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

New Substances Notification 20700: Carbonochloridic acid, ethyl ester (Chemical Abstracts Service Registry Number 541-41-3)

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 carbonochloridic acid, ethyl ester (Chemical Abstracts Service Registry Number[1] 541-41-3).

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 a reactant in the production of mining products. Potential uses may include use of the substance as an intermediate in the synthesis of numerous compounds, as a stabilizer for polyvinyl chloride (PVC) and as a solvent in the photography industry.

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 water and air, where it will rapidly hydrolyze. The substance is not expected to be persistent in these compartments based on its rapid rate of hydrolysis and ready biodegradation (>60% over 28 days). The substance and its product of hydrolysis are not expected to bioaccumulate based on low octanol-water partition coefficients.

Environmental risk assessment

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Based on the available hazard information, the substance and its product of hydrolysis are expected to have low acute toxicity to fish, aquatic invertebrates, and algae (median lethal concentration (LC_{50}) and median effective concentration > 100 mg/L) and moderate chronic toxicity to aquatic invertebrates (no-observed-effect concentration (NOEC) 0.1-10 mg/L). A predicted no-effect concentration was not calculated given the low potential for hazard to the environment.

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 expected to be mainly by release of substance to water at low rates. No potential activities that could significantly increase environmental risks compared to those notified were identified. A predicted environmental concentration was not calculated due to the low potential for environmental exposure and ecotoxicity.

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

Human health risk assessment

Based on the available hazard information, the substance has a moderate acute toxicity by the oral route (median lethal dose (LD_{50}) 300-2000 mg/kg body weight), a low acute toxicity by the dermal route (LD_{50} > 2000 mg/kg body weight), and a very high acute toxicity by the inhalation route (absolute lethal concentration and $LC_{50} \leq 2$ mg/L). It has a high subchronic toxicity following repeated inhalation doses in mammalian test animals (28-day NOEC < 0.6 mg/L/6 hour). It is not mutagenic *in vitro*. Therefore, the substance is unlikely to cause genetic damage.

When the notified substance is used in mining applications, 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 is not expected given the specialized industrial use of the substance, which results in little or no release to the environment. No potential uses that could significantly increase human health risks compared to the notified uses were 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.

The assumptions made in the assessment are considered to be adequately protective for the general population as well as for subpopulations who may be more susceptible or highly exposed.

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 the *Hazardous Products Regulations* for products intended for the workplace.