

## 化 学 品 安 全 技 术 说 明 书

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### MSDS标题

WATER CONDITIONER - REDOX MSDS报告

### 产品标题

五水合硫酸铜

### CAS号

7758-99-8

### 化学品及企业标识

## PRODUCT NAME

WATER CONDITIONER - REDOX

## NFPA

Flammability	0
Toxicity	2
Body Contact	2
Reactivity	0
Chronic	2
SCALE: Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4	

## PRODUCT USE

Water treatment chemical.

## SYNONYMS

"Cu-S-O4. 5H2O", "Cu-S-O4. 5H2O", "copper sulphate", "blue vitriol", bluestone, "copper sulfate crystals", "copper fungicide", "copper (II) sulfate, hydrated"

## CANADIAN WHMIS SYMBOLS

## EMERGENCY OVERVIEW

### RISK

Harmful if swallowed.

Irritating to eyes and skin.

Very toxic to aquatic organisms, may cause long- term adverse effects in the aquatic environment.

## POTENTIAL HEALTH EFFECTS

### ACUTE HEALTH EFFECTS

#### SWALLOWED

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. A metallic taste, nausea, vomiting and burning feeling in the upper stomach region occur after ingestion of copper and its derivatives. The vomitus is usually green/blue and discolours contaminated skin. Acute poisonings from ingestion are rare due to their prompt removal by vomiting. Should vomiting not occur, or is delayed systemic poisoning may occur producing kidney and liver damage, wide-spread capillary damage, and be fatal; death may occur after relapse from an apparent recovery. Anemia may occur in acute poisoning. Sulfates are not well absorbed orally, but can cause diarrhea.

#### EYE

This material can cause eye irritation and damage in some persons. Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn). Slight abrasive damage may also result. The material may produce foreign body irritation in certain individuals. Copper salts, in contact with the eye, may produce conjunctivitis or even ulceration and turbidity of the cornea.

#### SKIN

This material can cause inflammation of the skin oncontact in some persons. Skin contact is not thought to produce harmful health effects (as classified

using animal models). Systemic harm, however, has been identified following exposure of animals by at least one other route and the material may still produce health damage following entry through wounds, lesions or abrasions. Good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting. Exposure to copper, by skin, has come from its use in pigments, ointments, ornaments, jewellery, dental amalgams and IUDs and as an antifungal agent and an algicide. Although copper alginides are used in the treatment of water in swimming pools and reservoirs, there are no reports of toxicity from these applications. Reports of allergic contact dermatitis following contact with copper and its salts have appeared in the literature, however the exposure concentrations leading to any effect have been poorly characterised. In one study, patch testing of 1190 eczema patients found that only 13 (1.1%) cross-reacted with 2% copper sulfate in petrolatum. The investigators warned, however, that the possibility of contamination with nickel (an established contact allergen) might have been the cause of the reaction. Copper salts often produce an itching eczema in contact with skin. This is, likely, of a non-allergic nature. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

## **INHALED**

The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified using animal models). Nevertheless, adverse effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting. Copper poisoning following exposure to copper dusts and fume may result in headache, cold sweat and weak pulse. Capillary, kidney, liver and brain damage are the longer term manifestations of such poisoning. Inhalation of freshly formed metal oxide particles sized below 1.5 microns and generally between 0.02 to 0.05 microns may result in "metal fume fever". Symptoms may be delayed for up to 12 hours and begin with the sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude and a generalised feeling of malaise. Mild to severe headache, nausea, occasional vomiting, fever or chills, exaggerated mental activity, profuse sweating, diarrhoea, excessive urination and prostration may also occur. Tolerance to the fumes develops rapidly, but is quickly lost. All symptoms usually subside within 24-36 hours following removal from exposure.

## **CHRONIC HEALTH EFFECTS**

Harmful: danger of serious damage to health by prolonged exposure through inhalation.