

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

New Substances Notification No. 18299: Zirconium, chloro hydroxyl lactate oxo sodium complexes

### 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

Zirconium, chloro hydroxyl lactate oxo sodium complexes (Chemical Abstracts Service Registry No. 174206-15-6) is a chemical that can be classified as an aryl metal organic hydroxy complex.

### 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 cross-linking agent in the oil and gas industry. Other potential uses may include paints.

### 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 because it is expected to degrade into its main constituents of lactate, which will degrade further, and inorganic zirconium compounds. The substance is not expected to bioaccumulate because it has a very high water solubility (>10 000 mg/L) which limits its ability to partition to lipids.

### Ecological Assessment

Based on the available hazard information on the substance and surrogate data on structurally related chemicals, the substance has low acute toxicity in fish, aquatic invertebrates and algae (median effective concentration and median lethal concentration >100 mg/L). The predicted no-effect concentration was not calculated given the low ecotoxicity.

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 and other potential activities is not expected. In the event of a spill the product will be contained and disposed of by an approved waste management company.

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

### **Human Health Assessment**

Based on the available hazard information, the substance has a low potential for acute toxicity by the oral route of exposure (median lethal dose >2000 mg/kg body weight). It is not mutagenic *in vitro*. Therefore, the substance is unlikely to cause genetic damage.

When used for 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 expected to be low because the substance is readily biodegradable and not persistent. If used in paints, an increased exposure potential may exist from dermal contact; however, dermal uptake of the substance is not expected based on its ionic nature.

Based on the low potential for exposure of the general population in conjunction with the low acute toxicity, 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.