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MSDS **Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.
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Phillipsburg, NJ 08865

MALLINCKRODT



24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 202-483-7616

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

COBALT CHLORIDE

MSDS Number: C4928 --- Effective Date: 12/08/96

1. Product Identification

Synonyms: Cobaltous chloride, hexahydrate; cobalt (2+) chloride hexahydrate, cobalt dichloride

CAS No.: 7646-79-9

Molecular Weight: 237.93

Chemical Formula: CoCl₂·6H₂O

Product Codes: J.T. Baker: 1670, 1672 Mallinckrodt: 4532

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Cobalt(II) Chloride	7646-79-9	90 - 100%	Yes

3. Hazards Identification

Emergency Overview

WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. MAY CAUSE ALLERGIC SKIN OR RESPIRATORY REACTION. CHRONIC EXPOSURE MAY AFFECT THYROID, LUNGS, HEART, AND KIDNEYS.

J.T. Baker SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 3 - Severe (Poison)
Flammability Rating: 0 - None
Reactivity Rating: 0 - None
Contact Rating: 1 - Slight
Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES
Storage Color Code: Blue (Health)

Potential Health Effects

Inhalation:

Causes irritation to the respiratory tract, symptoms may include coughing, shortness of breath, and nausea. Respiratory hypersensitivity, asthma may appear. Inhalation of cobalt dust and fumes is associated with an increased incidence of lung disease.

Ingestion:

Toxic. Causes abdominal pain, nausea, vomiting, flushing of the face and ears, mild hypotension, rash, and ringing in the ears. May have cumulative toxic action where elimination cannot keep pace with absorption. Large amounts depress erythrocyte production.

Skin Contact:

Causes irritation to skin. Symptoms include redness, itching, and pain. May cause dermatitis.

Eye Contact:

Causes irritation, redness, and pain.

Chronic Exposure:

Repeated oral administration may produce goiter and reduced thyroid activity. Prolonged or repeated skin exposure may cause dermatitis. Chronic exposure associated with kidney, liver, heart and lung damage.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance. Persons with allergies or sensitivity to cobalt may also be more susceptible to the effects of the substance.

4. First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:

Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:

Not considered to be a fire hazard.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

Special Information:

Use protective clothing and breathing equipment appropriate for the surrounding fire.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Wash hands before eating and do not eat, drink, or smoke in workplace. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

For Cobalt Compound: -OSHA Permissible Exposure Limit (PEL): 0.1 mg/m³ (TWA) Cobalt metal dust and

fume as Co -ACGIH Threshold Limit Value (TLV): inorganic cobalt compounds: 0.02 mg/m³ (TWA) as Co, A3: Animal carcinogen.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded, a half-face high efficiency dust/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece high efficiency dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

Rose-red crystals.

Odor:

Odorless.

Solubility:

76.7 g/100 cc water @ 0C

Density:

1.92 @ 20C

pH:

4.6

% Volatiles by volume @ 21C (70F):

0

Boiling Point:

110C (230F) (Loses 6H₂O)

Melting Point:

86C (187F)

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

40 @ 770C (1418F)

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

Emits toxic chlorides and possibly cobalt fumes when heated to decomposition. Cobalt oxide fumes may form in fire.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Strong oxidizers, strong mineral acids, tert-butyl hydroperoxide, potassium and metal halides, sodium dispersions.

Conditions to Avoid:

Incompatibles.

11. Toxicological Information

Toxicological Data:

Oral rat LD50: 80 mg/kg. Investigated as a tumorigen, mutagen, reproductive effector.

Carcinogenicity:

Cobalt and its compounds have been shown to cause cancer in laboratory animals.

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Cobalt(II) Chloride (7646-79-9)	No	No	2B

12. Ecological Information

Environmental Fate:

No information found.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

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-----\Chemical Inventory Status - Part 1\-----
Ingredient                                     TSCA  EC   Japan  Australia
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Cobalt(II) Chloride (7646-79-9)                Yes  Yes   Yes    Yes

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-----\Chemical Inventory Status - Part 2\-----
Ingredient                                     Korea  DSL   NDSL   Phil.
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Cobalt(II) Chloride (7646-79-9)                Yes   Yes   No     Yes

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-----\Federal, State & International Regulations - Part 1\-----
Ingredient                                     -SARA 302-  -SARA 313-
RQ      TPQ      List  Chemical Catg.
-----
Cobalt(II) Chloride (7646-79-9)                No     No     No     Cobalt compo

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-----\Federal, State & International Regulations - Part 2\-----
Ingredient                                     CERCLA  -RCRA-  -TSCA-
                                         CERCLA  261.33  8(d)
-----
Cobalt(II) Chloride (7646-79-9)                1       No      No

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Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No

Reactivity: No (Mixture / Solid)

Australian Hazchem Code: No information found.

Poison Schedule: No information found.

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: 2 Flammability: 0 Reactivity: 0

Label Hazard Warning:

WARNING! HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. MAY CAUSE ALLERGIC SKIN OR RESPIRATORY REACTION. CHRONIC EXPOSURE MAY AFFECT THYROID, LUNGS, HEART, AND KIDNEYS.

Label Precautions:

Avoid breathing dust. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. Avoid contact with eyes, skin and clothing.

Label First Aid:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.

Product Use:

Laboratory Reagent.

Revision Information:

Mixture. New 16 section MSDS format, all sections have been revised.

Disclaimer:

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