



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name COBALT CHLORIDE, ANHYDROUS, 99%
Catalog # A2019
Version # 02
Revision date 17-Mar-2010
CAS # 7646-79-9
Manufacturer information GFS Chemicals, Inc.
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2. Hazards Identification

Emergency overview WARNING

Toxic if swallowed. Possible cancer hazard - may cause cancer based on animal data. Prolonged exposure may cause chronic effects.

OSHA regulatory status This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Potential health effects

Routes of exposure Ingestion. Eye contact. Inhalation.

Eyes Contact with eyes may cause irritation. Avoid contact with eyes.

Skin May cause skin irritation. Avoid contact with the skin.

Inhalation Dusts of this product may cause irritation of the nose, throat, and respiratory tract. Avoid breathing dust/fume/gas/mist/vapors/spray.

Ingestion Toxic if swallowed. Do not ingest.

Potential environmental effects May cause long-term adverse effects in the environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
COBALT CHLORIDE	7646-79-9	90 - 100

4. First Aid Measures

First aid procedures

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Skin contact Remove and isolate contaminated clothing and shoes. Immediately flush skin with plenty of water. Get medical attention if irritation develops and persists. For minor skin contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse.

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Ingestion Rinse mouth thoroughly. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Notes to physician Symptoms may be delayed.

General advice Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties The product is not flammable. No unusual fire or explosion hazards noted.

Extinguishing media

Suitable extinguishing media Water. Use extinguishing agent suitable for type of surrounding fire.

Protection of firefighters

Protective equipment and precautions for firefighters In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers.

Specific methods

In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers. Cool containers exposed to flames with water until well after the fire is out.

6. Accidental Release Measures

Personal precautions

Keep unnecessary personnel away. Local authorities should be advised if significant spillages cannot be contained. Keep upwind. Keep out of low areas. Keep people away from and upwind of spill/leak. Ventilate closed spaces before entering them. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not contaminate water.

Methods for containment

Prevent entry into waterways, sewer, basements or confined areas.

Methods for cleaning up

Should not be released into the environment. Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation. Following product recovery, flush area with water.

7. Handling and Storage

Handling

Wear personal protective equipment. Do not use in areas without adequate ventilation. Wash thoroughly after handling. Avoid release to the environment. Handle and open container with care.

Storage

Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep out of the reach of children.

8. Exposure Controls / Personal Protection

Occupational exposure limits

ACGIH

Material	CAS #	Type	Value	Form
COBALT CHLORIDE	7646-79-9	TWA	0.02 mg/m3	

Engineering controls

Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Hand protection Wear protective gloves.

Eye / face protection Chemical goggles are recommended. Face-shield.

Skin protection Wear chemical protective equipment that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Wear protective gloves.

General hygiene considerations Wash hands after handling and before eating. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice.

General Ensure that eyewash stations and safety showers are close to the workstation location.

9. Physical & Chemical Properties

Appearance Crystalline.

Color Light blue.

Odor Odorless.

Odor threshold	Not available.
Physical state	Solid.
Form	Solid.
pH	4.6 Aqueous solution.
Melting point	1355 °F (735 °C) estimated
Freezing point	1355 °F (735 °C)
Boiling point	1920.2 °F (1049 °C)
Flash point	Not available.
Evaporation rate	Not available.
Flammability	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Vapor pressure	10 kPa at 818°C
Vapor density	Not available.
Specific gravity	3.36
Relative density	3.3597 g/cm ³ estimated
Solubility (water)	Soluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Molecular weight	129.8400 g/mol
Molecular formula	CoCl ₂

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	The substance is hygroscopic and will absorb water by contact with the moisture in the air.
Hazardous decomposition products	No hazardous decomposition products are known.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Acute effects

Acute Oral: LD 50

COBALT CHLORIDE	7646-79-9	Guinea pig 55 mg/kg
COBALT CHLORIDE	7646-79-9	Mouse 80 mg/kg
COBALT CHLORIDE	7646-79-9	Rat 418 mg/kg
COBALT CHLORIDE	7646-79-9	Rat 80 mg/kg

Acute Toxicity other routes: LD 50

COBALT CHLORIDE	7646-79-9	Rat 20 mg/kg Intravenous
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Toxicology data for the preparation

Acute LD50: 20 mg/kg, Rat, Other
 Acute LD50: 55 mg/kg, Guinea pig, Oral
 Acute LD50: 80 mg/kg, Mouse, Oral
 Acute LD50: 418 mg/kg, Rat, Oral
 Acute LD50: 80 mg/kg, Rat, Oral

Local effects	Toxic if swallowed.
Chronic effects	Prolonged exposure may cause chronic effects.

Carcinogenicity Possible cancer hazard - may cause cancer based on animal data. Risk of cancer cannot be excluded with prolonged exposure.

IARC Monographs: Evidence of carcinogenicity in humans

COBALT CHLORIDE 7646-79-9 Inadequate data.

US ACGIH Threshold Limit Values: A3 carcinogen

COBALT CHLORIDE 7646-79-9 A3 Confirmed animal carcinogen with unknown relevance to humans.

12. Ecological Information

Ecotoxicity Contains a substance which causes risk of hazardous effects to the environment.

Invertebrate Toxicity: EC 50

COBALT CHLORIDE	7646-79-9	Cyclopoid copepod (<i>Cyclops abyssorum prealpinus</i>) 12.8 - 18.8 mg/l 48 h Static Intoxication
COBALT CHLORIDE	7646-79-9	Calanoid copepod (<i>Eudiaptomus padanus padanus</i>) 2 - 8 mg/l 48 h Static Intoxication
COBALT CHLORIDE	7646-79-9	Amphipod (<i>Crangonyx pseudogracilis</i>) 148 - 199 mg/l 48 h Renewal Intoxication
COBALT CHLORIDE	7646-79-9	Rotifer (<i>Philodina acuticornis</i>) 18.3 mg/l 24 h Static Intoxication
COBALT CHLORIDE	7646-79-9	Rotifer (<i>Philodina acuticornis</i>) 27.8 mg/l 24 h Static Intoxication
COBALT CHLORIDE	7646-79-9	Rotifer (<i>Philodina acuticornis</i>) 32 mg/l 24 h Static Intoxication
COBALT CHLORIDE	7646-79-9	Rotifer (<i>Philodina acuticornis</i>) 59 mg/l 24 h Static Intoxication
COBALT CHLORIDE	7646-79-9	Amphipod (<i>Crangonyx pseudogracilis</i>) 35.3 - 43.3 mg/l 96 h Renewal Intoxication
COBALT CHLORIDE	7646-79-9	Tubificid worm (<i>Tubifex tubifex</i>) 358.99 - 561.2 mg/l 24 h Static Intoxication
COBALT CHLORIDE	7646-79-9	Tubificid worm (<i>Tubifex tubifex</i>) 358.99 - 561.2 mg/l 48 h Renewal Intoxication
COBALT CHLORIDE	7646-79-9	Water flea (<i>Daphnia magna</i>) < 1.4 mg/l 64 h Static Intoxication
COBALT CHLORIDE	7646-79-9	Water flea (<i>Daphnia magna</i>) 0.014 - 0.031 mg/l 21 d Renewal Intoxication
COBALT CHLORIDE	7646-79-9	Water flea (<i>Daphnia magna</i>) 1.11 mg/l 48 h Static Intoxication
COBALT CHLORIDE	7646-79-9	Water flea (<i>Daphnia magna</i>) 1.27 - 2.48 mg/l 48 h Static Intoxication
COBALT CHLORIDE	7646-79-9	Water flea (<i>Daphnia magna</i>) 1.45 - 5.89 mg/l 24 h Static Intoxication
COBALT CHLORIDE	7646-79-9	Water flea (<i>Daphnia magna</i>) 1.62 mg/l 48 h Static Intoxication
COBALT CHLORIDE	7646-79-9	Tubificid worm (<i>Tubifex tubifex</i>) 113.14 - 148.79 mg/l 96 h Renewal Intoxication

Micro-organisms Toxicity: LC 50

COBALT CHLORIDE	7646-79-9	Turbellarian, flatworm (<i>Dugesia tigrina</i>) 12 mg/l 96 h Static Mortality
COBALT CHLORIDE	7646-79-9	Nematode (<i>Monhystra disjuncta</i>) 40 - 220 mg/l 96 h Static Mortality

Environmental effects An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Persistence and degradability Not available.

13. Disposal Considerations

Disposal instructions Do not allow this material to drain into sewers/water supplies. This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Dispose in accordance with all applicable regulations.

Waste from residues / unused products Not applicable.

14. Transport Information

DOT

Basic shipping requirements:

Proper shipping name Toxic solid, inorganic, n.o.s.

Hazard class 6.1

UN number UN3288

Packing group III

Additional information:

Special provisions IB8, IP3, T1, TP33

Packaging exceptions 153

Packaging non bulk 213

Packaging bulk 240

ERG number 151



15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA Hazardous Substances - Not applicable.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

COBALT CHLORIDE 7646-79-9 0.1 % N096

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

COBALT CHLORIDE 7646-79-9 N096 Listed.

CERCLA (Superfund) reportable quantity

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance No

Section 311 hazardous chemical Yes

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of New and Existing Chemicals (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

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

US - New Jersey Community RTK (EHS Survey): Reportable threshold

COBALT CHLORIDE 7646-79-9 500 LBS

16. Other Information

Further information HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings Health: 2*
Flammability: 0
Physical hazard: 0

NFPA ratings Health: 0
Flammability: 0
Instability: 0

Disclaimer The information in the sheet was written based on the best knowledge and experience currently available. The information provided in 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

Issue date

17-Mar-2010

This data sheet contains changes from the previous version in section(s):

This document has undergone significant changes and should be reviewed in its entirety.