

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

New Substance No. NSN 19259: Alkenes, C₁₀₋₁₆ α-, mixed with (6E)-7,11-dimethyl-3-methylene-1,6,10-dodecatriene, dimers and trimers, hydrogenated (Chemical Abstracts Service Registry Number 1472005-85-8)

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 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 chemical substance alkenes, C₁₀₋₁₆ α-, mixed with (6E)-7,11-dimethyl-3-methylene-1,6,10-dodecatriene, dimers and trimers, hydrogenated (Chemical Abstracts Service Registry Number¹ 1472005-85-8), and is a substance referred to as unknown or variable composition, complex reaction products or biological materials (UVCB).

Notified and potential activities

The substance is proposed to be imported into Canada in quantities greater than 10 000 kg/yr for the notified use as a [base oil](#) in the formulation of lubricants. Potential activities may include manufacturing.

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 and sediment. The substance is not expected to be persistent in this compartment based on its susceptibility to biodegradation over time. The substance is not expected to bioaccumulate based on its low bioconcentration factor (<250 L/kg), susceptibility to biotransformation, and high molecular weight which will limit its ability to cross biological membranes.

Ecological Assessment

Based on the available hazard information, the substance has low acute toxicity in fish, aquatic invertebrates and algae (median lethal loading rate (LL₅₀) and median effective loading rate >100 mg/L) and low chronic toxicity in aquatic invertebrates (10% effective loading rate >10 mg/L). The substance

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has low acute toxicity in soil organisms ($LL_{50} > 100$ mg/kg dry soil). A predicted no-effect concentration was not calculated given the low potential for ecological hazard.

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 not expected during the lifecycle of the substance given the specific conditions of its transport, formulation, use and disposal. For potential activities such as manufacturing, environmental exposure is not expected, similar to that of the notified use. A predicted environmental concentration was not calculated due to the low potential for environmental exposure and ecotoxicity.

Based on the low potential for ecotoxicity and environmental exposure, 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 has a low acute toxicity by the oral and inhalation routes (oral median lethal dose > 2000 mg/kg body weight; inhalation median lethal concentration > 5 mg/L/4hr) and low subchronic toxicity following repeat oral doses in mammalian test animals (28-day no-observed-adverse-effect level (NOAEL) > 300 mg/kg-bw/day). The substance has a low reproductive/developmental toxicity following repeat oral doses in mammalian test animals (NOAEL > 1000 mg/kg-bw/day). It is not a skin sensitizer ($> 10\%$ estimated concentration required to produce a stimulation index of 3 (local lymph node assay)). It is not mutagenic *in vitro* or clastogenic *in vitro* or *in vivo*. Therefore, the substance is unlikely to cause genetic damage.

When the notified substance is used as a base oil for industrial or commercial lubricants, direct exposure of the general population is not expected due to the industrial and commercial nature of the use. When the notified substance is used as a base oil for consumer lubricants, direct exposure of the general population is expected to be mainly by contact with the skin at low levels. Exposure is limited by infrequent use of these products, and the high molecular weight and expected high octanol-water partition coefficient of the substance which will limit systemic uptake. Indirect exposure of the general population from environmental media such as drinking water is expected to be at low levels given the negligible potential for release to the environment. No potential uses which 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.

Assessment Conclusion

When the substance is used as notified or for other identified potential activities, 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 *Hazardous Products Regulations* for products intended for the workplace.