

New substances: risk assessment summary, new substances notification 18294

Official title: New Substances Notification No. 18294: 1,3-Butadiene, homopolymer, maleated

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

1,3-Butadiene, homopolymer, maleated (Chemical Abstracts Service Registry No. 179005-14-2) is a polymer that can be classified as a poly(alkenyl, alkyl). The substance does not meet the Reduced Regulatory Requirements criteria according to the New Substances Notification Regulations because it contains anhydrides.

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 an adhesion enhancer within cured elastomer, adhesive, encapsulant or sealant systems. Other potential uses may include consumer adhesives and sealants.

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 expected to be persistent in soil and sediment because its structure does not have any functional groups that are susceptible to environmental degradation. The substance is not expected to bioaccumulate based on its moderate octanol-water partition coefficient ($\log K_{ow} < 5$) and its high molecular weight making it unlikely to cross biological membranes.

Ecological assessment

No ecotoxicity data is available for this substance. However, based on the low water extractability (<2%) of the substance and its high molecular weight, the substance is not expected to be biologically available to biota. Furthermore, anhydrides are a functional group of concern for health reasons, not environmental reasons.

The substance is expected to be used in industrial facilities only. Based on the low potential for exposure and low potential for ecotoxicity, detailed exposure scenarios were not developed. Based on the low potential for ecotoxicity, 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 may be a dermal

sensitizer in its reactive state based upon surrogate data on structurally related chemicals; however, the substance will be unreactive in end use products available to the general population and therefore, the risk of dermal sensitization will no longer exist.

When used as an adhesion enhancer within cured elastomer, adhesive, encapsulant or sealant systems, direct and indirect exposure of the general population is expected to be low because the substance will be chemically reacted into the polymer matrix of end-use products and not readily released. If the substance is used in consumer sealants and adhesives, an increased direct exposure potential by dermal contact may exist. However, exposure is expected to be limited by the infrequent use pattern and short exposure duration and dermal absorption is not expected to be significant due to the size of the polymer. Indirect exposure from potential consumer uses is expected to be low as for the notified use.

Based on the low potential for exposure and the low potential for 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 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 the Hazardous Products Regulations for products intended for workplace use.