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

New Substances Notification 20225: Alkanes, C_{8-18}-branched and linear (Chemical Abstracts Service registry number 2252265-89-5)

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 alkanes, C_{8-18}-branched and linear (Chemical Abstracts Service registry number[1] 2252265-89-5), and is considered a substance of unknown or variable composition, complex reaction products or biological materials (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 an aviation fuel. Potential uses may include coatings, personal care products, and a variety of industrial applications.

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 air, soil and sediment. The substance is not expected to be persistent in these compartments based on its short atmospheric half-life (0.5-1 days) and high biodegradability (>60% in 28 days). The substance is not expected to bioaccumulate based on bioconcentration information for analogue substances (<1000 L/kg).

Environmental risk assessment

Based on the available hazard information, the substance is expected to have low acute toxicity to fish, aquatic invertebrates, and algae (no adverse effects observed in saturated solutions), low chronic toxicity to fish and algae (no adverse effects observed in saturated solutions), and moderate chronic toxicity to aquatic invertebrates (no-observed-effects loading rate (NOEL) 0.1-10 mg/L). Using the NOEL from the most sensitive organism (aquatic invertebrates) and by applying an assessment factor of 1, the

[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.

predicted no-effect loading rate (PNEL) was calculated to be in the range of 100-1000 µg/L, which was used to estimate the ecological risk.

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 cleaning of transportation vessels by release of the substance to water resulting in a predicted environmental loading rate (PEL) in the range of 100-1000 µg/L. For potential activities such as pulp and paper, formulation and use in coatings, environmental exposure is expected to be mainly by release of the substance to water resulting in a PEL in the range of 100-1000 µg/L, 1-10 µg/L and 10-100 µg/L, respectively.

Comparing the PEL with the PNEL, the ratio is less than 1. This, along with other lines of evidence including environmental fate, hazard, and exposure, indicates that the substance is unlikely to cause ecological harm 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 and dermal routes (median lethal dose >2000 mg/kg body weight) and low subchronic toxicity following repeated oral doses in mammalian test animals (126-day no-observed-adverse-effect level (NOAEL) >100 mg/kg-bw/day). The substance is expected to have a low reproductive toxicity following repeated oral doses in mammalian test animals (NOAEL >300 mg/kg-bw/day). It is a weak dermal sensitizer (0-8 % response (guinea pig maximization test) and >10% estimated concentration required to produce a stimulation index of 3 (local lymph node assay)). It is not expected to be mutagenic or clastogenic *in vitro.* Therefore, the substance is unlikely to cause genetic damage.

When the notified substance is used in jet fuel, direct exposure of the general population is not expected due to the industrial nature of the use. 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. The most significant potential uses of the substance include personal care products, where direct exposure of the general population is expected to be mainly by contact with the skin at moderate to high levels. Other potential uses include various industrial activities, 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 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