

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

New Substances Notification No. 18382: Sodium, μ 4-(tricyclo[1.1.0.0^{2,4}]tetrasilane-1,2,3,4-tetrayl)]poly-

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

Sodium, μ 4-(tricyclo[1.1.0.0^{2,4}]tetrasilane-1,2,3,4-tetrayl)]poly- (Confidential Accession No: 18924-6) is a chemical that can be classified as a sodium silicon compound.

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 in oil recovery. 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 or to bioaccumulate because it is expected to react with water and degrade.

Ecological Assessment

Hazard information is not available for the substance given that it rapidly reacts with water. Based on the available hazard information for the reaction products, 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). A predicted no-effect concentration was not calculated given the low potential for ecological risk.

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 not expected as the substance will be transferred directly down the oil well with no intermediate storage, and no cleaning or formulation is expected. Given the low hazard profile of the notified

substance, a predicted environmental concentration for notified activities was not calculated. No other potential activities with the notified substance are expected in Canada.

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

Human Health Assessment

No mammalian toxicity data are available for the substance.

When the notified substance is used in oil recovery, 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 given that the substance degrades upon contact with water. No other potential uses of the notified substance are expected in Canada.

Based on the low potential for exposure of the general population, 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, 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 the *Hazardous Products Regulations* for products intended for workplace use.