

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

New Substances Notification No. 18243: Propanoic acid, 3-hydroxy-2-(hydroxymethyl)-2-methyl-, polymer with diamine and 1,1'-methylenebis [4-isocyanatocyclohexane], pentaerythritol triacrylate-blocked, compounds with triethylamine

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 that 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

Propanoic acid, 3-hydroxy-2-(hydroxymethyl)-2-methyl-, polymer with diamine and 1,1'-methylenebis [4-isocyanatocyclohexane], pentaerythritol triacrylate-blocked, compounds with triethylamine (Confidential Accession Number 18884-2) is a polymer that can be classified as an acrylate-functional polyurethane. The substance does not meet the Reduced Regulatory Requirements criteria according to the New Substances Notification Regulations because of the presence of terminal acrylate groups.

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 a polymeric binder in ultraviolet (UV) cured wood coatings. 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 substance is expected to be persistent in water based on its high molecular weight causing hydrolysis to occur very slowly. The substance is not expected to bioaccumulate based on its high molecular weight and cationic terminal end groups making it unable to cross biological membranes.

Ecological Assessment

Based on the available hazard information on the substance, the substance has moderate acute toxicity in algae (median effective concentration (EC₅₀) 1-100 mg/L). Using the EC₅₀ from the most sensitive organism (algae) and by applying an appropriate assessment factor, the predicted

no-effect concentration (PNEC) was calculated to be 100-1000 µg/L which 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. Environmental exposure from the notified activities is expected to be mainly from formulation, coating application and drum cleaning by release of the substance to water. The predicted environmental concentration (PEC) for notified activities is estimated to be 1-100 µg/L. No other potential activities were identified.

Comparing the PEC with the PNEC, the ratio is less than 1, indicating that the substance is unlikely to cause ecological harm in Canada.

Human Health Assessment

Based on the available hazard information on the substance and surrogate data on structurally related chemicals, the substance has a low potential for acute toxicity by the oral route of exposure (median lethal dose >2000 mg/kg-bw).

When the notified substance is used as a polymeric binder in UV-cured wood coatings for cabinets and flooring, direct exposure of the general population is expected to be negligible as during curing the substance will be chemically reacted into the stable polymer matrix of the coating and is not readily released. Indirect exposure of the general population from environmental media such as drinking water is unlikely. When potentially used in other types of UV or electron beam cured industrial coatings, direct and indirect exposure of the general population is expected to be negligible as well. No other potential uses were identified.

Based on the low toxicity and potential for exposure, 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 used as notified or for other identified potential uses, the substance 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.