Cobalt chloride SDS/MSDS (Safety Data Sheet)

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

* Product Name: Cobalt chloride
* Catalog Number: S9490
* CAS Number: 7646-79-9
* IUPAC Name: --

Relevant identified uses and uses advised against

* Identified uses: For research and development use only; laboratory chemicals; manufacture of substances.
* Uses advised against: Not for pharmaceutical, household, or other unapproved uses.

Details of the supplier

* Company: Selleck Chemicals
* TollFree: +1 877 796-6397
* Tel: +1 832 582-8158
* Fax: +1 832 582-8590

Emergency telephone number

* Emergency phone #: +1 832 582-8158

2. HAZARDS IDENTIFICATION

2.1 GHS classification in accordance with 29 CFR 1910 (OSHA HCS):

Acute toxicity (oral): Category 3. H301
Acute toxicity (oral): Category 4. H302
Skin irritation: Category 2. H315
Skin sensitization: Category 1. H317
Serious eye damage: Category 1. H318
Serious eye irritation: Category 2. H319
Respiratory sensitization: Category 1. H334
Specific target organ toxicity (single exposure): Category 3. H335
Germ cell mutagenicity: Category 2. H341
Carcinogenicity: Category 1. H350
Carcinogenicity: Category 2. H351
Reproductive toxicity: Category 1. H360
Not classified. H360F
Reproductive toxicity: Category 2. H361
Specific target organ toxicity (single exposure): Category 1. H370
Specific target organ toxicity (repeated exposure): Category 1. H372
Specific target organ toxicity (repeated exposure): Category 2. H373
Acute aquatic toxicity: Category 1. H400
Acute aquatic toxicity: Category 2. H401

Chronic aquatic toxicity: Category 1. H410

2.2 GHS Label elements, including precautionary statements

Hazard Pictogram(s)



Signal Word Danger

Hazard statement(s)

H301: Toxic if swallowed
H302: Harmful if swallowed
H315: Causes skin irritation
H317: May cause an allergic skin reaction
H318: Causes serious eye damage
H319: Causes serious eye irritation
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335: May cause respiratory irritation
H341: Suspected of causing genetic defects
H350: May cause cancer
H351: Suspected of causing cancer
H360: May damage fertility or the unborn child
H360F: May damage fertility
H361: Suspected of damaging fertility or the unborn child
H370: Causes damage to organs
H372: Causes damage to organs through prolonged or repeated exposure
H373: May causes damage to organs through prolonged or repeated exposure
H400: Very toxic to aquatic life
H401: Toxic to aquatic life
H410: Very toxic to aquatic life with long lasting effects

Precautionary statement(s) None.

Prevention

P203: Obtain, read and follow all safety instructions before use.
P233: Keep container tightly closed.
P260: Do not breathe dust/fume/gas/mist/vapors/spray.
P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
P264: Wash hands thoroughly after handling.
P264+P265: Wash hands thoroughly after handling. Do not touch eyes.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well-ventilated area.
P272: Contaminated work clothing should not be allowed out of the workplace.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P284: [In case of inadequate ventilation] Wear respiratory protection.

Response	P301+P316: IF SWALLOWED: Get emergency medical help immediately. P301+P317: IF SWALLOWED: Get medical help. P302+P352: IF ON SKIN: wash with plenty of water. P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351: IF IN EYES: Rinse cautiously with water for several minutes. P305+P354: IF IN EYES: Immediately rinse with water for several minutes. P308+P316: IF exposed or concerned: Get emergency medical help immediately. P317: Get emergency medical help. P318: if exposed or concerned, get medical advice. P319: Get medical help if you feel unwell. P321: Specific treatment (see information on this label and safety datasheet)). P330: Rinse mouth. P332+P317: If skin irritation occurs: Get medical help. P333+P317: If skin irritation or rash occurs: Get medical help. P337+P317: If eye irritation persists: Get medical help. P338: Remove contact lenses, if present and easy to do. Continue rinsing. P342+P316: If experiencing respiratory symptoms: Get emergence medical help immediately. P362+P364: Take off contaminated clothing and wash it before reuse. P391: Collect spillage.
Storage	P403: Store in a well-ventilated place. P403+P233: Store in a well-ventilated place. Keep container tightly closed. P405: Store locked up.
Disposal	P501: P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Other hazards

None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Product name: Cobalt chloride

CAS Number: 7646-79-9

PubChem CID: 3032536

3.2 Mixtures

Not applicable (pure substance).

4. FIRST-AID MEASURES

4.1 Description of first aid measures

Inhalation: INHALATION: move victim to fresh air; if breathing has stopped, begin artificial respiration and call a doctor.

Skin contact: SKIN: flush with water. (USCG, 1999)

Eye contact: EYES: flush with water at least 15 min.; consult physician if irritation persists.

Ingestion: INGESTION: give large amount of water; induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 (Toxicological Information).

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Contact a poison control center or physician for severe exposure.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable: Water spray, dry chemical, carbon dioxide (CO2), alcohol-resistant foam.

Unsuitable: None known.

5.2 Specific hazards arising from the substance or mixture

Excerpt from ERG Guide 151 [Substances - Toxic (Non-Combustible)]:

SMALL FIRE: Dry chemical, CO2 or water spray.

LARGE FIRE: Water spray, fog or regular foam. If it can be done safely, move undamaged containers away from the area around the fire. Dike runoff from fire control for later disposal. Avoid aiming straight or solid streams directly onto the product.

FIRE INVOLVING TANKS, RAIL TANK CARS OR HIGHWAY TANKS: Fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks in direct contact with flames. For massive fire, use unmanned master stream devices or monitor nozzles; if this is impossible, withdraw from area and let fire burn. (ERG, 2024)

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Advice for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

In case of fire in the surroundings: all extinguishing agents allowed.

5.3 Advice for firefighters

Wear self-contained breathing apparatus (SCBA) and full protective clothing.

Fight fire from upwind. Cool containers with water spray until fire is extinguished.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment (see Section 8).

Avoid breathing dust/vapor. Ensure adequate ventilation.

Evacuate personnel to safe areas. Keep people away from and upwind of spill.

WARNING: Highly toxic — only trained personnel should handle spills.

6.2 Environmental precautions

Prevent product from entering drains, waterways, or soil.

Contain spill with inert absorbent material.

6.3 Methods and materials for containment and cleaning up

Excerpt from ERG Guide 151 [Substances - Toxic (Non-Combustible)]:

IMMEDIATE PRECAUTIONARY MEASURE: Isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

SPILL: Increase the immediate precautionary measure distance, in the downwind direction, as necessary.

FIRE: If tank, rail tank car or highway tank is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. (ERG, 2024)

ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided. Methods and materials for containment and cleaning up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

Liquid material spills can be copiously flushed with water and channeled to a treatment system or holding tank for reclamation or proper disposal. Spills of dry material can be removed by vacuuming or wet mopping. Some spills can be removed by hosing, first with a mist of water to dampen the spilled material and then with a more forceful stream that flushes it into a holding tank or other facility for handling contaminated water. Work surfaces or contaminated clothing should never be cleaned by dry sweeping or blowing with pressurized hoses. Recovery systems used to reclaim waste metals should comply with federal, state, and local regulations. All waste materials generated in the handling of cobalt-containing substances should be disposed of in compliance with federal, state, and local regulations. /Cobalt and cobalt salts/

SRP: Recycle any unused portion of the material for its approved use or return it to the manufacturer or supplier. Ultimate disposal of the chemical must consider: the material's impact on air quality; potential migration in air, soil or water; effects on animal, aquatic and plant life; and conformance with environmental and public health regulations. If it is possible or reasonable use an alternative chemical product with less inherent propensity for occupational harm/injury/toxicity or environmental contamination.

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber; Contaminated packaging: Dispose of as unused product.

Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Do NOT let this chemical enter the environment. (extra personal protection: P3 filter respirator for toxic particles).

SRP: Local exhaust ventilation should be applied wherever there is an incidence of point source emissions or dispersion of regulated contaminants in the work area. Ventilation control of the contaminant as close to its point of generation is both the most economical and safest method to minimize personnel exposure to airborne contaminants. Ensure that the local ventilation moves the contaminant away from the worker.

ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Precautions for safe handling: Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed.

Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

For more Preventive Measures (Complete) data for Cobaltous chloride (10 total), please visit the HSDB record page.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Excerpt from ERG Guide 151 [Substances - Toxic (Non-Combustible)]:

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Cover with plastic sheet to prevent spreading. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. DO NOT GET WATER INSIDE CONTAINERS. For solids, prevent dust cloud and avoid inhalation of dust. (ERG, 2024)

Keep container tightly closed in a dry and well-ventilated place. ... Moisture sensitive. Handle and store under inert gas. Hygroscopic. ... Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects.

Dry.

Store in airtight containers. /Hexahydrate/

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. ... Moisture sensitive. Handle and store under inert gas. Hygroscopic. ... Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects.

Dry.

Store in airtight containers. /Hexahydrate/

Store away from incompatible materials (see Section 10).

[Note: Specific storage temperature not available in public databases. Refer to supplier Certificate of Analysis (COA) for exact storage conditions.]

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure controls

8.1.1 Occupational exposure limits (OEL)

OSHA PEL: Not established.

ACGIH TLV: Not established.

NIOSH REL: Not established.

No occupational exposure limit values are established for this substance.

Use the lowest feasible exposure level (ALARA principle).

8.1.2 Appropriate engineering controls

Use only in a chemical fume hood or with local exhaust ventilation.

Ensure adequate ventilation to keep airborne concentrations below exposure limits.

8.2 Individual protection measures

8.2.1 Eye/face protection

Wear chemical safety goggles and face shield.

8.2.2 Skin protection

Wear protective gloves. Recommended material: Nitrile rubber.

Wear suitable protective clothing (lab coat).

8.2.3 Respiratory protection

Use NIOSH-approved dust/mist respirator (N95 or higher) if ventilation is inadequate.

8.2.4 Thermal hazards

Not applicable.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance: Cobalt chloride is a pink to red solid with a slight sharp odor. Sinks and mixes with water. Pale blue leaflets, turns pink upon exposure to moist air.

b) Odor: Slight sharp odor

c) Odor threshold: No data available

d) pH: A 0.2 molar aqueous solution has a pH of 4.6

e) Melting point/freezing point: 187 °F (USCG, 1999)

f) Initial boiling point and boiling range: 1049 °C

g) Flash point: No data available

h) Evaporation rate: No data available

i) Flammability (solid, gas): No data available

j) Upper/lower flammability or explosive limits: No data available

k) Vapor pressure: VP: 10 kPa (75 mm Hg) at 818 °C; 100 kPa (750 mm Hg) at 1048 °C

l) Vapor density: No data available

m) Relative density: 1.924 at 68 °F (USCG, 1999) - Denser than water; will sink

n) Water solubility: Soluble in water

o) Partition coefficient: n-octanol/water: Log P: No data available

p) Auto-ignition temperature: No data available

q) Decomposition temperature: No data available

r) Viscosity: No data available

s) Explosive properties: No data available

t) Oxidizing properties: No data available

9.2 Other information

10. STABILITY AND REACTIVITY

10.1 Reactivity

No specific reactivity hazards identified under normal handling conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions under normal conditions.

10.4 Conditions to avoid

Avoid heat, sparks, open flames, direct sunlight, and moisture.

10.5 Incompatible materials

Incompatible materials: Oxidizing agents, alkali metals.

Mixtures of potassium with metal halides are sensitive to mechanical shock, and the ensuing explosions have been graded. Very violent explosions occurred with ... cobalt(II) chloride ... .

Sodium dispersions will reduce many metal halides exothermically. ... Cobalt chloride ... /requires/ higher temp to initiate the reaction, the exotherm with cobalt chloride incr the temp from 325 to 375 °C and causing evaporation of most of the dispersing oil. ... Very violent explosions occurred with ... cobalt(II) chloride ... .

A very violent explosion results when a mixture of sodium and ... /cobaltous chloride/ is struck with a hammer ... .

10.6 Hazardous decomposition products

No data available.

See also Section 5 (Fire-fighting measures) for combustion products.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:

No acute toxicity data available.

Skin corrosion/irritation:

Causes skin irritation (H315).

Serious eye damage/eye irritation:

Causes serious eye damage (H318).

Respiratory or skin sensitization:

May cause allergy or asthma symptoms or breathing difficulties if inhaled (H334).

Germ cell mutagenicity:

Suspected of causing genetic defects (H341).

Carcinogenicity:

May cause cancer (H350).

Reproductive toxicity:

May damage fertility or the unborn child (H360).

Specific target organ toxicity (single exposure):

H370, H372, H373

Specific target organ toxicity (repeated exposure):

No data available.

Aspiration hazard:

No data available.

11.2 Additional information

Carcinogen classification:

2B, possibly carcinogenic to humans. (L135)

Exposure routes:

Inhalation (L29) ; oral (L29) ; dermal (L29)

Signs and symptoms of exposure:

Cobalt inhalation can cause asthma-like breathing problems. Skin contact is known to result in contact dermatitis, which is characterized by irritation and rashes. Ingesting large amounts of cobalt may cause nausea and vomiting. (L2090)

Data source: Hazardous Substances Data Bank (HSDB) via PubChem.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

EC50; Species: Chlorella pyrenoidosa (Green Algae); Conditions: freshwater, static, 24 °C, pH 6.8; Concentration: 520 ug/L for 24 hr; Effect: population, decreased population growth rate /total Co ion/

EC50; Species: Chlorella pyrenoidosa (Green Algae); Conditions: freshwater, flow through, 24 °C, pH 6.3-6.5; Concentration: 98 ug/L for 24 hr; Effect: population, decreased population growth rate /total Co ion/

EC50; Species: Artemia salina (Brine Shrimp) 2-3 instar Nauplii; Conditions: saltwater, static, 25 °C, pH 7.8, dissolved oxygen 8.5 mg/L; Concentration: 2815000 ug/L for 24 hr (95% confidence interval: 2450000-3180000 ug/L); Effect: intoxication, immobilization /total Co ion/

LC50; Species: Daphnia pulex (water flea) adult; Conditions: freshwater, static, 25 °C, pH 8.2, hardness 142 mg/L CaCO3, dissolved oxygen 8.5-8.9 mg/L; Concentration: 9720 ug/L for 48 hr (95% confidence interval: 7940-11890 ug/L) />99% purity/

For more Ecotoxicity Values (Complete) data for Cobaltous chloride (11 total), please visit the HSDB record page.

/AQUATIC SPECIES/ In this study, we investigate the toxic effects of cobalt chloride on some hematological factors of the carp Cyprinus carpio, such as white blood cell count, red blood cell count, hemoglobin, hematocrit, mean corpuscular volume, mean corpuscular hemoglobin, and mean corpuscular hemoglobin concentration. At first, LC50 of cobalt in C. carpio was measured during 96 hr after exposure. Also, physicochemical parameters of water includi

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available.

12.6 Other adverse effects

This substance is classified as hazardous to the aquatic environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste Treatment Methods: Waste material must be disposed of in accordance with national and local regulations. Leave chemicals in original containers and do not mix with other waste. Handle uncleaned containers in the same manner as the product itself.

14. TRANSPORT INFORMATION

14.1 UN number

Not regulated as dangerous goods (research quantities typically exempt).

14.2 UN proper shipping name

Not subject to transport regulations (small quantities for research use).

14.3 Transport hazard class(es)

Not classified as dangerous goods for transport (research quantities).

DOT label: Poison

14.4 Packing group

Not applicable (not regulated as dangerous goods in typical research quantities).

14.5 Environmental hazards

Marine pollutant: Yes (classified as environmentally hazardous per GHS).

14.6 Special precautions for user

Transport in original packaging. Ensure containers are tightly sealed.

For bulk or commercial quantities, consult applicable transport regulations (DOT, IATA, IMDG).

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

US EPA / TSCA: Subject to EPA TSCA regulations

EU ECHA / REACH: Registered under REACH

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards:

Acute (short-term) health hazard

Chronic (long-term) health hazard

Environmental hazard

Massachusetts Right To Know Components:

This material contains components subject to the Massachusetts Right to Know Act. See Section 2 for hazard classification.

Pennsylvania Right To Know Components:

This material contains components subject to the Pennsylvania Right to Know Act. See Section 2 for hazard classification.

New Jersey Right To Know Components:

This material contains components subject to the New Jersey Right to Know Act. See Section 2 for hazard classification.

California Prop. 65 Components:

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

Other regulatory listings:

- The Australian Inventory of Industrial Chemicals: Chemical: Cobalt chloride (CoCl2)

- California Safe Cosmetics Program (CSCP) Reportable Ingredient: Hazard Traits - Carcinogenicity; Reproductive Toxicity; Respiratory Toxicity Authoritative List - EC Annex VI CMRs - Cat. 1B; EC Annex VI Resp. Sens. - Cat. 1; IARC Carcinogens - 2A Report - regardles

- Atmospheric Standards: Listed as a hazardous air pollutant (HAP) generally known or suspected to cause serious health problems. The Clean Air Act, as amended in 1990, directs EPA to set standards requiring major sources to sharply reduce routine emissions of toxic pollutants. EPA is required to establish and phase in spec

- FDA Requirements: Trace minerals added to animal feeds. These substances added to animal feeds as nutritional dietary supplements are generally recognized as safe when added at levels consistent with good feeding practice. All substances listed may be in anhydrous or hydrated form. Cobalt chloride is included on this

15.2 Chemical safety assessment

A chemical safety assessment has not been carried out for this substance.

For research-use-only compounds, no CSA is required under REACH Annex I.

16. OTHER INFORMATION

Revision Date: 2026/09/10

Further Information: The information provided is believed to be correct but is not exhaustive and should be used only as a guideline based on current knowledge. It does not represent a guarantee of the properties of the product. Selleck Chemicals Corporation and its Affiliates shall not be held liable for any damage resulting from handling or contact with the product.