

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	: Substance
Substance name	: Cobaltous Chloride, Hexahydrate
CAS No	: 7791-13-1
Product code	: LC13190
Formula	: $\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$
Synonyms	: cobalt dichloride, hexahydrate
BIG no	: 14412

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture	: For laboratory and manufacturing use only.
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1.3. Details of the supplier of the safety data sheet

LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

1.4. Emergency telephone number

Emergency number	: CHEMTREC: 1-800-424-9300 or 011-703-527-3887
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute Tox. 4 (Oral)	H302
Resp. Sens. 1	H334
Skin Sens. 1	H317
Muta. 2	H341
Carc. 1B	H350
Repr. 1B	H360
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US)



Signal word (GHS-US)

: Danger

Hazard statements (GHS-US)

: H302 - Harmful if swallowed
H317 - May cause an allergic skin reaction
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled
H341 - Suspected of causing genetic defects
H350 - May cause cancer
H360 - May damage fertility or the unborn child
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US)

: P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P261 - Avoid breathing dust
P264 - Wash exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
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
P284 - Wear respiratory protection

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P301+P312 - IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell
P302+P352 - IF ON SKIN: Wash with plenty of soap and water
P304+P340 - IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing
P308+P313 - IF exposed or concerned: Get medical advice/attention
P330 - If swallowed, rinse mouth
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
P362+P364 - Take off contaminated clothing and wash it before reuse
P391 - Collect spillage
P405 - Store locked up
P501 - Dispose of contents/container to comply with local, state and federal regulations

2.3. Other hazards

Other hazards not contributing to the classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Substance type : Mono-constituent

Name	Product identifier	%	GHS-US classification
Cobaltous Chloride, Hexahydrate (Main constituent)	(CAS No) 7791-13-1	100	Acute Tox. 4 (Oral), H302 Resp. Sens. 1, H334 Skin Sens. 1, H317 Muta. 2, H341 Carc. 1B, H350 Repr. 1B, H360 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation : Remove the victim into fresh air.

First-aid measures after skin contact : Wash immediately with lots of water. Soap may be used. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists.

First-aid measures after eye contact : Rinse with water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : Slight irritation. AFTER INHALATION OF DUST: Coughing. Respiratory difficulties.

Symptoms/injuries after skin contact : Slight irritation.

Symptoms/injuries after eye contact : Slight irritation.

Symptoms/injuries after ingestion : Nausea. Dilation of the blood vessels. Red skin. Low arterial pressure. AFTER ABSORPTION OF HIGH QUANTITIES: Blue/grey discolouration of the skin. Uncontrollable bleeding tendency. Disturbances of consciousness.

Chronic symptoms : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Skin rash/inflammation. Respiratory difficulties. Cardiac and blood circulation effects. Ringing in the ears. Auditory disturbances. Thyroid enlargement/affection.

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4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : EXTINGUISHING MEDIA FOR SURROUNDING FIRES: All extinguishing media allowed.
Unsuitable extinguishing media : No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : DIRECT FIRE HAZARD. Non combustible.
Explosion hazard : DIRECT EXPLOSION HAZARD. No data available on direct explosion hazard. INDIRECT EXPLOSION HAZARD. No data available on indirect explosion hazard.
Reactivity : On burning: release of toxic and corrosive gases/vapours (hydrogen chloride, cobalt oxides, chlorine).

5.3. Advice for firefighters

Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions : Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Gloves. Protective clothing. Dust cloud production: compressed air/oxygen apparatus.
Emergency procedures : Mark the danger area. Prevent dust cloud formation. No naked flames. Wash contaminated clothes.
Measures in case of dust release : In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection. Do not breathe dust.
Emergency procedures : Stop release. Ventilate area. If a major spill occurs, all personnel should be immediately evacuated and the area ventilated.

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray.
Methods for cleaning up : Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Avoid raising dust. Keep away from naked flames/heat. Observe very strict hygiene - avoid contact. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.
Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Incompatible products : Strong oxidizers.

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Heat and ignition sources	: KEEP SUBSTANCE AWAY FROM: heat sources.
Prohibitions on mixed storage	: KEEP SUBSTANCE AWAY FROM: oxidizing agents. water/moisture.
Storage area	: Store in a dry area. Store at ambient temperature. Keep container in a well-ventilated place. Unauthorized persons are not admitted. Meet the legal requirements.
Special rules on packaging	: SPECIAL REQUIREMENTS: closing. watertight. dry. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	: SUITABLE MATERIAL: cardboard. synthetic material. glass.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Cobaltous Chloride, Hexahydrate (7791-13-1)		
USA ACGIH	ACGIH TWA (mg/m ³)	0.02 mg/m ³
USA OSHA	OSHA PEL (TWA) (mg/m ³)	0.1 mg/m ³

8.2. Exposure controls

Appropriate engineering controls	: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation.
Materials for protective clothing	: GIVE GOOD RESISTANCE: butyl rubber. PVC.
Hand protection	: Gloves.
Eye protection	: Face shield. In case of dust production: protective goggles.
Skin and body protection	: Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing.
Respiratory protection	: Dust production: dust mask with filter type P3. High dust production: self-contained breathing apparatus.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Crystalline solid. Crystalline powder.
Molecular mass	: 237.93 g/mol
Colour	: Rose to red.
Odour	: Mild odour. Irritating/pungent odour.
Odour threshold	: No data available
pH	: 3 - 5.5 (5.0 %)
pH solution	: 5.0 %
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 86 °C
Freezing point	: No data available
Boiling point	: Not applicable
Flash point	: Not applicable
Self ignition temperature	: No data available
Decomposition temperature	: > 110 °C
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: 1.9
Density	: 1924 kg/m ³
Solubility	: Soluble in water. Soluble in ethanol. Soluble in acetone. Soluble in methanol. Soluble in acetic acid. Soluble in glycerol. Water: 76 g/100ml (0 °C) Ether: 0.29 g/100ml
Log Pow	: No data available
Log Kow	: No data available

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Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

VOC content	: Not applicable
Other properties	: Hygroscopic. Substance has acid reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

On burning: release of toxic and corrosive gases/vapours (hydrogen chloride, cobalt oxides, chlorine).

10.2. Chemical stability

Hygroscopic.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Incompatible materials. Moisture.

10.5. Incompatible materials

Strong oxidizers.

10.6. Hazardous decomposition products

Hydrogen chloride.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Harmful if swallowed.

Cobaltous Chloride, Hexahydrate (f)7791-13-1	
LD50 oral rat	766 mg/kg (Rat)
LD50 dermal rat	> 2000 mg/kg (Rat)
Skin corrosion/irritation	: Not classified pH: 3 - 5.5 (5.0 %)
Serious eye damage/irritation	: Not classified pH: 3 - 5.5 (5.0 %)
Respiratory or skin sensitisation	: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ cell mutagenicity	: Suspected of causing genetic defects.
Carcinogenicity	: May cause cancer.
Cobaltous Chloride, Hexahydrate (7791-13-1)	
IARC group	2B - Possibly carcinogenic to humans
Reproductive toxicity	: May damage fertility or the unborn child.
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Symptoms/injuries after inhalation	: Slight irritation. AFTER INHALATION OF DUST: Coughing. Respiratory difficulties.
Symptoms/injuries after skin contact	: Slight irritation.
Symptoms/injuries after eye contact	: Slight irritation.
Symptoms/injuries after ingestion	: Nausea. Dilation of the blood vessels. Red skin. Low arterial pressure. AFTER ABSORPTION OF HIGH QUANTITIES: Blue/grey discolouration of the skin. Uncontrollable bleeding tendency. Disturbances of consciousness.

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Chronic symptoms	: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Skin rash/inflammation. Respiratory difficulties. Cardiac and blood circulation effects. Ringing in the ears. Auditory disturbances. Thyroid enlargement/affection.
Likely routes of exposure	: Skin and eye contact; Inhalation

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Dangerous for the environment.
Ecology - air	: TA-Luft Klasse 5.2.7.1.1/I.
Ecology - water	: Water pollutant (surface water). Maximum concentration in drinking water: 250 mg/l (chloride) (Directive 98/83/EC). Harmful to fishes. Toxic to invertebrates (Daphnia). Highly toxic to algae. pH shift. Inhibition of activated sludge.

Cobaltous Chloride, Hexahydrate (7791-13-1)	
LC50 fishes 1	22 - 48 ppm (96 h; Pimephales promelas; Cobalt ion)
EC50 Daphnia 1	1.1 - 3.2 mg/l (48 h; Daphnia magna; Cobalt ion)
Threshold limit algae 1	0.05 mg/l (72 h; Selenastrum capricornutum; Cobalt)

12.2. Persistence and degradability

Cobaltous Chloride, Hexahydrate (7791-13-1)	
Persistence and degradability	Biodegradability: not applicable. Biodegradability in soil: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

Cobaltous Chloride, Hexahydrate (7791-13-1)	
Ecology - soil	Toxic to flora.

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations	: Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Precipitate/make insoluble. Remove to an authorized dump (Class I).
Additional information	: LWCA (the Netherlands): KGA category 05. Hazardous waste according to Directive 2008/98/EC.

SECTION 14: Transport information

In accordance with DOT	
Transport document description	: UN3260 Corrosive solid, acidic, inorganic, n.o.s. (Cobalt chloride hexahydrate), 8, III
UN-No.(DOT)	: 3260
DOT NA no.	: UN3260
DOT Proper Shipping Name	: Corrosive solid, acidic, inorganic, n.o.s. Cobalt chloride hexahydrate
Department of Transportation (DOT) Hazard Classes	: 8 - Class 8 - Corrosive material 49 CFR 173.136

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Hazard labels (DOT)

: 8 - Corrosive



DOT Symbols

: G - Identifies PSN requiring a technical name

Packing group (DOT)

: III - Minor Danger

DOT Special Provisions (49 CFR 172.102)

: IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).

IP3 - Flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner.

T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2)

TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx)

: 154

DOT Packaging Non Bulk (49 CFR 173.xxx)

: 213

DOT Packaging Bulk (49 CFR 173.xxx)

: 240

DOT Quantity Limitations Passenger aircraft/rail
(49 CFR 173.27)

: 25 kg

DOT Quantity Limitations Cargo aircraft only (49
CFR 175.75)

: 100 kg

DOT Vessel Stowage Location

: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

Marine pollutant

: P



Additional information

Other information

: No supplementary information available.

State during transport (ADR-RID)

: as solid.

ADR

Transport document description

: UN 3077 Environmentally hazardous substance, solid, n.o.s., 9, III, (E)

Packing group (ADR)

: III

Class (ADR)

: 9 - Miscellaneous dangerous substances and articles

Hazard identification number (Kemler No.)

: 90

Classification code (ADR)

: M7

Danger labels (ADR)

: 9 - Miscellaneous dangerous substances and articles



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Orange plates

:



Tunnel restriction code

:

E

Transport by sea

UN-No. (IMDG)

:

3077

Class (IMDG)

:

9 - Miscellaneous dangerous substances and articles

EmS-No. (1)

:

F-A

EmS-No. (2)

:

S-F

Air transport

UN-No.(IATA)

:

3077

Class (IATA)

:

9 - Miscellaneous Dangerous Goods

Packing group (IATA)

:

III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

Cobaltous Chloride, Hexahydrate (7791-13-1)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

SARA Section 311/312 Hazard Classes

Immediate (acute) health hazard

Delayed (chronic) health hazard

15.2. International regulations

CANADA

Cobaltous Chloride, Hexahydrate (7791-13-1)

Listed on the Canadian DSL (Domestic Substances List) inventory.

WHMIS Classification

Class D Division 2 Subdivision A - Very toxic material causing other toxic effects

Class D Division 2 Subdivision B - Toxic material causing other toxic effects

EU-Regulations

No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Carc. 1B H350
Muta. 2 H341
Repr. 1B H360F
Acute Tox. 4 (Oral) H302
Resp. Sens. 1 H334
Skin Sens. 1 H317
Aquatic Acute 1 H400
Aquatic Chronic 1 H410

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC or 1999/45/EC

Carc.Cat.2; R49
Muta.Cat.3; R68
Repr.Cat.2; R60
Xn; R22
R42
R43
N; R50/53

Full text of R-phrases: see section 16

15.2.2. National regulations

Cobaltous Chloride, Hexahydrate (7791-13-1)

Listed on the Canadian Ingredient Disclosure List

Cobaltous Chloride, Hexahydrate

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15.3. US State regulations

No additional information available

SECTION 16: Other information

Full text of H-phrases: see section 16:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — AcuteHazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Carc. 1B	Carcinogenicity, Category 1B
Muta. 2	Germ cell mutagenicity, Category 2
Repr. 1B	Reproductive toxicity, Category 1B
Resp. Sens. 1	Sensitisation — Respiratory, category 1
Skin Sens. 1	Sensitisation — Skin, category 1
H302	Harmful if swallowed
H317	May cause an allergic skin reaction
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H341	Suspected of causing genetic defects
H350	May cause cancer
H360	May damage fertility or the unborn child
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

NFPA health hazard

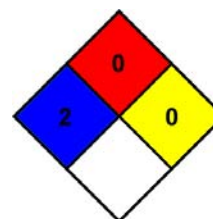
: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard

: 0 - Materials that will not burn.

NFPA reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health

: 2 Moderate Hazard - Temporary or minor injury may occur

Flammability

: 0 Minimal Hazard

Personal Protection

: F

SDS US (GHS HazCom 2012)

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