

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

Significant New Activity Notification 21223: Copper, [μ -[carbonato(2-)-O:O']]dihydroxydi-
(Chemical Abstracts Service Registry Number 12069-69-1)

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 subsection 81(3) of the Act, the information in respect of the substance required under [Order 2020-87-21-01 Amending the Domestic Substances List](#) was submitted to the Minister of the Environment. The Minister of the Environment and the Minister of Health have assessed this information pursuant to section 83 of the Act and have determined that when the substance is used in occupational personal protective equipment, 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 copper, [μ -[carbonato(2-)-O:O']]dihydroxydi- (copper carbonate)
(Chemical Abstracts Service Registry Number¹ 12069-69-1).

Notified uses

The substance is proposed to be imported into Canada in quantities greater than 10 000 kg/yr for the notified use in occupational personal protective equipment.

Environmental fate and behaviour

The notified substance may dissolve or degrade in the environment to release copper. As such, the environmental assessment focused on the potential hazard and exposure to the copper moiety. Copper is mobile in the environment and partitions between water, soils, and sediment. Its partitioning is dependent on the chemistry conditions in the receiving environment. In water, this includes water temperature, the potential of hydrogen (pH), hardness (as calcium carbonate), and dissolved organic carbon.

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The copper moiety is considered to be persistent in the environment as it cannot be degraded, although it can transform into different chemical species or partition among different phases within an environmental medium. The substance is not expected to bioaccumulate as copper is an essential element that is well-regulated through homeostatic mechanisms.

Environmental risk assessment

A Federal Water Quality Guideline for the protection of freshwater aquatic life from adverse effects associated with copper has been developed. It indicates the hazard of the copper moiety to aquatic organisms ranges from moderate to high chronic toxicity depending on the environmental conditions at the site of exposure. Canadian soil quality guidelines for copper indicate that copper has moderate to low soil toxicity depending on different land uses. The aquatic predicted no-effect concentration (PNEC) was calculated to be 0.86 µg Cu/L. The soil quality guideline of 63 mg Cu/kg dry weight for agricultural and residential/parkland soils was selected as the soil PNEC for this assessment. Both PNECs were used to estimate risk to the environment.

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 expected to be mainly from occupational personal protective equipment manufacturing by release of the substance to wastewater, and from the subsequent application of biosolids generated through wastewater treatment to land. The aquatic predicted environmental concentration (PEC) was calculated to be in the range of 0.1 to 1 µg Cu/L and the soil PEC was calculated to be in the range of 1 to 10 mg Cu/kg dry weight. The exact values of the PECs are below their respective PNEC values.

Comparing the PECs with the PNECs, the ratios are less than 1. This, along with other lines of evidence including environmental fate, hazard, and exposure, indicates that the notified use of the substance is unlikely to cause harm to the environment in Canada.

Human health risk assessment

Health Canada's [Guidelines for Canadian Drinking Water Quality: Guideline Technical Document – Copper \[PDF\]](#) established a maximum allowable concentration of 2 mg/L for total copper in drinking water. The Federal Contaminated Site Risk Assessment Program has also developed a soil quality guideline for human health of 1100 mg/kg.

The notified activities in Canada were assessed to estimate direct and indirect exposure potential of the substance to the general population of Canada. The manufactured item, occupational personal protective equipment, is not intended for consumer use. Therefore, no direct exposure of the notified substance to the general population of Canada is expected as a result of the notified use. Indirect exposure from the notified activities is expected to be mainly from ingestion of drinking water, soil or through plants grown on soil exposed to the substance

at levels that do not pose a concern. The calculated PECs above are below levels expected to cause adverse health effects in humans.

Therefore, it is determined that the notified use of 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 in occupational personal protective equipment, it is not suspected to be harmful to human health or the environment according to the criteria under section 64 of the Act.

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 the workplace.