MATERIAL SAFETY DATA SHEET

**CUPRIC SULFATE**

**TRADE NAMES/SYNONYMS:** CUPRIC SULFATE ANHYDROUS, COPPERII SULFATE, COPPER SULFATE, CUPRIC SULFATE, SULFURIC ACID, COPPER(II) SALT, ROMAN VITRIOL, BLUE VITRIOL, BLUE COPPER, COPPER MONOSULFATE; STCC 4961318, NA 1090, C495, CUO4; ACCO5670

**CHEMICAL FAMILY:** INORGANIC SALT

**MOLECULAR FORMULA:** CU2S04

**MOLECULAR WEIGHT:** 159.60

**CAS NUMBER:** 7758-98-7

SUBSTANCE IDENTIFICATION

**SUBSTANCE:** **CUPRIC SULFATE**

**CAS NUMBER:** 7758-98-7

**TOXICITY:**

**CUPRIC SULFATE (COPPER SULFATE)**

**TOXICITY DATA:**


**ADDITONAL DATA:** MELT IN EXCRETE IN BREATHE MILK.

**MAY BE BASED ON GENERAL INFORMATION ON COPPER SALTS.**

COMPONENTS AND CONTAMINANTS

**COMPONENT:** CUPRIC SULFATE

**PERCENT:** 97

**OTHER CONTAMINANTS:** CHLORIDE, INSOLUBLE MATTER, ALKALIES AND EARTH, IRON.

**EXPOSURE LIMITS:**

- DUST AND MIST (AS CU)
  - 1 MG/M3 OSHA TWA
  - 10 MG/M3 ACGIH TWA
  - 1.0 MG/M3 NIOSH RECOMMENDED TWA
  - 10 MG/M3 DFG MAX TWA (TOTAL DUST)
  - 2 MG/M3 DFG MAX 30 MINUTE PEAK, AVERAGE VALUE, 4 TIMES/SHIFT

**MEASUREMENT METHOD:** PARTICULATE FILTER, ACID, ATOMIC ABSORPTION SPECTROMETRY, (NIOSH VOL III # 1029).

**SUBJECT TO SARA SECTION 313 ANNUAL TOXIC CHEMICAL RELEASE REPORTING**

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**PHYSICAL DATA**

- DESCRIPTION: GRAYISH WHITE TO GREENISH WHITE RHOMBOID CRYSTALS
- BOILING POINT: 1202°F (650°C) DECOMPOSES
- MELTING POINT: 392°F (200°C) SLIGHT DECOMPOSITION
- SPECIFIC GRAVITY: 3.6
- SOLUBILITY IN WATER: 14.3% @ 0°C
- SOLVENT SOLUBILITY: SOLUBLE WITH METHANOL

**FIRE AND EXPLOSION DATA**

- FIRE AND EXPLOSION HAZARD: NEGLIGIBLE FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME
- FIRE FIGHTING MEDIA: DRY CHEMICAL, CARBON DIOXIDE, WATER SPRAY OR REGULAR FOAM

**DATE:** 09/24/93  **ACCT:** 580773-01  **INDEX:** 17912870541  **CAT NO:** C495500  **PO NBR:** N/A

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(FOR LARGER FIRES, USE WATER SPRAY, FOAM OR REGULAR FOAM)
EFFECTS MAY BE POSSIBLE
CHRONIC EXPOSURE - REPEATED AND PROLONGED CONTACT WITH SOME COPPER SALTS HAS RESULTED IN IRRITATION, NECROSIS, AND GREENISH SKIN DISCOLORATION.
ACUTE EXPOSURE - COPPER SULFATE, ALTHOUGH RARE, HAS BEEN REPORTED TO CAUSE CONTACT DERMATITIS.
FIRST AID - REMOVE CONTAMINATED CLOTHING AND SHOES IMMEDIATELY. WASHER AFFECTED AREA WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVIDENCE OF COPPER REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.
EYE CONTACT:
COPPER SULFATE (COPPER SULFATE):
CORROSIVE
SEE INFORMATION ON COPPER SALTS IN ADDITION TO THE EFFECTS DESCRIBED IN COPPER SALTS. COPPER SULFATE MAY CAUSE IRRITATION, REDNESS, PAIN AND BLURRED VISION. COPPER SULFATE SOLUTIONS CAN BE CORROSIVE TO THE EYE. REPEATED APPLICATIONS OF COPPER SULFATE TO THE EYE HAS CAUSED TEMPORARY IRRITATION AND A PURULENT REACTION WITH DISCOLORATION OF THE CORNEA. IF A PARTICLE OF COPPER SULFATE LEFT IN THE CONJUNCTIVAL SAC, IT CAN CAUSE CONJUNCTIVAL INFLAMMATION AND NECROSIS. CORNEAL OPACITY AND SYMPELPHONIA.
COPPER SALTS:
ACUTE EXPOSURE - SOME COPPER SALTS HAVE BEEN REPORTED TO CAUSE CONJUNCTIVITIS, CORNEAL ULCEERATIONS AND TURBIDITY, AND POSSIBLY PALPEBRAL ULCERATION. METALLIC COPPER BEADS EMBEDDED IN THE EYE MAY RESULT IN INDUCTION OF FOREIGN-BODY RESPONSE WITH CHARACTERISTIC DISCOLORATION OF OCULAR TISSUE. CHRONIC EXPOSURE - PROLONGED OR REPEATED EXPOSURE TO COPPER SALTS MAY CAUSE IRRITATION AND CONJUNCTIVITIS.
FIRST AID - WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR NORMAL SALINE, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.
INGESTION:
COPPER SULFATE (COPPER SULFATE):
TOXIC/CORROSIVE
SEE INFORMATION ON COPPER SALTS IN ADDITION TO THE EFFECTS DESCRIBED IN COPPER SALTS. COPPER SULFATE IF NOT REMOVED IMMEDIATELY CAN BE CORROSIVE. COPPER SULFATE MAY ALSO CAUSE SUBLINGUAL, GASTROINTESTINAL, GASTRIC, ULCERATION, DISCOLORATION OF GUMS AND TONGUE, PROSTHESIS LOSS. LOSS OF CONSCIOUSNESS, AND CONVULSIONS. OTHER REPORTED EFFECTS INCLUDE HEMATEMESIS, HEMORRHAGE, AN INCREASE IN WHITE BLOOD CELLS, SULFHAEMOCYTOPHAGENIA AND SEPTICEMIA. A SALT SOLUTION IS RECOMMENDED FOR COPPER SULFATE IN THEIR DRINKING WATER RESULTED IN DOSE DEPENDENT IMPAIRMENT OF THE IMMUNE RESPONSE.
COPPER SALTS:
ACUTE EXPOSURE - MAY CAUSE AN ACUTE METALLIC TASTE, SALIVATION, NAUSEA, EPIGASTRIC BURNING, VIOLENT VOMITING WHICH MAY BE BLISSFULLY GREEN, DIARRHEA WITH BLOOD, FEVER, ULCERATION, DYSPEPSIA. IRRITATION, DISCOLORATION OF GUMS AND TONGUE, PROSTRATION, LOSS OF CONSCIOUSNESS, AND CONVULSIONS. OTHER REPORTED EFFECTS INCLUDE HEMATEMESIS, HEMOPHAGOCYTIC HEMORRHAGE, AN INCREASE IN WHITE BLOOD CELLS, SULFHAEMOCYTOPHAGENIA AND SEPTICEMIA. A SALT SOLUTION IS RECOMMENDED.
FIRST AID - DILUTE THE POISON IMMEDIATELY WITH LARGE AMOUNTS OF WATER OR MILK AND REMOVE BY GASTRIC LAVAGE UNLESS THE VICTIM IS ALREADY VOMITING. KEEP THE VICTIM IN A SEATED POSITION. IMMEDIATE ADMINISTRATION OF GASTRIC LAVAGE SHOULD BE PERFORMED BY QUALIFIED MEDICAL PERSONNEL.
ANTIDOTE:
THE FOLLOWING ANTIDOTE HAS BEEN RECOMMENDED. HOWEVER, THE DECISION AS TO WHETHER THE SEVERITY OF POISONING REQUIRES ADMINISTRATION OF ANY ANTIDOTE AND ACTUAL DOSAGES SHOULD BE MADE BY QUALIFIED MEDICAL PERSONNEL.
COPPER POISONING:
GIVE CALCIUM DISODIUM EDTATE 15-25 MG/KG. (0.6-1.25% OF 20% SOLUTION PER KILOGRAM BODY WEIGHT) IN 250-500 ML OF 5% DELETATE INTRAVENOUSLY OVER A 1 TO 2 HOUR PERIOD TWICE DAILY. THE MAXIMUM DOSE SHOULD NOT EXCEED 50 MG/KG/Day. THE TOTAL NUMBER OF DOSES SHOULD BE 5 OR 6. ACUTE POISONING WILL FOCUS ON THE NEXT 24 HOURS. IF THE DOSE IS REPEATED BETWEEN COURSES. AFTER THE FIRST COURSE, SUBSEQUENT COURSES SHOULD NOT EXCEED 50 MG/KG/Day. THE TOTAL NUMBER OF DOSES SHOULD NOT EXCEED 5 OR 6. IF ANY UNUSUAL URAMINARY FINDINGS APPEAR INVESTIGATION IS HIGHLY RECOMMENDED. IN THE PRESENCE OF HEMOLYTIC ANEMIA. HEMOLYTIC ANEMIA. THERMOHOMALLAGENIA. METABOLIC ACIDOSIS AND PARAPLASIA IN ANIMALS.
RESPIRATOR:
THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND IN THE WORKPLACE.
COPPER DUST AND MIST (AS CU):
5 MG/M3 - ANY DUST AND MIST RESPIRATOR.
10 MG/M3 - ANY DUST AND MIST RESPIRATOR EXCEPT SINGLE-USE AND QUARTER MASK RESPIRATORS.
25 MG/M3 - ANY POWERED, AIR PURIFYING RESPIRATOR OR A DUST AND MIST FILTER.
50 MG/M3 - ANY AIR PURIFYING, FULL-FACE RESPIRATOR WITH A HIGH-EFFICIENCY PARTICULATE FILTER.
2000 MG/M3 - ANY AIR PURIFYING, FULL-FACE RESPIRATOR WITH A HIGH-EFFICIENCY PARTICULATE FILTER.
ESCAPE: ANY AIR-PURIFYING, FULL-FACEPIECE RESPIRATOR WITH A HIGH-EFFICIENCY PARTICULATE FILTER.
ANY APPROPRIATE ESCAPE-TYPE, SELF-CONTAINED BREATHING APPARATUS.

* IF NOT PRESENT AS A FUME.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:
ANY SELF-CONTAINED BREATHING APPARATUS THAT HAS A FULL FACEPIECE AND IS OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE.

ANY SUPPLIED-AIR RESPIRATOR THAT HAS A FULL FACEPIECE AND IS OPERATED IN A PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE IN COMBINATION WITH AN AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE-PRESSURE MODE.

CLOTHING:
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE (IMPEVRIOUS) CLOTHING AND EQUIPMENT TO PREVENT REPEATED OR PROLONGED SKIN CONTACT WITH THIS SUBSTANCE.

GLOVES:
EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE GLOVES TO PREVENT CONTACT WITH THIS SUBSTANCE.

EYE PROTECTION:
EMPLOYEE MUST WEAR SPLASH-PROOF OR DUST-RESISTANT SAFETY GOGGLES TO PREVENT EYE CONTACT WITH THIS SUBSTANCE.

EMERGENCY EYE WASH: WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES MAY BE EXPOSED TO THIS SUBSTANCE, THE EMPLOYER SHOULD PROVIDE AN EYE WASH FOUNTAIN WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE.

AUTHORIZED - FISHER SCIENTIFIC, INC.
CREATION DATE: 10/19/84 REVISION DATE: 01/06/93

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