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

New Substances Notification No. 18707: Benzenesulfonic acid, polyalkyl derivatives, calcium salts

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 chemical, benzenesulfonic acid, polyalkyl derivatives, calcium salts (Confidential Accession No. 19082-2), is a substance of unknown or variable composition, complex reaction products and biological materials (UVCB) that can be classified as an alkylbenzene sulfonate.

Notified and Potential Activities

The substance is proposed to be manufactured in and/or imported into Canada in quantities greater than 10 000 kg/yr for use in metal working fluids. Potential uses as a petroleum additive may include products such as motor oils and lubricants.

Environmental Fate and Behaviour

Based on its physical and chemical properties, if released to the environment, the substance will tend to partition to soil and sediment. The substance is expected to be persistent in soil and sediment based on the low biodegradability (10-30%) for an analogue substance. The substance is not expected to bioaccumulate based on its low estimated bioconcentration factor (<250 L/kg) and analogue data.

Ecological Assessment

Based on the available hazard information on the substance and structurally related chemicals, the substance has low acute toxicity in fish, aquatic invertebrate and algae (median lethal loading and median effective loading >100 mg/L) and low chronic toxicity in fish (lowest-observed-effect level >10 mg/L). A predicted no-effect concentration was not calculated based on the low potential for ecological risk.

The notified and 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 low. A predicted environmental concentration for notified activities was not estimated based on the low potential for ecological risk. The substance could be used for a variety of other potential uses which could lead to higher volumes in the Canadian marketplace that are presently considered for the notified use. However, given the low ecotoxicity of the substance, increased environmental risk is not expected for other potential uses.

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

Human Health Assessment

Based on a conservative assessment of the available surrogate data on structurally related chemicals, the substance is expected to have low potential for acute toxicity by the oral route of exposure (median lethal dose >1000 mg/kg body weight with no lethality or significant toxicity findings). It is not a skin sensitizer (0-8% response (guinea pig maximization test)). It is not mutagenic *in vitro* and is therefore unlikely to cause genetic damage.

When the notified substance is used in metalworking fluids, 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 is expected to be low.

Given its chemical class, the substance has other potential uses as a petroleum additive used to formulate finished lubricating oils. The substance could be used in consumer motor oils and lubricants, resulting in direct contact by the general population with the notified substance by the dermal route of exposure. However, direct exposure is expected to be low as consumer activities are expected to be infrequent, and dermal uptake is expected to be mitigated by the very high octanol-water partition coefficient ($\log K_{ow}$ >8), high molecular weight and ionic nature of the substance which will limit its ability to cross biological membranes. If used in consumer automotive products, an increased indirect exposure potential may exist via product rinsed down the drain and entering drinking water. However, if released to the environment, the substance is expected to be immobile based on its expected adsorption to soil and sediment due to its very high adsorption-desorption coefficient ($\log K_{oc}$ >4.5) and widespread distribution in the environment is not expected. Overall indirect exposure of the general population from these potential uses is expected to be low.

Based on the low potential for direct or indirect exposure and the low toxicity, 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 uses, it is not expected to be harmful to human health or the environment according to the criteria under section 64 of CEPA.

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 workplace use.