



Fisher Scientific

Part of Thermo Fisher Scientific

Material Safety Data Sheet

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1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Cobalt(II) chloride hexahydrate
Cat No. :	C371-100; C371-500; C371-500LC
Synonyms	Cobalt muriate hexahydrate.; Cobaltous chloride hexahydrate
Recommended Use	Laboratory chemicals
Company Fisher Scientific One Reagent Lane Fair Lawn, NJ 07410 Tel: (201) 796-7100	Emergency Telephone Number CHEMTREC®, Inside the USA: 800-424-9300 CHEMTREC®, Outside the USA: 001-703-527-3887

2. HAZARDS IDENTIFICATION

DANGER!

Emergency Overview

Possible cancer hazard. May cause cancer based on animal data. May cause cancer by inhalation. Harmful if swallowed. Irritating to eyes, respiratory system and skin. May cause allergic respiratory and skin reaction. May impair fertility. Possible risks of irreversible effects. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Appearance Reddish-violet

Physical State Powder Solid

Odor odorless

Target Organs Skin, Respiratory system, Eyes, Gastrointestinal tract (GI), Liver, Kidney, Blood, Heart, Reproductive System

Potential Health Effects

Acute Effects

Principle Routes of Exposure

Eyes

Irritating to eyes.

Skin

Irritating to skin. May be harmful in contact with skin. May produce an allergic reaction.

Inhalation

Irritating to respiratory system. May be harmful if inhaled. May cause allergic respiratory reaction.

Ingestion

Causes burns. Harmful if swallowed.

Chronic Effects

Possible cancer hazard based on tests with laboratory animals. Experiments have shown reproductive toxicity effects on laboratory animals. Tumorigenic effects have been reported in experimental animals.. May cause adverse liver effects. May cause adverse kidney effects. May cause adverse cardiac effects.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Haz/Non-haz

Component	CAS-No	Weight %
Cobalt (II) chloride, hexahydrate	7791-13-1	>95
Cobaltous chloride	7646-79-9	-

4. FIRST AID MEASURES

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Obtain medical attention.
Ingestion	Do not induce vomiting. Call a physician or Poison Control Center immediately.
Notes to Physician	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point	Not applicable
Method -	No information available.
Autoignition Temperature	Not applicable
Explosion Limits	
Upper	No data available
Lower	No data available
Suitable Extinguishing Media	Substance is nonflammable; use agent most appropriate to extinguish surrounding fire..
Unsuitable Extinguishing Media	No information available.
Hazardous Combustion Products	No information available.
Sensitivity to mechanical impact	No information available.
Sensitivity to static discharge	No information available.

Specific Hazards Arising from the Chemical

Keep product and empty container away from heat and sources of ignition. Thermal decomposition can lead to release of irritating gases and vapors. Do not allow run-off from fire fighting to enter drains or water courses.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

NFPA **Health** 3 **Flammability** 0 **Instability** 0 **Physical hazards** N/A

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Use personal protective equipment. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Avoid dust formation. Do not get in eyes, on skin, or on clothing.
Environmental Precautions	Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.
Methods for Containment and Clean Up	Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. HANDLING AND STORAGE

Handling	Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Do not breathe dust.
Storage	Keep containers tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures	Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.
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Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Cobalt (II) chloride, hexahydrate	TWA: 0.02 mg/m ³		
Cobaltous chloride	TWA: 0.02 mg/m ³		

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Cobalt (II) chloride, hexahydrate	TWA: 0.02 mg/m ³		TWA: 0.02 mg/m ³
Cobaltous chloride	TWA: 0.02 mg/m ³		TWA: 0.02 mg/m ³

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Powder Solid
Appearance	Reddish-violet
Odor	odorless
Odor Threshold	No information available.
pH	4.9 50 g/l aq.sol.
Vapor Pressure	negligible
Vapor Density	Not applicable
Viscosity	Not applicable
Boiling Point/Range	No information available.
Melting Point/Range	86°C / 186.8°F
Decomposition temperature	>120 °C

9. PHYSICAL AND CHEMICAL PROPERTIES

Flash Point	Not applicable
Evaporation Rate	Not applicable
Specific Gravity	No information available.
Solubility	Soluble in water
log Pow	No data available
Molecular Weight	237.93
Molecular Formula	Cl ₂ Co . 6 H ₂ O

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions.
Conditions to Avoid	Avoid dust formation. Incompatible products. Exposure to moisture. Excess heat.
Incompatible Materials	Strong oxidizing agents, Metals
Hazardous Decomposition Products	Hydrogen chloride gas, Thermal decomposition can lead to release of irritating gases and vapors
Hazardous Polymerization	No information available.
Hazardous Reactions	None under normal processing

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cobalt (II) chloride, hexahydrate	766 mg/kg (Rat)	2 g/kg (Rat)	Not listed
Cobaltous chloride	80 mg/kg (Rat)	Not listed	Not listed

Irritation Irritating to eyes, respiratory system and skin

Toxicologically Synergistic Products No information available.

Chronic Toxicity

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA	Mexico
Cobalt (II) chloride, hexahydrate	A3	Group 2B	Not listed	X	Not listed
Cobaltous chloride	A3	Group 2B	Not listed	X	Not listed

IARC: (International Agency for Research on Cancer)

IARC: (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

Sensitization No information available.

Mutagenic Effects	Mutagenic effects have occurred in humans. Possible risk of irreversible effects
Reproductive Effects	Experiments have shown reproductive toxicity effects on laboratory animals. May impair fertility.
Developmental Effects	Developmental effects have occurred in experimental animals.
Teratogenicity	Teratogenic effects have occurred in experimental animals..
Other Adverse Effects	Tumorigenic effects have been reported in experimental animals.. See actual entry in RTECS for complete information.
Endocrine Disruptor Information	No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Cobalt (II) chloride, hexahydrate	Not listed	Not listed	= 16 mg/L EC50 Photobacterium phosphoreum 15 min as Co++ = 160 mg/L EC50 Photobacterium phosphoreum 5 min as Co++ = 2.8 mg/L EC50 Photobacterium phosphoreum 30 min as Co++	Not listed
Cobaltous chloride	Not listed	Cyprinus carpio: LC50=0.33 mg/L 96h	Not listed	1.1-1.6 mg/L 48h

Persistence and Degradability

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Bioaccumulation/ Accumulation

No information available

Mobility

Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Cobaltous chloride	0.85

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

14. TRANSPORT INFORMATION

DOT

UN-No	UN3077
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S.

14. TRANSPORT INFORMATION

Proper technical name Cobalt (II) chloride, hexahydrate, Cobaltous chloride
Hazard Class 9
Packing Group III

TDG

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S.
Hazard Class 9
Packing Group III

IATA

UN-No UN3077
Proper Shipping Name Environmentally hazardous substance, solid, n.o.s
Hazard Class 9
Packing Group III

IMDG/IMO

UN-No UN3077
Proper Shipping Name Environmentally hazardous substance, solid, n.o.s
Hazard Class 9
Packing Group III

15. REGULATORY INFORMATION

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Cobalt (II) chloride, hexahydrate	-	-	-	-	-		X	X	X	X	-
Cobaltous chloride	X	X	-	231-589-4	-		X	X	X	X	X

Legend:

- X - Listed
- E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- P - Indicates a commenced PMN substance
- R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
- Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
- Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313
Not applicable

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Cobalt (II) chloride, hexahydrate	7791-13-1	>95	0.1
Cobaltous chloride	7646-79-9	-	0.1

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act
Not applicable

Clean Air Act
Not applicable

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Cobalt (II) chloride, hexahydrate	X		-
Cobaltous chloride	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not Applicable

California Proposition 65
This product does not contain any Proposition 65 chemicals.

State Right-to-Know
Not applicable

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Cobalt (II) chloride, hexahydrate	-	-	X	X	-
Cobaltous chloride	-	-	X	X	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

D1B Toxic materials

D2A Very toxic materials

D2B Toxic materials

**16. OTHER INFORMATION**

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
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Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS