

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

New Substances Notification No. 18566: Butanedioic acid, 2-methylene-, telomer with phosphinic acid and sodium 4-ethenylbenzenesulfonate (1:1), sodium 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 phosphinic acid and sodium 4-ethenylbenzenesulfonate (1:1), sodium salt (Chemical Abstracts Service Registry No. 1803423-39-3), can be classified as a poly(alkyl). The substance does not meet the Reduced Regulatory Requirements criteria according to the *New Substances Notification Regulations* because it contains phosphorus above 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 in consumer cleaning products. Potential uses may include function as a polymeric intermediate and a component of personal care products.

Environmental Fate and Behaviour

Based on its physical and chemical properties, if released to the environment, the substance will tend to partition to water, soil and sediment. The substance is expected to be persistent in water, soil and sediment because it does not contain any functional groups that are susceptible to hydrolysis or biodegradation. 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 and surrogate data on structurally related polymers, the substance is expected to have low acute toxicity in aquatic invertebrates (median effective concentration (EC_{50}) >100 mg/L) and low to moderate acute toxicity in algae (EC_{50} >1 mg/L). A predicted no-effect concentration was not calculated for the substance given the low potential for ecological risk.

The notified and potential activities in Canada were assessed to estimate the environmental exposure potential of the substance throughout its life cycle. Environmental exposure from the notified activities is expected to be mainly from disposal of end-use cleaners down the drain by release of the substance to municipal waste water treatment. Significant environmental exposure is not expected due to consumer releases being highly dispersed across Canada and in low concentrations. Potential activities may include use as a polymeric intermediate; however, the substance is expected to be consumed and/or transformed in the process and significant environmental exposure is not expected. Predicted environmental concentrations were not estimated given the low potential for ecotoxicity and exposure.

Based on the expected low potential for ecotoxicity and bioavailability, and the low environmental exposure, the substance is unlikely to cause ecological harm in Canada.

Human Health Assessment

Based on the available surrogate data 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). Structurally similar polycarboxylates were found to have low acute oral toxicity, low subchronic inhalation toxicity, low developmental and reproductive toxicity, minimal skin sensitization, and no evidence of genotoxicity.

When the notified substance is used in consumer cleaning products, direct exposure of the general population is expected to be mainly by contact with the skin at low levels. Systemic exposure will be limited by its high molecular weight and very low octanol-water partition coefficient ($\log K_{ow} \leq 0$), which limit the substance's ability to cross biological membranes. If the notified substance is potentially used in personal care products, there is an increased potential for direct dermal contact; however, the substance will not be able to cross biological membranes and therefore is expected to be low. Indirect exposure of the general population from environmental media such as drinking water is expected to be low for notified and potential uses.

Based on the low potential for direct or indirect exposure and the low toxicity, 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 or for other identified potential uses, 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.