

ATTN: SAFETY DIRECTOR  
 UNIV OF WISC-WHITEWATER  
 PURCHASING OFFICE  
 800 W MAIN ST  
 WHITEWATER WI 53190-1705

EMERGENCY PHONE 1-314-771-5765

DATE: 04/14/95  
 CUST#: 2-097-94816  
 PO#: QF08030

M A T E R I A L   S A F E T Y   D A T A   S H E E T                      P A G E   1

SECTION 1. - - - - - CHEMICAL IDENTIFICATION - - - - -

PRODUCT #: C7631                      NAME: CUPRIC SULFATE PENTAHYDRATE APPROX. 99%

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -

CAS #: 7758-99-8  
 MF: CU104S1

SYNONYMS

BLUE COPPER AS \* BLUESTONE \* BLUE VITRIOL \* COPPERFINE-ZINC \* COPPER  
 SULFATE \* COPPER(II) SULFATE PENTAHYDRATE \* COPPER(2+) SULFATE  
 PENTAHYDRATE \* COPPER SULPHATE \* CSP \* CUPRIC SULFATE PENTAHYDRATE \*  
 KUPFERSULFAT (GERMAN) \* KUPFERSULFAT-PENTAHYDRAT (GERMAN) \*  
 KUPFERVITRIOL (GERMAN) \* ROMAN VITRIOL \* SALZBURG VITRIOL \* SULFURIC  
 ACID, COPPER(2+) SALT, PENTAHYDRATE \* SULFURIC ACID COPPER(2+) SALT  
 (1:1), PENTAHYDRATE (8CI,9CI) \* TRIANGLE \* VENCEDOR \*

SECTION 3. - - - - - HAZARDS IDENTIFICATION - - - - -

LABEL PRECAUTIONARY STATEMENTS

TOXIC (USA DEFINITION)  
 HARMFUL (EUROPEAN DEFINITION)  
 HARMFUL BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.  
 IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.  
 RISK OF SERIOUS DAMAGE TO EYES.  
 POSSIBLE RISK OF IRREVERSIBLE EFFECTS.  
 POSSIBLE MUTAGEN.  
 TARGET ORGAN(S):  
 LIVER  
 KIDNEYS  
 IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF  
 WATER AND SEEK MEDICAL ADVICE.  
 WEAR SUITABLE PROTECTIVE CLOTHING.

SECTION 4. - - - - - FIRST-AID MEASURES - - - - -

IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS  
 AMOUNTS OF WATER.  
 IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF  
 WATER FOR AT LEAST 15 MINUTES.  
 IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL  
 RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.  
 IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS.  
 CALL A PHYSICIAN.

CONTINUED ON NEXT PAGE

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M A T E R I A L   S A F E T Y   D A T A   S H E E T                      P A G E   2


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REMOVE AND WASH CONTAMINATED CLOTHING PROMPTLY.

SECTION 5. - - - - - FIRE FIGHTING MEASURES - - - - -

EXTINGUISHING MEDIA  
 NONCOMBUSTIBLE.  
 USE EXTINGUISHING MEDIA APPROPRIATE TO SURROUNDING FIRE CONDITIONS.  
 SPECIAL FIREFIGHTING PROCEDURES  
 WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO  
 PREVENT CONTACT WITH SKIN AND EYES.  
 UNUSUAL FIRE AND EXPLOSIONS HAZARDS  
 EMITS TOXIC FUMES UNDER FIRE CONDITIONS. 

SECTION 6. - - - - - ACCIDENTAL RELEASE MEASURES - - - - -

WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY  
 RUBBER GLOVES.  
 SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.  
 AVOID RAISING DUST.  
 VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. - - - - - HANDLING AND STORAGE - - - - -

REFER TO SECTION 8.

SECTION 8. - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION - - - - -

CHEMICAL SAFETY GOGGLES.  
 COMPATIBLE CHEMICAL-RESISTANT GLOVES.  
 SAFETY SHOWER AND EYE BATH.  
 USE ONLY IN A CHEMICAL FUME HOOD.  
 NIOSH/MSHA-APPROVED RESPIRATOR IN NONVENTILATED AREAS AND/OR FOR  
 EXPOSURE ABOVE THE ACGIH TLV.  
 DO NOT BREATHE DUST.  
 DO NOT GET IN EYES, ON SKIN, ON CLOTHING.  
 AVOID PROLONGED OR REPEATED EXPOSURE.  
 WASH THOROUGHLY AFTER HANDLING.  
 TOXIC.  
 SEVERE EYE IRRITANT.  
 POSSIBLE MUTAGEN.

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M A T E R I A L   S A F E T Y   D A T A   S H E E T                      P A G E   3

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KEEP TIGHTLY CLOSED.  
 EFFLORESCENT.  
 PROTECT FROM AIR

SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - -

APPEARANCE AND ODOR: BLUE CRYSTALS  
 VAPOR PRESSURE: 7.3MM 25 C  
 SPECIFIC GRAVITY: 2.284

SECTION 10. - - - - - STABILITY AND REACTIVITY - - - - -

INCOMPATIBILITIES:  
 SENSITIVE TO AIR  
 CORRODES STEEL  
 FINELY POWDERED METALS  
 HEAT  
 HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS  
 TOXIC FUMES OF:  
 SULFUR OXIDES

SECTION 11. - - - - - TOXICOLOGICAL INFORMATION - - - - -

ACUTE EFFECTS:  
 HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN.  
 CAUSES SKIN IRRITATION.  
 CAUSES SEVERE EYE IRRITATION.  
 MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER  
 RESPIRATORY TRACT.  
 EXPOSURE CAN CAUSE:  
 DAMAGE TO THE EYES  
 GASTROINTESTINAL DISTURBANCES

CHRONIC EFFECTS:  
 LABORATORY EXPERIMENTS HAVE SHOWN MUTAGENIC EFFECTS.  
 TARGET ORGAN(S):  
 LIVER, KIDNEYS  
 BLOOD

ADDITIONAL INFORMATION:  
 CHRONIC COPPER POISONING IS TYPIFIED BY HEPATIC CIRRHOSIS, BRAIN

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DAMAGE AND DEMYELINATION, KIDNEY DEFECTS, AND COPPER DEPOSITION IN THE CORNEA AS EXEMPLIFIED BY HUMANS WITH WILSON'S DISEASE. IT HAS ALSO BEEN REPORTED THAT COPPER POISONING HAS LEAD TO HEMOLYTIC ANEMIA AND ACCELERATES ARTERIOSCLEROSIS.

RTECS NO: GL8900000

COPPER(II) SULFATE, PENTAHYDRATE (1:1:5)

TOXICITY DATA

ORL-HMN LDLO:1088 MG/KG	IPRAAB 18,807,65
UNR-MAN LDLO:221 MG/KG	85DCAI 2,73,70
ORL-RAT LD50:300 MG/KG	85ARAE 2,182,77
IPR-RAT LD50:18700 UG/KG	GISAAA 53(4),78,88
IPR-MUS LD50:33 MG/KG	BCPCA6 14,289,65
IPR-MAM LD50:7500 UG/KG	JANSAG 55,337,82

TARGET ORGAN DATA

AUTONOMIC NERVOUS SYSTEM (OTHER: PARASYMPATHOMIMETIC)  
BEHAVIORAL (SOMNOLENCE)  
BEHAVIORAL (COMA)  
GASTROINTESTINAL (CHANGES IN STRUCTURE OR FUNCTION OF SALIVARY GLANDS)  
GASTROINTESTINAL (HYPERMOTILITY, DIARRHEA)  
GASTROINTESTINAL (NAUSEA OR VOMITING)  
LIVER (JAUNDICE, HEPATOCELLULAR)  
KIDNEY, URETER, BLADDER (OTHER CHANGES)  
BLOOD (HEMORRHAGE)  
BLOOD (OTHER HEMOLYSIS WITH OR WITHOUT ANEMIA)  
NUTRITIONAL AND GROSS METABOLIC (WEIGHT LOSS OR DECREASED WEIGHT GAIN)  
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

SECTION 12. ----- ECOLOGICAL INFORMATION -----  
DATA NOT YET AVAILABLE.

SECTION 13. ----- DISPOSAL CONSIDERATIONS -----

THE MATERIAL SHOULD BE DISSOLVED IN 1) WATER; 2) ACID SOLUTION OR 3) OXIDIZED TO A WATER-SOLUBLE STATE. PRECIPITATE THE MATERIAL AS THE SULFIDE, ADJUSTING THE PH OF THE SOLUTION TO 7 TO COMPLETE PRECIPITATION. FILTER THE INSOLUBLES AND DISPOSE OF THEM IN A HAZARDOUS-WASTE SITE. DESTROY ANY EXCESS SULFIDE WITH SODIUM HYPOCHLORITE. NEUTRALIZE THE SOLUTION BEFORE FLUSHING DOWN THE DRAIN. OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

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**SECTION 14. - - - - - TRANSPORT INFORMATION - - - - -**

CONTACT SIGMA CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.

**SECTION 15. - - - - - REGULATORY INFORMATION - - - - -**

**REVIEWS, STANDARDS, AND REGULATIONS**

EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION

FEREAC 54,7740,89

- OEL-ARAB REPUBLIC OF EGYPT:TWA 0.1 MG(CU)/M3 (FUME) JAN93
- OEL-AUSTRALIA:TWA 0.2 MG(CU)/M3 (FUME) JAN93
- OEL-AUSTRALIA:TWA 1 MG(CU)/M3 (DUST) JAN93
- OEL-BELGIUM:TWA 0.2 MG(CU)/M3 (FUME) JAN93
- OEL-BELGIUM:TWA 1 MG(CU)/M3 (DUST) JAN93
- OEL-DENMARK:TWA 0.1 MG(CU)/M3 (FUME) JAN93
- OEL-DENMARK:TWA 1 MG(CU)/M3 (DUST) JAN93
- OEL-FINLAND:TWA 0.2 MG(CU)/M3 (FUME) JAN93
- OEL-FINLAND:TWA 1 MG(CU)/M3 (DUST) JAN93
- OEL-FINLAND:TWA 1 MG(CU)/M3 (DUST) JAN93
- OEL-FRANCE:TWA 0.2 MG(CU)/M3 (FUME) JAN93
- OEL-FRANCE:TWA 1 MG(CU)/M3;STEL 2 MG(CU)/M3 (DUST) JAN93
- OEL-GERMANY:TWA 0.1 MG(CU)/M3 (FUME) JAN93
- OEL-GERMANY:TWA 1 MG(CU)/M3 (DUST) JAN93
- OEL-GERMANY:TWA 1 MG(CU)/M3 (DUST) JAN93
- OEL-HUNGARY:TWA 0.2 MG(CU)/M3;STEL 0.4 MG(CU)/M3 (DUST) JAN93
- OEL-INDIA:TWA 0.2 MG(CU)/M3 (FUME) JAN93
- OEL-THE NETHERLANDS:TWA 0.2 MG(CU)/M3 (FUME) JAN93
- OEL-THE NETHERLANDS:TWA 1 MG(CU)/M3 (DUST) JAN93
- OEL-THE PHILIPPINES:TWA 1.0 MG(CU)/M3 (FUME) JAN93
- OEL-POLAND:TWA 0.1 MG(CU)/M3 (FUME) JAN93
- OEL-RUSSIA:STEL 0.5 PPM (1 MG(CU)/M3) (DUST) JAN93
- OEL-SWEDEN:TWA 0.2 MG(CU)/M3 (RESP. DUST) JAN93
- OEL-SWEDEN:TWA 0.2 MG(CU)/M3 (FUME) JAN93
- OEL-SWEDEN:TWA 1 MG(CU)/M3 (TOTAL DUST) JAN93
- OEL-SWITZERLAND:TWA 0.1 MG(CU)/M3;STEL 0.2 MG(CU)/M3 (FUME) JAN93
- OEL-SWITZERLAND:TWA 1 MG(CU)/M3;STEL 1 MG(CU)/M3 JAN93
- OEL-THAILAND:TWA 0.1 MG(CU)/M3 (FUME) JAN93
- OEL-THAILAND:TWA 1 MG(CU)/M3 JAN93
- OEL-UNITED KINGDOM:TWA 0.2 MG(CU)/M3 (FUME) JAN93
- OEL-UNITED KINGDOM:TWA 1 MG(CU)/M3 JAN93
- OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV

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DEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV  
 NOES 1983: H2O X5421; NIS 9; TNF 869; NOS 17; TNE 7927; TFE 2969  
 TOXICITY STUDIES; REP# TOX-29, OCTOBER 1994  
 THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS -  
 COPPER COMPOUNDS.

SECTION 16. - - - - - OTHER INFORMATION - - - - -

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