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***CUPRIC SULFATE**

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MATERIAL SAFETY DATA SHEET

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SUBSTANCE IDENTIFICATION

SUBSTANCE: [REDACTED]

CAS-NUMBER 7758-98-7

TRADE NAMES/SYNONYMS:
CUPRIC SULFATE ANHYDROUS; COPPER(II)SULFATE; COPPER SULFATE;
CUPRIC SULPHATE; SULFURIC ACID, COPPER(2+) SALT; ROMAN VITRIOL;
BLUE VITRIOL; BLUE COPPER; COPPER MONOSULFATE; C-489; C-490; C-493; C-495;
ACC05670

CHEMICAL FAMILY:
INORGANIC SALT

MOLECULAR FORMULA: CU-S-04

MOL WT: 159.60

CERCLA RATINGS (SCALE 0-3): HEALTH=3 FIRE=0 REACTIVITY=0 PERSISTENCE=3

COMPONENTS AND CONTAMINANTS

COMPONENT: CUPRIC SULFATE

PERCENT: 100.0

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:
1 MG(CU)/M3 OSHA TWA (DUST AND MIST)
1 MG(CU)/M3 ACGIH TWA (DUST AND MIST)

PHYSICAL DATA

DESCRIPTION: GRAYISH-WHITE TO GREENISH-WHITE RHOMBIC CRYSTALS

MELTING POINT: 51 DECOMP >200 C SPECIFIC GRAVITY: 3.6

PH: 4.0 (0.2 M SOLUTION) SOLUBILITY IN WATER: 12.5% @ 0 C

CUPRIC SULFATE
SOLVENT SOLUBILITY: SOLUBLE WITH METHANOL

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FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:
NEGLECTIBLE FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.

FLASH POINT: NON-FLAMMABLE

FIREFIGHTING MEDIA:

DRY CHEMICAL, CARBON DIOXIDE, WATER SPRAY OR FOAM
(1984 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.3).

FOR LARGER FIRES, USE WATER SPRAY, FOG OR ALCOHOL FOAM
(1984 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.3).

FIREFIGHTING:

IRRITATING AGENT- USE EXTINGUISHING AGENT SUITABLE FOR TYPE OF SURROUNDING
FIRE. MATERIAL ITSELF DOES NOT BURN READILY. USE FLOODING QUANTITIES OF WATER
AS A FOG AND TO COOL ALL CONTAINERS INVOLVED IN FIRE. ABSORB VAPORS WITH WATER
SPRAY. ALWAYS APPLY FOG DOWNWIND.

TOXICITY

200 MG/KG ORAL-CHILD TDLO; 11 MG/KG ORAL-HUMAN TDLO; 50 MG/KG ORAL-HUMAN LDLO;
300 MG/KG ORAL-RAT LD50; MUTAGENIC DATA (RTECS); REPRODUCTIVE EFFECTS DATA
(RTECS); TUMORIGENIC DATA (RTECS); CARCINOGEN STATUS: NONE. COPPER DUST AND
MISTS ARE SKIN, EYE AND MUCOUS MEMBRANE IRRITANTS AND A SKIN SENSITIZER.
CUPRIC SULFATE MAY CAUSE LIVER AND/OR KIDNEY DAMAGE, AND HEMORRHAGIC
GASTROENTERITIS. PERSONS WITH A HISTORY OF CHRONIC RESPIRATORY OR SKIN DISEASE
MAY BE AT INCREASED RISK FROM EXPOSURE.

HEALTH EFFECTS AND FIRST AID

INHALATION:

IRRITANT:

ACUTE EXPOSURE- INHALATION OF COPPER DUSTS AND MISTS MAY CAUSE CONGESTION
AND IRRITATION OF THE NASAL MUCOUS MEMBRANES AND SOMETIMES
THE PHARYNX.

CHRONIC EXPOSURE- REPEATED INHALATION OF COPPER DUSTS AND MISTS HAVE, ON
OCCASION, CAUSED ULCERATION WITH PERFORATION OF THE NASAL
SEPTUM. SEE ANIMAL MUTAGENIC REFERENCE IN TOXICITY
SECTION.

FIRST AID- REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING
HAS STOPPED, PERFORM ARTIFICIAL RESPIRATION. KEEP PERSON WARM AND AT REST.
GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:

IRRITANT:

ACUTE EXPOSURE- CONTACT CAUSES IRRITATION AND ITCHING. SENSITIZATION
DERMATITIS MAY OCCUR IN INDIVIDUALS PREVIOUSLY EXPOSED. POISONING MAY
OCCUR FROM APPLICATION OF CUPRIC SULFATE TO EXTENSIVE AREAS OF BURNED

SKIN.

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CHRONIC EXPOSURE- SENSITIZATION DERMATITIS MAY OCCUR, WITH ITCHING AND NECROSIS. SEE ANIMAL MUTAGENIC REFERENCE IN TOXICITY SECTION.

FIRST AID- REMOVE CONTAMINATED CLOTHING AND SHOES. WASH AFFECTED AREAS WITH SOAP OR MILD DETERGENT AND LARGE AMOUNTS OF WATER UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION.

EYE CONTACT:
IRRITANT.

ACUTE EXPOSURE- CONTACT MAY CAUSE IRRITATION AND CONJUNCTIVITIS.

CHRONIC EXPOSURE- REPEATED OR PROLONGED CONTACT MAY CAUSE CONJUNCTIVITIS, CORNEAL ULCERATION AND TURBIDITY.

FIRST AID- WASH EYES IMMEDIATELY WITH LARGE AMOUNTS OF WATER, OCCASIONALLY LIFTING THE UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION.

INGESTION:

ACUTE EXPOSURE- SMALL AMOUNTS OF INGESTED CUPRIC SULFATE MAY CAUSE SALIVATION, NAUSEA, VOMITING, GASTRIC PAIN, HEMORRHAGIC GASTRITIS, AND BLOODY DIARRHEA.

FIRST AID- IF VICTIM IS CONSCIOUS, IMMEDIATELY GIVE 2 TO 4 GLASSES OF WATER, AND INDUCE VOMITING BY TOUCHING FINGER TO BACK OF THROAT. GET MEDICAL ATTENTION IMMEDIATELY.

REACTIVITY

REACTIVITY:
STABLE AT ORDINARY PRESSURES, TEMPERATURES, AND HUMIDITIES. HOWEVER, THE PENTAHYDRATE LOSES 2H₂O AT 30 C AND ANOTHER 2H₂O AT 110 C. SLOWLY EFFLORESCENT IN AIR AT ROOM TEMPERATURE.

INCOMPATIBILITIES:

HYDROXYLAMINE: MAY BE IGNITED WHEN MIXED WITH ANHYDROUS COPPER SULFATE.
MAGNESIUM: PRODUCES HYDROGEN WHEN MIXED.
SODIUM HYPOBROMITE: DECOMPOSES WHEN MIXED.

DECOMPOSITION:
THERMAL DECOMPOSITION PRODUCTS INCLUDE TOXIC GASES.

-POLYMERIZATION:
HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.

CONDITIONS TO AVOID

-AVOID THERMAL DECOMPOSITION AT 650 C FOR ANHYDROUS. AVOID CONTACT OR STORAGE WITH INCOMPATIBLE SUBSTANCES LISTED IN THE REACTIVITY SECTION.

SOIL SPILL: DIG HOLDING AREA SUCH AS LAGOON, POND OR PIT FOR CONTAINMENT.

USE PROTECTIVE COVER SUCH AS A PLASTIC SHEET TO PREVENT MATERIAL FROM DISSOLVING IN FIRE EXTINGUISHING WATER OR RAIN.

WATER SPILL: ADD SUITABLE AGENT TO NEUTRALIZE SPILLED MATERIAL TO PH-7.

USE MECHANICAL DREDGES OR LIFTS TO EXTRACT IMMOBILIZED MASSES OF POLLUTION AND PRECIPITATES.

OCCUPATIONAL SPILL: DO NOT TOUCH SPILLED MATERIAL. FOR SMALL SPILLS, TAKE UP WITH SAND OR OTHER ABSORBENT MATERIAL AND PLACE INTO CONTAINERS FOR LATER DISPOSAL. FOR SMALL DRY SPILLS, WITH CLEAN SHOVEL PLACE MATERIAL INTO CLEAN, DRY CONTAINER AND COVER. MOVE CONTAINERS FROM SPILL AREA. EXTINGUISH USING AGENT SUITABLE FOR TYPE OF SURROUNDING FIRE. MATERIAL ITSELF DOES NOT BURN.

WHEN MATERIAL NOT INVOLVED IN FIRE: DO NOT ALLOW MATERIAL TO CONTAMINATE SEWERS AND WATER SOURCES. BUILD DIKES FOR CONTAINMENT OF SPILL FLOW.

PROTECTIVE EQUIPMENT

VENTILATION: PROVIDE LOCAL EXHAUST OR GENERAL DILUTION VENTILATION SYSTEM.

RESPIRATOR: EXPOSURE LIMIT TO 50 MG(CU)/M3- SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE. SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE, HELMET OR HOOD.

2000 MG(CU)/M3- TYPE 'C' SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE OR CONTINUOUS FLOW MODE. TYPE 'C' SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE OR WITH A FULL FACEPIECE, HELMET OR HOOD OPERATED IN CONTINUOUS-FLOW MODE.

FIREFIGHTING- SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

CLOTHING: PROTECTIVE CLOTHING NOT REQUIRED. AVOID REPEATED OR PROLONGED CONTACT WITH THIS SUBSTANCE.

GLOVES: PROTECTIVE GLOVES ARE NOT REQUIRED BUT RECOMMENDED.

--- EYE PROTECTION: WEAR CLOSE FITTING SAFETY GOGGLES TO PREVENT EYE CONTACT. DO NOT WEAR CONTACT

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