

COBALTOUS SULFATE, HEPTAHYDRATE
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MATERIAL SAFETY DATA SHEET

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SUBSTANCE IDENTIFICATION

SUBSTANCE: ***COBALTOUS SULFATE, HEPTAHYDRATE***

CAS-NUMBER 10026-24-1

TRADE NAMES/SYNONYMS:

COBALT MONOSULFATE HEPTAHYDRATE; COBALT(II) SULFATE HEPTAHYDRATE;
COBALT(II) SULFATE(1:1); HEPTAHYDRATE; COBALTOUS SULFATE HEPTAHYDRATE;
COBALT(II) SULPHATE HEPTAHYDRATE;
SULFURIC ACID, COBALT(2+) SALT (1:1), HEPTAHYDRATE, C-386;

CHEMICAL FAMILY:
INORGANIC SALT

MOLECULAR FORMULA: CO-O4-S.7H2O

MOLECULAR WEIGHT: 281.13

CERCLA RATINGS (SCALE 0-3): HEALTH=2 FIRE=0 REACTIVITY=0 PERSISTENCE=3
NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=0 REACTIVITY=0

COMPONENTS AND CONTAMINANTS

COMPONENT: COBALTOUS SULFATE, HEPTAHYDRATE PERCENT: 100

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:
NO OCCUPATIONAL EXPOSURE LIMITS ESTABLISHED BY OSHA, ACGIH, OR NIOSH.

PHYSICAL DATA

DESCRIPTION: PINK TO RED MONOCLINIC, PRISMATIC CRYSTALS OR POWDER.
BOILING POINT: 788 F (420 C)(-H2O) MELTING POINT: 206 F (97 C)
SPECIFIC GRAVITY: 1.948 @ 25 C SOLUBILITY IN WATER: 60.4% @ 3 C
SOLVENT SOLUBILITY: SLIGHTLY SOLUBLE IN METHANOL AND ETHANOL

FIRE AND EXPLOSION DATA

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

FIREFIGHTING MEDIA:
DRY CHEMICAL, CARBON DIOXIDE, HALON, WATER SPRAY OR STANDARD FOAM
(1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4).

FOR LARGER FIRES, USE WATER SPRAY, FOG OR STANDARD FOAM
(1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4).

FIREFIGHTING:
MOVE CONTAINER FROM FIRE AREA IF POSSIBLE. DO NOT SCATTER SPILLED MATERIAL WITH HIGH PRESSURE WATER STREAMS. DIKE FIRE CONTROL WATER FOR LATER DISPOSAL (1987 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.4, GUIDE PAGE 31).

USE AGENTS SUITABLE FOR TYPE OF SURROUNDING FIRE. AVOID BREATHING HAZARDOUS VAPORS, KEEP UPWIND.

TOXICITY

COBALTOUS SULFATE, HEPTAHYDRATE:
768 MG/KG ORAL-RAT LD50; 16200 UG/KG INTRAVENOUS-DOG LDLO; CARCINOGEN STATUS: NONE.
COBALTOUS SULFATE, HEPTAHYDRATE IS AN EYE, SKIN AND MUCOUS MEMBRANE IRRITANT. SOME COBALT COMPOUNDS MAY BE SENSITIZERS.

HEALTH EFFECTS AND FIRST AID

INHALATION:

COBALTOUS SULFATE, HEPTAHYDRATE:
IRRITANT.

ACUTE EXPOSURE- MAY CAUSE IRRITATION. SOME COBALT COMPOUNDS MAY CAUSE SENSITIZATION-TYPE REACTIONS IN PREVIOUSLY EXPOSED INDIVIDUALS.
CHRONIC EXPOSURE- REPEATED OR PROLONGED CONTACT WITH SOME COBALT COMPOUNDS MAY CAUSE SENSITIZATION.

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

SKIN CONTACT:

COBALTOUS SULFATE, HEPTAHYDRATE:
IRRITANT.

ACUTE EXPOSURE- MAY CAUSE IRRITATION. SOME COBALT COMPOUNDS MAY CAUSE SENSITIZATION-TYPE REACTIONS IN PREVIOUSLY EXPOSED INDIVIDUALS.
CHRONIC EXPOSURE- REPEATED OR PROLONGED CONTACT MAY CAUSE DERMATITIS. SOME COBALT COMPOUNDS MAY CAUSE SENSITIZATION-TYPE REACTIONS IN SOME INDIVIDUALS.

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

EYE CONTACT:

COBALTOUS SULFATE, HEPTAHYDRATE:
IRRITANT.

ACUTE EXPOSURE- MAY CAUSE IRRITATION.
CHRONIC EXPOSURE- REPEATED OR PROLONGED CONTACT MAY CAUSE 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:

COBALTOUS SULFATE, HEPTAHYDRATE:

ACUTE EXPOSURE- MAY CAUSE ABDOMINAL SPASMS, NAUSEA AND VOMITING. INGESTION OF SOME COBALT COMPOUNDS MAY CAUSE FLUSHING OF THE FACE AND EARS, HYPOTENSION, RASH, TINNITUS, PERICARDIAL EFFUSION, AND POLYCYTHEMIA. ANIMAL EXPERIMENTS HAVE SHOWN THAT A LETHAL DOSE MAY CAUSE TREMOR, HYPERMOTILITY OR DIARRHEA, WEIGHT LOSS AND DEATH.
CHRONIC EXPOSURE- REPEATED INGESTION OF SOME COBALT COMPOUNDS HAS CAUSED DEATH IN MEN DUE TO MYOCARDIAL INSUFFICIENCY.

FIRST AID- TREAT SYMPTOMATICALLY AND SUPPORTIVELY. GET MEDICAL ATTENTION IMMEDIATELY. IF VOMITING OCCURS, KEEP HEAD LOWER THAN HIPS TO PREVENT ASPIRATION.

ANTIDOTE:

THE FOLLOWING ANTIDOTE HAS BEEN RECOMMENDED. HOWEVER, THE DECISION AS TO WHETHER THE SEVERITY OF POISONING REQUIRES ADMINISTRATION OF ANY ANTIDOTE AND ACTUAL DOSE REQUIRED SHOULD BE MADE BY QUALIFIED MEDICAL PERSONNEL.

POISONING FROM COBALT COMPOUNDS:

GIVE CALCIUM DISODIUM EDETATE, AVAILABLE AS 5 ML AMPULES OF A 20% SOLUTION. GIVE 15-25 MG/KG (0.08-0.125 ML OF 20% SOLUTION PER KILOGRAM OF BODY WEIGHT) IN 250-500 ML OF 5% DEXTROSE INTRAVENOUSLY OVER A 1 TO 2 HOUR PERIOD, TWICE DAILY. THE MAXIMUM DOSE SHOULD NOT EXCEED 50 MG/KG/DAY. THE DRUG SHOULD BE GIVEN IN 5-DAY COURSES WITH A REST PERIOD OF AT LEAST 2 DAYS BETWEEN COURSES. AFTER THE FIRST COURSE, SUBSEQUENT COURSES SHOULD NOT EXCEED 50 MG/KG/DAY. DAILY URINALYSES SHOULD BE DONE DURING THE TREATMENT PERIOD. THE DOSAGE SHOULD BE REDUCED IF ANY UNUSUAL URINARY FINDINGS APPEAR. INTRAVENOUS ADMINISTRATION IS CONTRAINDICATED IN THE PRESENCE OF ELEVATED CEREBROSPINAL FLUID PRESSURE.
FOR INTRAMUSCULAR ADMINISTRATION, GIVE 20% SOLUTION (200 MG/ML), 12.5 MG/KG BODY WEIGHT EVERY 4-6 HOURS. DILUTE EACH DOSE WITH AN EQUAL VOLUME OF 1% PROCAINE. DOSE LIMITATION IS THE SAME AS THAT GIVEN ABOVE (DREISBACH, HANDBOOK OF POISONING, 11TH ED.). ANTIDOTE SHOULD BE ADMINISTERED BY QUALIFIED MEDICAL PERSONNEL. GET MEDICAL ATTENTION IMMEDIATELY.

REACTIVITY

REACTIVITY:

STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:

COBALTOUS SULFATE, HEPTAHYDRATE:
NO DATA AVAILABLE.

DECOMPOSITION:

MAY RELEASE TOXIC AND HAZARDOUS COBALT FUMES AND CARBON MONOXIDE UNDER THERMAL DECOMPOSITION.

POLYMERIZATION:

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

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MAY BURN BUT DOES NOT IGNITE READILY. AVOID CONTACT WITH STRONG OXIDIZERS,

****COBALTOUS SULFATE, HEPTAHYDRATE**
EXCESSIVE HEAT, SPARKS, OR OPEN FLAME.**

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SPILL AND LEAK PROCEDURES**

**OCCUPATIONAL SPILL:
STOP LEAK IF YOU CAN DO IT WITHOUT RISK. FOR SMALL SPILLS, TAKE UP WITH SAND
OR OTHER ABSORBENT MATERIAL AND PLACE INTO CLEAN, DRY CONTAINERS FOR LATER
DISPOSAL. KEEP UNNECESSARY PEOPLE AWAY. ISOLATE HAZARD AREA AND DENY ENTRY.**

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PROTECTIVE EQUIPMENT**

**VENTILATION:
PROVIDE LOCAL EXHAUST OR GENERAL DILUTION VENTILATION SYSTEM.**

**RESPIRATOR:
THE FOLLOWING RESPIRATORS AND MAXIMUM USE CONCENTRATIONS ARE RECOMMENDATIONS
BY THE U. S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, NIOSH POCKET GUIDE TO
CHEMICAL HAZARDS OR NIOSH CRITERIA DOCUMENTS; OR DEPARTMENT OF LABOR,
29CFR1910 SUBPART Z.
THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND
IN THE WORK PLACE AND BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE OF
OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION.**

COBALT:

- 0.5 MG(CO)/M3- ANY DUST AND MIST RESPIRATOR EXCEPT SINGLE-USE RESPIRATORS.**
 - 1.0 MG(CO)/M3- ANY DUST AND MIST RESPIRATOR EXCEPT SINGLE-USE AND QUARTER-MASK
RESPIRATORS.
ANY DUST, MIST, AND FUME RESPIRATOR.
ANY SUPPLIED-AIR RESPIRATOR.
ANY SELF-CONTAINED BREATHING APPARATUS.**
 - 2.5 MG(CO)M3- ANY POWERED AIR-PURIFYING RESPIRATOR WITH A DUST AND MIST
FILTER.
ANY SUPPLIED-AIR RESPIRATOR OPERATED IN A CONTINUOUS FLOW MODE.
ANY POWERED AIR-PURIFYING RESPIRATOR WITH A DUST, MIST, AND
FUME FILTER.**
 - 5.0 MG(CO)/M3- ANY AIR-PURIFYING FULL FACEPIECE RESPIRATOR WITH A
HIGH-EFFICIENCY PARTICULATE FILTER.
ANY SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE.
ANY SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE.**
 - 20 MG(CO)/M3- ANY SUPPLIED-AIR RESPIRATOR WITH A FULL FACEPIECE AND OPERATED
IN A PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.**
- ESCAPE- ANY AIR-PURIFYING FULL FACEPIECE RESPIRATOR WITH A
HIGH-EFFICIENCY PARTICULATE FILTER.
ANY APPROPRIATE ESCAPE-TYPE SELF-CONTAINED BREATHING APPARATUS.**

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

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

**SUPPLIED-AIR RESPIRATOR WITH FULL FACEPIECE AND OPERATED IN 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 (IMPERVIOUS) 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. CONTACT LENSES SHOULD NOT BE WORN.**

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