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

New Substances Notification No. 18717: 2-Propenoic acid, polymer with sodium phosphinate (1:1), mixed salt

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 polymer, 2-propenoic acid, polymer with sodium phosphinate (1:1), mixed salt (Confidential Accession No. 19807-7), can be classified as a polyalkyl-phosphonic acid. The substance does not meet the Reduced Regulatory Requirements criteria according to the *New Substances Notification Regulations* because it contains phosphorus at quantities greater than 0.2% by weight.

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 as a processing aid for paper and board coatings. Potential uses may include cooling systems and industrial boilers, oil stimulation and extraction operations, and as a dispersant to improve slurry viscosity.

Environmental Fate and Behaviour

Based on its physical and chemical properties, if released to the environment, the substance will tend to partition to water, soil and sediment. The substance is expected to be persistent in water, soil and sediment based on its expected low potential for environmental degradation. The substance is not expected to bioaccumulate based on its high molecular weight which will limit its ability to cross biological membranes.

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 (median lethal concentration and median effective concentration >100 mg/L), and low chronic toxicity in fish and aquatic invertebrates (no-observed-effect

concentration >10 mg/L). A predicted no-effect concentration was not calculated given 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 mainly from cleaning of production equipment by release of the substance to water at low rates. A predicted environmental concentration for notified activities was not estimated given the low potential for ecotoxicity.

Other potential activities are also industrial in nature, and include use in cooling systems and industrial boilers; oil stimulation and extraction operations; and as a dispersant to improve slurry viscosity. Environmental releases from these potential uses are expected to be similar to or lower than those anticipated for the notified use.

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

Human Health Assessment

Based on the available hazard information, the substance has a low potential for acute toxicity by the oral route of exposure (median lethal dose >2000 mg/kg body weight).

When the notified substance is used as a processing aid, direct exposure of the general population is not expected due to the industrial nature of the use. Direct dermal contact with products containing the substance is possible, but the substance will be present in end-use products at very low concentrations (<0.5% by weight), and once dried after application the substance will be trapped inside the dry coating. The potential for dermal uptake is further mitigated by the high molecular weight of the substance which will preclude its ability to cross biological membranes. Indirect exposure of the general population from environmental media such as drinking water is expected to be low as significant environmental releases and elevated environmental concentrations are not anticipated. Other potential uses of the substance are similarly industrial in nature and are expected to result in direct and indirect exposure similar to or lower than that expected for the notified use.

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.