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

New Substances Notification No. 19082: 1-Butanamine, *N*-butyl-*N*-[(triethyoxysilyl)methyl]-

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 1-butanamine, *N*-butyl-*N*-[(triethyoxysilyl)methyl]- (Chemical Abstracts Service No. 35501-23-6).

Notified and potential activities

The substance is proposed to be imported into Canada in quantities greater than 10 000 kg/yr for the notified use as a bonding/coupling agent and cross-linker in anti-graffiti and poster release coatings for building materials, or as sealants, water repellents and weather proofing materials. Potential uses may include use in industrial/commercial or consumer paints, paint thinners and paint removers.

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 not expected to be persistent in soil and sediment based on its rapid hydrolysis. The substance is not expected to bioaccumulate based on its reactivity.

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

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 such as use, transportation and disposal is not expected as the substance rapidly hydrolyses in the presence of moisture and hydrolysis products would not be widely dispersed given their expected

adsorption to soil, sediment and wastewater treatment plant sludge. Additionally, the substance will be chemically reacted into a stable matrix once cured and will be unavailable for release. For potential activities such as manufacturing, environmental exposure is not expected, similar to the notified use, as the substance will be manufactured in a closed system. A predicted environmental concentration was not calculated due to the low potential for environmental exposure.

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

Human health assessment

Based on the available hazard information on the substance and surrogate data on structurally related chemicals, the substance is expected to have a low potential for acute toxicity by the oral and dermal routes of exposure (median lethal dose >2000 mg/kg body weight). It has a low potential for subchronic toxicity following repeat oral doses in mammalian test animals (54-day no-observed-adverse-effect level (NOAEL) >300 mg/kg-bw/day) and a low potential for reproductive/developmental toxicity following repeat oral doses in mammalian test animals (NOAEL >250 mg/kg-bw/day with no observed effects). It is a weak skin sensitizer (>10% estimated concentration required to produce a stimulation index of 3 (local lymph node assay)). It is not mutagenic or clastogenic *in vitro*. Therefore, the substance is unlikely to cause genetic damage.

When the notified substance is used in consumer sealants, water repellent products and weather proofing products, direct exposure of the general population is expected to be mainly by contact with the skin and inhalation at low to moderate levels. Exposure will be mitigated by the rapid hydrolysis of the substance in the presence of moisture in air, and low frequency of use of products containing the substance. When the notified substance is used as a bonding/coupling agent and cross-linker in commercial building materials, 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 into a stable matrix once the product is cured and will be unavailable for uptake. Indirect exposure of the general population from environmental media such as drinking water is expected to be at low levels as the substance will rapidly hydrolyze in the presence of moisture, and is therefore not expected to become widely dispersed in the aquatic environment. If the substance is used in adhesives, paints, paint thinners or paint removers, direct and indirect exposure of the general population is expected to be similar to that of the notified use.

Based on the low toxicity and 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 uses, it 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 *Hazardous Products Regulations* for products intended for the workplace.