

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

New Substances Notification 20768: Hexanedioic acid, polymers with acrylic acid-dipentaerythritol reaction products, adipic acid dihydrazide, 3-hydroxy-2-(hydroxymethyl)-2-methylpropanoic acid, 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane, neopentyl glycol and polyalkylene glycol 2,2-bis(hydroxymethyl)butyl Me ether (Confidential Accession No. 19577-5)

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 notified polymer is hexanedioic acid, polymers with acrylic acid-dipentaerythritol reaction products, adipic acid dihydrazide, 3-hydroxy-2-(hydroxymethyl)-2-methylpropanoic acid, 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane, neopentyl glycol and polyalkylene glycol 2,2-bis(hydroxymethyl)butyl Me ether (Confidential Accession No. 19577-5). The substance does not meet the Reduced Regulatory Requirements criteria according to the *New Substances Notification Regulations (Chemicals and Polymers)* because it contains pendant and terminal acrylate groups.

Notified and potential uses

The substance is proposed to be imported into Canada in quantities greater than 10 000 kg/yr for industrial use as an ultraviolet-cured (UV) coating resin on wood products. Potential uses may include as a UV coating resin on other products and in UV cured inks and adhesives.

Environmental fate and behaviour

Based on its physical and chemical properties, if released to the environment, the substance will tend to partition to water, sediment and soil. The substance is expected to be persistent in these compartments, as the functional groups susceptible to degradation are embedded within the large polymer matrix and its high molecular weight will limit biodegradation potential. The substance is not expected to bioaccumulate based on its high molecular weight, which will limit its ability to cross biological membranes.

Environmental risk assessment

Based on the available hazard information, the substance is expected to have low chronic toxicity to algae (10% effective concentration > 10 mg/L). A predicted no-effect concentration was not calculated given the low potential for hazard to the environment.

The notified and other potential activities in Canada were assessed to estimate the environmental exposure potential of the substance throughout its life cycle. Environmental exposure from the notified activity is expected to be mainly from processing and cleaning of transportation vessels from release of the substance to water at low rates. For potential activities such as use in UV cured inks and adhesives, environmental exposure is expected to be quantitatively similar to that of the notified use. A predicted environmental concentration was not calculated due to the low potential for ecotoxicity and environmental exposure.

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

Human health risk assessment

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

When the notified substance is used as a UV coating resin for wood products, consumers may come into contact with end-use products containing the substance; however, direct exposure is not expected because the substance will be chemically reacted into a stable matrix once the product is cured and will be unavailable for uptake. Indirect exposure of the general population from environmental media such as drinking water is not expected given the specialized industrial use of the substance, which results in little or no release to the environment. Potential uses of the substance include as a UV curable resin for other substrates such as plastic, paper, metal and concrete, and for radiation cured inks and adhesives, where direct and indirect exposure of the general population is expected to be at levels that do not pose a concern, similar to that of the notified use.

Based on the low potential for exposure and expected low acute 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.

The assumptions made in the assessment are considered to be adequately protective for the general population as well as for subpopulations who may be more susceptible or highly exposed.

Assessment conclusion

When the substance is used as notified or for other identified potential activities, it is not suspected to be harmful to human health or the environment according to the criteria under section 64 of the Act.

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.