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

New Substances Notification 20540: 1-Tetradecene, homopolymer, hydrogenated, by-products from, C_{28-42} fraction (Chemical Abstracts Service Registry Number 2263959-83-5)

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 chemical is 1-tetradecene, homopolymer, hydrogenated, by-products from, C_{28-42} fraction (Chemical Abstracts Service Registry Number[1] 2263959-83-5), and is considered a substance of Unknown or Variable composition, Complex reaction product or Biological material (UVCB).

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 base fluid for the blending of formulated automotive and industrial lubricating oils. Potential uses may include use in a variety of other lubricants, greases and related fluids, and in personal care products.

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 persist in these compartments based on its high biodegradability (> 60% in 28 days). The substance is not expected to bioaccumulate based on the very low estimated bioconcentration factor (< 250 L/kg).

Environmental risk assessment

1 The Chemical Abstracts Service registry number is the property of the American Chemical Society and any use or redistribution, except as required in supporting regulatory requirements and/or for reports to the Government of Canada when the information and the reports are required by law or administrative policy, is not permitted without the prior, written permission of the American Chemical Society.

Based on the available hazard information, the substance is expected to have low acute and chronic toxicity to fish, aquatic and benthic invertebrates, and algae (no adverse effects observed in saturated solutions). 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 activities is expected to be mainly from cleaning of transportation vessels. Release of the substance to water resulting from this activity is expected to be negligible. A predicted environmental concentration was not calculated due to the low potential for environmental exposure and ecotoxicity. No potential activities that could significantly increase environmental risks compared to those notified were identified.

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

Human health assessment

Based on the available hazard information, the substance is expected to have a low acute toxicity by the oral and dermal routes (median lethal dose > 2000 mg/kg body weight) and a moderate to high acute toxicity by the inhalation route (median lethal concentration < 5 mg/L/hour). It is expected to have a low subchronic toxicity following repeated oral doses in mammalian test animals (91-day no-observed effect level (NOEL) > 100 mg/kg-bw/day). It is expected to have a high subchronic toxicity following repeated inhalation doses in mammalian test animals (28-day no-observed-adverse-effect concentration < 0.6 mg/L/6 hour). The substance is expected to have a low reproductive/developmental toxicity following repeated oral doses in mammalian test animals (NOEL > 300 mg/kg-bw/day). It is not expected to be a dermal sensitizer (0% response (guinea pig maximization test)). It is not expected to be 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 fluid for the blending of formulated automotive and industrial lubricating oils, direct exposure of the general population is expected to be infrequent and mainly by contact with the skin at low levels. Indirect exposure of the general population from environmental media such as drinking water is not expected given the low potential for environmental release. Potential uses of the substance include spray lubricants, where direct exposure of the general population is expected to be mainly by inhalation at levels conservatively estimated to be in the range of 1-10 µg/kg-event. Potential uses of the substance also include personal care products, where direct exposure is expected to be mainly by inhalation at levels conservatively estimated to be in the range of 0.001-1 µg/kg bw/day. Indirect exposure of the general population from environmental media such as drinking water is expected to be at levels that do not pose a concern, similar to that of the notified use.

The derived margins of exposure for the notified and potential uses are equal to or greater than the target margin of exposure; therefore, the substance is not likely to pose a significant health risk to the general population and is considered 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 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.