC with the long-term CWQG for zinc, the ratio is less than 1. This along with other lines of evidence including environmental fate, hazard, and exposure indicates that the substance is unlikely to cause ecological harm in Canada.

Human Health Assessment

Based on the available hazard information on structurally related chemicals, the substance is expected to have a low potential for acute toxicity by the oral route of exposure (median lethal dose >2000 mg/kg body weight).

When the notified substance is used in consumer products, direct exposure of the general population is expected to be mainly by contact with the skin or by inhalation. The substance will be present in end-use consumer products at low concentrations (0.2-2% by weight) and the relatively large molecular weight of the substance will limit its ability to cross biological membranes and uptake is not expected. Indirect exposure of the general population from environmental media such as drinking water is expected to be low due to the high biodegradability of the substance. When the notified substance is used in industrial applications, no direct or indirect exposure of the general population is expected given the specialized industrial use of the substance. No other potential uses of the notified substance were identified.

Based on the low acute toxicity and the low potential for exposure of the general population, the substance is not likely to pose a significant health risk to the general population, and is therefore unlikely to be harmful to human health.

Assessment Conclusion

When the substance is used as notified, it is not suspected to be harmful to human health or the environment according to the criteria under section 64 of CEPA.

A conclusion under CEPA, on this substance, is not relevant to nor does it preclude an assessment against the hazard criteria for Workplace Hazardous Materials Information System that are specified in the *Controlled Products Regulations* or the *Hazardous Products Regulations* for products intended for workplace use.