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

New Substances Notification No. 19846: Benzene, 1,2-bis(hexyloxy)-4-(triphenylmethyl)- (Chemical Abstracts Service No. 1391350-92-7)

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 benzene, 1,2-bis(hexyloxy)-4-(triphenylmethyl)- (Chemical Abstracts Service No. 1391350-92-7).

Notified and potential activities

The substance is proposed to be manufactured and/or imported into Canada in quantities less than 10 000 kg/yr for the notified use as a fuel additive. No other activities 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 sediment and soil. The substance is expected to be persistent in these compartments based on its negligible biodegradation (≤10% over 28 days). The substance is expected to bioaccumulate based on its high predicted bioaccumulation factor (1000-5000 L/kg); however, it is unlikely that the substance would accumulate to concentrations in animals that would elicit adverse effects.

Ecological assessment

Based on the available hazard information on the substance and surrogate data on structurally related chemicals, the substance is expected to have low acute toxicity in fish, aquatic invertebrates, and algae (no adverse effects observed in saturated solutions). A predicted no-effect concentration was not calculated given the low potential for ecological hazard.

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 not expected, as the substance is imported at a low concentration (<5%) and is consumed during use. A predicted environmental concentration was not calculated due to the low potential for environmental exposure

and ecotoxicity. No potential activities which 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 ecological harm in Canada.

Human health assessment

Based on the available hazard information on the substance and surrogate data on structurally related chemicals, the substance is expected to have low acute toxicity by the dermal and oral routes (median lethal dose >2000 mg/kg body weight) and low subchronic toxicity following repeat oral doses in mammalian test animals (37-53 day no-observed-adverse-effects 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) and is not expected to be estrogenic (NOAEL >1000 mg/kg-bw/day). It is not expected to be a dermal sensitizer (>10% estimated concentration required to produce a stimulation index of 3 (local lymph node assay)). The notified substance 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 as a fuel additive in industrial applications, direct exposure of the general population is not expected due to the industrial nature of the use. However, when the notified substance is used in commercial applications, direct exposure of the general population is expected to be mainly by contact with the skin at levels of 20 ppm. Exposure via this route would only occur for short, infrequent durations as a result of accidental spills when fueling vehicles. Given the low concentration (20 ppm) of the substance in the fuel and given its high octanol-water partition coefficient (log K_{ow} >6), although dermal absorption is possible, systemic distribution is unlikely to occur. Therefore, the potential for direct exposure of the general population to the notified substance is expected to be low. Indirect exposure of the general population from environmental media is not expected given the specialized industrial and commercial use of the substance, which results in little or no 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, 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.