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

New Substances Notification No. 18287: Polyphosphoric acids, esters with polyalkanolamine, compounds with alkylpyridines

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 that 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

Polyphosphoric acids, esters with polyalkanolamine, compounds with alkylpyridines (Confidential Accession No. 19253-1) is a chemical of unknown or variable composition, complex reaction products, or biological material (UVCB) that can be classified as polyphosphoric acid salts.

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 solids conglomeration additive for oil and gas drilling. No other activities are anticipated in Canada.

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 not expected to be persistent in these compartments because the substance will dissociate into component species and undergo biodegradation. The substance is not expected to bioaccumulate based on a low octanol-water partition coefficient.

Ecological Assessment

Based on the available hazard information on the substance and surrogate data on structurally related chemicals, the substance has low to moderate acute toxicity in fish, aquatic invertebrates and algae (median lethal concentration (LC_{50}) and median effective concentration >1 mg/L) and low chronic toxicity in aquatic invertebrates (no-observed-effect concentration >10 mg/L). Using the LC_{50} from the most sensitive organism (fish) and by applying an appropriate assessment factor, the predicted no-effect concentration (PNEC) was calculated to be 10-100 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 activities is expected to be mainly from transportation. Environmental exposure from the potential activities is expected to be mainly from manufacturing. The predicted environmental concentration (PEC) for notified and potential activities is estimated to be 1-10 µg/L.

Comparing the PEC with the PNEC, the ratio is less than 1, indicating that the substance is unlikely to cause ecological harm in Canada.

Human Health Assessment

Based on the available hazard information on the substance, the substance has a low potential for acute toxicity by the oral route of exposure (median lethal dose >2000 mg/kg-bw). It is mutagenic *in vitro*. Therefore, the substance has the potential to cause genetic damage.

When the notified substance is used in industrial oil and gas applications, direct exposure of the general population is not expected. Indirect exposure of the general population from environmental media such as drinking water is also not expected. No other potential uses have been identified.

Based on the 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 used as notified or for other identified potential uses, the substance is not suspected 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.