

MATERIAL SAFETY DATA SHEET**COPPER SULFATE****Section I - IDENTIFICATION****PRODUCT:** Copper sulfate**SYNONYMS:** Cupric sulfate, Bluestone, Blue vitriol, Roman vitriol, Copper sulfate pentahydrate, Salzburg vitriol**CHEMICAL FORMULA:** $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ **CHEMICAL ABSTRACT NO.:** 7758-99-8**PRODUCT CODE NO.:** 11560**Section II - HAZARDOUS INGREDIENTS**

<u>COMPOSITION</u>	<u>%</u>	<u>TLV</u>	<u>HAZARD</u>
Copper sulfate pentahydrate	>99%	none	toxic,corrosive

Section III - HEALTH & FIRST AID INFORMATION

INHALATION: Breathing dust or mists may irritate the nose, throat and mucous membranes of the respiratory tract and cause coughing and chest discomfort. Remove to fresh air. Give artificial respiration if not breathing. Get immediate medical attention.

INGESTION: Ingestion of a large quantity has caused vomiting, gastric pain, dizziness, exhaustion, anemia, cramps, convulsions, shock, coma and death. If conscious, immediately induce vomiting by giving large quantities of milk or egg whites, or if not available, water, and sticking a finger down the throat. Get immediate medical attention. Do not give anything by mouth to an unconscious or convulsing person.

EYE CONTACT: Liquid and mists may severely irritate or damage the eyes. Immediately flush eyes with lots of running water for at least 15 minutes, lifting the upper and lower eyelids occasionally. Get immediate medical attention.

SKIN CONTACT: Contact with dust or solutions may irritate the skin. Immediate flush skin with lots of running water for 15 minutes. Remove contaminated clothing and shoes, wash before reuse. Get immediate medical attention.

OTHER HEALTH INFORMATION: Chronic effects of exposure include damage to the nervous system and kidneys. Jaundice and liver enlargement have also been observed. There has been reported an excess of cancer cases in copper smelting industry, although copper sulfate is not generally considered carcinogenic.

$LD_{LO} = 1.088 \text{ mg(hydrate)/kg (human, oral)}$

$LD_{LO} = 50 \text{ mg/kg(anhydrous)/kg (human,oral)}$

$LD_{50} = 300 \text{ mg/kg (rat, oral)}$

Section IV - PHYSICAL DATA

BOILING POINT: 1207°F (decomposes)

MELTING POINT: 302°F (dehydrates)

VAPOUR DENSITY (AIR = 1): n.ap.

VAPOUR PRESSURE (MM HG 20°C): n.ap.

SOLUBILITY IN WATER: 30%

SPECIFIC GRAVITY (WATER = 1): 2.28

APPEARANCE AND ODOUR: Blue odourless crystalline powder

Section V - FIRE AND EXPLOSION HAZARDS

EXTINGUISHING MEDIA: This material is not combustible. Use any appropriate medium for extinguishing surrounding fire.

SPECIAL FIRE FIGHTING PROCEDURES & PRECAUTIONS: Fire fighters should wear self-contained breathing apparatus and full protective clothing. Use water spray to cool nearby containers and structures exposed to fire.

UNUSUAL FIRE & EXPLOSION HAZARDS: none.

Section VI - REACTIVITY

STABILITY: stable

HAZARDOUS POLYMERIZATION: will not occur

CONDITIONS & MATERIALS TO AVOID: hydroxylamine

HAZARDOUS DECOMPOSITION PRODUCTS: will liberate toxic fumes of sulfur

oxides

Section VII - EMPLOYEE PROTECTION

CONTROL MEASURES: Local mechanical exhaust ventilation should be used. An eyewash and shower should be ready for use.

RESPIRATORY PROTECTION: Wear an approved respirator appropriate for the dust concentration at the point of use.

PROTECTIVE CLOTHING: Long sleeved shirt, trousers, safety shoes, rubber gloves and rubber apron.

EYE PROTECTION: Chemical safety goggles should be worn, unless full face piece respirator is used. It is recognized that contact lenses should not be worn when working with chemicals as they may contribute to the severity of any injury.

Section VIII - ENVIRONMENTAL PROTECTION

ENVIRONMENTAL PRECAUTIONS: Local mechanical ventilation may be used.

SPILL OR LEAK PRECAUTIONS: Wear protective equipment including rubber boots, rubber gloves, rubber apron and self-contained breathing apparatus. If the spill or leak is small, a full facepiece respirator equipped with particulate filter is acceptable. Always wear eye protection. For small spills, sweep up and dispose of in an approved container. For large spills, shovel into approved container. Keep out of sewers, storm drains, surface waters and soil. Comply with governmental regulations concerning spill reporting and disposal of waste.

WASTE DISPOSAL: Dispose of contaminated product and materials in an approved manner. Seek the advice of a professional disposal service.

Section IX - REGULATORY CONTROLS

DEPT. OF TRANSPORTATION: Regulated under the Transport of Dangerous Goods Act.

DOT CLASSIFICATION: Class 9.2 U.N. 9109

DOT PROPER SHIPPING NAME: Cupric sulfate

OTHER DOT INFORMATION: Packing group II

WHMIS CLASSIFICATION: D2B

OTHER REGULATORY REQUIREMENT: none

Section X - PRECAUTIONS: HANDLING, STORAGE & USAGE

Store in a cool, dry, well-ventilated place away from incompatible materials. Keep bags dry at all times. Wash thoroughly after handling. Do not get in eyes, on skin or on clothing.

PREPARED BY: MSDS DEPARTMENT

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