

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

New Substances Notification No. 18828: Cashew, nutshell liquid, polymer with 1,3-benzenedimethane substituted, bisphenol A, epichlorohydrin and formaldehyde

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 polymer, cashew, nutshell liquid, polymer with 1,3-benzenedimethane substituted, bisphenol A, epichlorohydrin and formaldehyde (Confidential Accession No. 19090-1), can be classified as a phenol-formaldehyde polymer. The substance does not meet the Reduced Regulatory Requirements criteria according to the *New Substances Notification Regulations* because of the presence of ortho- and para-unsubstituted phenol groups and other functional groups of concern.

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 additive in coatings. Potential uses may include other coating and adhesive applications.

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 based on its lack of degradable functional groups and its large size, complex structure and chemical composition which are anticipated to limit environmental degradation. The substance is not expected to bioaccumulate based on its high molecular weight which will limit its ability to cross biological membranes.

Ecological Assessment

Given the low water extractability (<2%) of the substance, experimental ecotoxicity data for the substance is not required. Modelling was not practical given the high molecular weight of the substance. The substance will not be bioavailable in the aquatic environment based on the low

water extractability and therefore, the substance is expected to have low toxicity in aquatic organisms. A 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 activity is expected to be low. The substance will be consumed once cured and be unavailable for further exposure, and in the event of an unforeseen environmental release, the substance is expected to be efficiently removed by waste water treatment processes due to its chemical composition, structure and size. Other potential uses of the substances include other coating and adhesive applications, which are also not expected to result in significant environmental release. A predicted environmental concentration for notified or potential activities was not estimated given the low bioavailability and expected low ecotoxicity of the substance.

Based on the low potential for environmental release, the low bioavailability and expected low 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). The substance contains a functional group, which has been linked to *in vitro* reactions with protein and DNA; however, this functional group will be chemically reacted into the polymer matrix and unable to be released.

When the notified substance is used as an additive in coatings for industrial and commercial use, 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 cured and will be unavailable for uptake. Indirect exposure of the general population from environmental media such as drinking water is expected to be low. Potential uses of the substance are also expected to be limited to industrial and commercial settings. Therefore, direct and indirect exposures of the general population from potential uses are not expected to differ from the notified use.

Based on the low potential for direct or indirect 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 the *Hazardous Products Regulations* for products intended for workplace use.