

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

New Substances Notification 21174: Alkanoic acid, 2,2,6,6-tetramethyl-4-piperidinyl ester, reaction products with oxidized polyethylene and 2,2,6,6-tetramethyl-4-piperidinyl palmitate (Confidential Accession Number 19613-1)

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 alkanoic acid, 2,2,6,6-tetramethyl-4-piperidinyl ester, reaction products with oxidized polyethylene and 2,2,6,6-tetramethyl-4-piperidinyl palmitate (Confidential Accession Number 19613-1). The substance does not meet the Reduced Regulatory Requirements criteria according to the *New Substances Notification Regulations (Chemicals and Polymers)* because it degrades substantially.

Notified and potential uses

The substance is proposed to be imported into Canada in quantities greater than 10 000 kg/yr for the notified use as a light stabilizer in plastics. No other uses are anticipated in Canada.

Environmental fate and behaviour

Based on its physical and chemical properties, if the substance is released to the environment, it will tend to partition to soil or sediment. The substance is not expected to be persistent in these compartments based on biodegradability (10-30% over 28 days). The substance is not expected to bioaccumulate based on the high molecular weight, which will limit its ability to cross biological membranes.

Environmental risk assessment

Based on the available hazard information, the substance has low acute toxicity to aquatic invertebrates (no-observed-effect loading rate [NOELR] > 100 mg/L) and low chronic toxicity to algae (NOELR > 10 mg/L). A predicted no-effect concentration was not calculated given the low potential for hazard to the environment.

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 activity is expected to be mainly by release of the substance to water at low rates. A predicted environmental concentration was not calculated due to the low potential for environmental exposure and low ecotoxicity. No potential activities that could significantly increase environmental risks compared to those notified were identified.

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 has a low acute toxicity by the oral route (median lethal dose > 2000 mg/kg body weight) and low subchronic toxicity following repeated oral doses in mammalian test animals (28-day no-observed-adverse-effect level > 300 mg/kg-bw/day). It is not a dermal sensitizer (0% response in a Buehler test). It is not mutagenic or clastogenic *in vitro*. Therefore, the substance is unlikely to cause genetic damage.

When the notified substance is used as a light stabilizer in plastics, direct exposure of the general population is not expected due to the industrial nature of the use. The general population may come into contact with end-use products containing the substance; however, direct exposure will be limited as the substance will be encapsulated within a stable matrix once the product is cured and will be unavailable for uptake. Exposure is further limited by the low concentration of the substance in the product and the large size of the substance with limited presence of low molecular weight components which will limit absorption through the skin. Indirect exposure of the general population from environmental media such as drinking water or air is expected to be at low levels given the low potential for environmental release. No potential uses that could significantly increase human health risks compared to the notified uses were identified.

Based on the low toxicity and low 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.

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, it is not expected 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 the workplace.