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

New Substances Notification No. 19827: 2-Propenoic acid, 2-isocyanatoethyl ester (Chemical Abstracts Service No. 13641-96-8)

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 2-propenoic acid, 2-isocyanatoethyl ester (Chemical Abstracts Service No. 13641-96-8).

Notified and potential activities

The substance is proposed to be imported Canada in quantities greater than 10 000 kg/yr for the notified use in the manufacture of paints and coatings. Potential activities may include manufacturing.

Environmental fate and behaviour

Based on its physical and chemical properties, if released to the environment, the substance will tend to partition to water. The substance is not expected to be persistent in water based on its short half-life in water. As well, the environmental products of hydrolysis are not expected to be persistent in water. The substance and its products of hydrolysis are not expected to bioaccumulate based on their hydrophilicity which will limit their ability to cross biological membranes.

Ecological assessment

Based on the available hazard information, the substance has moderate acute toxicity in fish and aquatic invertebrates (median lethal concentration and median effective concentration 1-100 mg/L) and moderate chronic toxicity in algae (10% effective concentration (EC_{10}) 0.1-1 mg/L). Using the EC_{10} from the most sensitive organism (algae) and by applying an appropriate assessment factor, the predicted no-effect concentration (PNEC) was calculated to be 100-1000 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 cleaning of transportation vessels by release of the substance to water at rates of 1-100 kg/day. For potential activities such as manufacturing, environmental exposure is

expected to be similar to that of the notified use. The predicted environmental concentration (PEC) is estimated to be 0.01-10 µg/L for notified and potential activities.

Comparing the PEC for notified and potential uses with the PNEC, the ratio is less than 1. This, along with other lines of evidence including environmental fate, hazard, and exposure, indicates that the substance is unlikely to cause ecological harm in Canada.

Human health assessment

Based on the available hazard information, the notified substance has high acute toxicity by the oral route (median lethal dose 50-300 mg/kg body weight) and a high subchronic toxicity following repeated oral doses in mammalian test animals (no-observed-adverse-effects level <30 mg/kg bw/day). It is an extreme dermal sensitizer (81-100% response (guinea pig maximization test)). It is not expected to be mutagenic *in vitro*. Therefore, the substance is unlikely to cause genetic damage.

When the notified substance is used in the manufacture of paints and coatings, consumers may come into contact with end-use products containing the substance; however, direct exposure is not expected because the substance will be chemically reacted. 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 which 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.

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