

SAFETY DATA SHEET

1. Identification

Product identifier: COBALT CHLORIDE

Other means of identification

Product No.: 4532, 1670

Recommended use and restriction on use

Recommended use: Not determined.

Restrictions on use: Not determined.

Details of the supplier of the safety data sheet

	Avantor Performance Materials, LLC. 3477 Corporate Parkway Center Valley, PA 18034
Telephone:	Customer Service: 855-282-6867
Fax:	610-573-2610
Contact Person:	Environmental Health & Safety
E-mail:	info@avantormaterials.com

Emergency telephone number:

CHEMTREC: 1-800-424-9300 within US and Canada

2. Hazard(s) identification

Hazard Classification

Health Hazards

Acute toxicity (Oral)	Category 3
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2A
Respiratory sensitizer	Category 1
Skin sensitizer	Category 1
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 1B
Toxic to reproduction	Category 1B

Unknown toxicity - Health

Acute toxicity, inhalation, vapor	100 %
Acute toxicity, inhalation, dust or mist	100 %

Environmental Hazards

Acute hazards to the aquatic environment	Category 1
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Chronic hazards to the aquatic environment Category 1

Unknown toxicity - Environment

Acute hazards to the aquatic environment 100 %
Chronic hazards to the aquatic environment 100 %

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement: Toxic if swallowed.
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause cancer.
Suspected of causing genetic defects.
May damage fertility or the unborn child.
Very toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not eat, drink or smoke when using this product. Do not get in eyes, on skin, or on clothing. Avoid breathing dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. [In case of inadequate ventilation] wear respiratory protection. Contaminated work clothing should not be allowed out of the workplace. Wash hands thoroughly after handling. Avoid release to the environment.

Response: IF exposed or concerned: Get medical advice/attention. IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth. IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER/doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention. If eye irritation persists: Get medical advice/attention. IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. Specific treatment (see on this label). Collect spillage.

Storage: Store locked up.

Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in GHS classification: None.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	Content in percent (%)*
Cobalt dichloride, dihydrate		7791-13-1	90 - 100%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information: Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.

Ingestion: Call a physician or poison control center immediately. Rinse mouth thoroughly.

Inhalation: Move to fresh air. Get medical attention if symptoms persist.

Skin Contact: Wash skin thoroughly with soap and water. If skin irritation or an allergic skin reaction develops, get medical attention. Wash contaminated clothing before reuse.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation persists after washing.

Most important symptoms/effects, acute and delayed

Symptoms: Toxic if swallowed. May cause allergic skin reaction. May cause asthma type symptoms. Irritating to eyes, respiratory system and skin.

Hazards: None known.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

General Fire Hazards: No unusual fire or explosion hazards noted.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters

- Special fire fighting procedures:** Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.
- Special protective equipment for fire-fighters:** Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

- Personal precautions, protective equipment and emergency procedures:** Keep unauthorized personnel away. Ventilate closed spaces before entering them. Use personal protective equipment. See Section 8 of the SDS for Personal Protective Equipment.
- Methods and material for containment and cleaning up:** Sweep up and place in a clearly labeled container for chemical waste. Clean surface thoroughly to remove residual contamination. See Section 8 of the SDS for Personal Protective Equipment.
- Notification Procedures:** Inform authorities if large amounts are involved.
- Environmental Precautions:** Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.

7. Handling and storage

- Precautions for safe handling:** Use personal protective equipment as required. Avoid contact with eyes, skin, and clothing. Do not breathe dust or vapor. Do not eat, drink or smoke when using the product. Wash thoroughly after handling. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
- Conditions for safe storage, including any incompatibilities:** Keep container tightly closed. Store in a dry place. Store in a well-ventilated place.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
Cobalt dichloride, dihydrate - as Co	TWA	0,02 mg/m ³	Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2) (07 2009)
Cobalt dichloride, dihydrate - as Co	TWA	0,02 mg/m ³	Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
Cobalt dichloride, dihydrate - as Co	TWA	0,02 mg/m ³	Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act) (03 2011)
Cobalt dichloride, dihydrate - as Co	TWA	0,02 mg/m ³	Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
Cobalt dichloride, dihydrate - as Co	8 HR ACL	0,02 mg/m ³	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)
	15 MIN ACL	0,06 mg/m ³	Canada. Saskatchewan OELs (Occupational Health and Safety Regulations, 1996, Table 21) (05 2009)

Cobalt dichloride, dihydrate - as Co	TWA	0,02 mg/m3	Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Cobalt dichloride, dihydrate - as Co	TWA	0,02 mg/m3	US. ACGIH Threshold Limit Values (2011)

Appropriate Engineering Controls No data available.

Individual protection measures, such as personal protective equipment

- General information:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.
- Eye/face protection:** Wear safety glasses with side shields (or goggles).
- Skin Protection**
- Hand Protection:** Chemical resistant gloves
- Other:** Wear suitable protective clothing.
- Respiratory Protection:** In case of inadequate ventilation use suitable respirator. Air-purifying respirator with a high efficiency particulate filter.
- Hygiene measures:** Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

9. Physical and chemical properties

Appearance

- Physical state:** Solid
- Form:** Crystals or powder
- Color:** Rose red
- Odor:** Odorless
- Odor threshold:** No data available.
- pH:** 4,6
- Melting point/freezing point:** 86 °C
- Initial boiling point and boiling range:** 110 °C
- Flash Point:** Not applicable
- Evaporation rate:** No data available.
- Flammability (solid, gas):** No data available.
- Upper/lower limit on flammability or explosive limits**
- Flammability limit - upper (%):** No data available.
- Flammability limit - lower (%):** No data available.
- Explosive limit - upper (%):** No data available.
- Explosive limit - lower (%):** No data available.
- Vapor pressure:** 5,33 kPa (770 °C)
- Vapor density:** No data available.
- Density:** 1,92 g/ml (20 °C)

Relative density:	1,92 (20 °C)
Solubility(ies)	
Solubility in water:	767 g/l (0 °C)
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.
Other information	
Molecular weight:	237,93 g/mol (Cl ₂ Co.6H ₂ O)

10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur.
Conditions to avoid:	Contact with incompatible materials.
Incompatible Materials:	Strong mineral acids. Strong oxidizing agents. metal halides.
Hazardous Decomposition Products:	Thermal decomposition emits toxic fumes of chlorine.

11. Toxicological information

Information on likely routes of exposure

Inhalation:	May cause irritation to the respiratory system.
Skin Contact:	Causes skin irritation.
Eye contact:	Causes serious eye irritation.
Ingestion:	Toxic if swallowed.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral	
Product:	LD 50 (Rat): 766 mg/kg LD 50 (Rat): 80 mg/kg
Dermal	
Product:	LD 50 (Rat): > 2.000 mg/kg
Inhalation	
Product:	No data available.

Repeated dose toxicity

SDS_CA - SDSMIX000665

Product: No data available.

Skin Corrosion/Irritation

Product: Irritating to skin.

Serious Eye Damage/Eye Irritation

Product: Irritating to eyes.

Respiratory or Skin Sensitization

Product: May cause sensitization by inhalation and skin contact.

Carcinogenicity

Product: May cause cancer.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

Cobalt dichloride, Overall evaluation: 2B. Possibly carcinogenic to humans. Overall evaluation:
dihydrate 2B. Possibly carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

ACGIH Carcinogen List:

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro

Product: Suspected of causing genetic defects.

In vivo

Product: Suspected of causing genetic defects.

Reproductive toxicity

Product: May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure

Product: None known.

Specific Target Organ Toxicity - Repeated Exposure

Product: None known.

Aspiration Hazard

Product: Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: LC 50 (Carp (Cyprinus carpio), 96 h): 0,33 mg/l

Aquatic Invertebrates

Product: EC 50 (Water flea (Daphnia magna), 48 h): 1,4 mg/l

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: No data available.

Persistence and Degradability

Biodegradation

Product: There are no data on the degradability of this product.

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)

Product: No data available.

Mobility in soil:

The product is water soluble and may spread in water systems.

Other adverse effects:

Very toxic to aquatic life with long lasting effects.

13. Disposal considerations

Disposal instructions:

Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated Packaging:

Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

TDG

UN Number:	UN 3288
UN Proper Shipping Name:	TOXIC SOLID, INORGANIC, N.O.S.(Cobalt dichloride)
Transport Hazard Class(es)	
Class:	6.1
Label(s):	6.1
Packing Group:	III
Marine Pollutant:	No

Special precautions for user: Not determined.

IMDG

UN Number:	UN 3288
UN Proper Shipping Name:	TOXIC SOLID, INORGANIC, N.O.S.(Cobalt dichloride)
Transport Hazard Class(es)	
Class:	6.1
Label(s):	6.1
EmS No.:	F-A, S-A
Packing Group:	III
Marine Pollutant:	No
Special precautions for user:	Not determined.

IATA

UN Number:	UN 3288
UN Proper Shipping Name:	Toxic solid, inorganic, n.o.s.(Cobalt dichloride)
Transport Hazard Class(es):	
Class:	6.1
Label(s):	6.1
Packing Group:	III
Marine Pollutant:	No
Special precautions for user:	Not determined.
Cargo aircraft only:	Allowed.

Transport in bulk according to Annex II of MARPOL and the IBC Code: Not applicable

15. Regulatory information

Canada Federal Regulations

List of Toxic Substances (CEPA, Schedule 1)

Not Regulated

Export Control List (CEPA 1999, Schedule 3)

Not Regulated

National Pollutant Release Inventory (NPRI)

Canada. National Pollutant Release Inventory (NPRI) Substances, Part 5, VOCs with Additional Reporting Requirements

NPRI PT5 Not Regulated

Canada. National Pollutant Release Inventory (NPRI) (Schedule 1, Parts 1-4)

NPRI Cobalt dichloride, dihydrate

Greenhouse Gases

Not Regulated

Controlled Drugs and Substances Act

CA CDSI Not Regulated

CA CDSII Not Regulated

CA CDSIII Not Regulated

CA CDSIV Not Regulated

CA CDSV Not Regulated

CA CDSVII Not Regulated

CA CDSVIII Not Regulated

Precursor Control Regulations
Not Regulated

International regulations

Montreal protocol
Not applicable

Stockholm convention
Not applicable

Rotterdam convention
Not applicable

Kyoto protocol
Not applicable

Inventory Status:

Canada DSL Inventory List:	On or in compliance with the inventory
EU EINECS List:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
Australia AICS:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory
Canada NDSL Inventory:	Not in compliance with the inventory.
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	On or in compliance with the inventory
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

16. Other information, including date of preparation or last revision

Revision Date: 21.05.2018

Version #: 1.1

Further Information: No data available.

Disclaimer:

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