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: CoCl2.6H2O
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.

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

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

Signal word (GHS-US): Danger
Hazard pictograms (GHS-US):

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
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

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobaltous Chloride, Hexahydrate (Main constituent)</td>
<td>(CAS No) 7791-13-1</td>
<td>100</td>
<td>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</td>
</tr>
</tbody>
</table>

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 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 an ophthalmologist 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.

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel
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/dilate 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/leflovers. 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

<table>
<thead>
<tr>
<th>Cobaltous Chloride, Hexahydrate (7791-13-1)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>USA ACGIH ACGIH TWA (mg/m³)</td>
<td>0.02 mg/m³</td>
</tr>
<tr>
<td>USA OSHA OSHA PEL (TWA) (mg/m³)</td>
<td>0.1 mg/m³</td>
</tr>
</tbody>
</table>

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.


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/m³
Water: 76 g/100ml (0 °C)
Ether: 0.29 g/100ml
Log Pow: No data available
Log Kow: No data available
Cobaltous Chloride, Hexahydrate

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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.

<table>
<thead>
<tr>
<th>Cobaltous Chloride, Hexahydrate (7791-13-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>LD50 dermal rat</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Cobaltous Chloride, Hexahydrate (7791-13-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IARC group</td>
</tr>
</tbody>
</table>
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.
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.

<table>
<thead>
<tr>
<th>Cobaltous Chloride, Hexahydrate (7791-13-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fishes 1</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
</tr>
<tr>
<td>Threshold limit algae 1</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Cobaltous Chloride, Hexahydrate (7791-13-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
</tr>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
</tr>
<tr>
<td>ThOD</td>
</tr>
<tr>
<td>BOD (% of ThOD)</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
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
Hazard labels (DOT) : 8 - Corrosive

DOT Symbols
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
Cobaltous Chloride, Hexahydrate
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| Orange plates | 90 |
| Tuner 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

<table>
<thead>
<tr>
<th>SARA Section 311/312 Hazard Classes</th>
<th>Immediate (acute) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Delayed (chronic) health hazard</td>
</tr>
</tbody>
</table>

#### 15.2. International regulations

**CANADA**

- **Cobaltous Chloride, Hexahydrate (7791-13-1)**
- Listed on the Canadian DSL (Domestic Substances List) inventory.

<table>
<thead>
<tr>
<th>WHMIS Classification</th>
<th>Class D Division 2 Subdivision A - Very toxic material causing other toxic effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Class D Division 2 Subdivision B - Toxic material causing other toxic effects</td>
</tr>
</tbody>
</table>

**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
### 15.3. US State regulations

No additional information available

### SECTION 16: Other information

Full text of H-phrases: see section 16:

<table>
<thead>
<tr>
<th>Acute Tox. 4 (Oral)</th>
<th>Acute toxicity (oral), Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Acute 1</td>
<td>Hazardous to the aquatic environment — Acute Hazard, Category 1</td>
</tr>
<tr>
<td>Aquatic Chronic 1</td>
<td>Hazardous to the aquatic environment — Chronic Hazard, Category 1</td>
</tr>
<tr>
<td>Carc. 1B</td>
<td>Carcinogenicity, Category 1B</td>
</tr>
<tr>
<td>Muta. 2</td>
<td>Germ cell mutagenicity, Category 2</td>
</tr>
<tr>
<td>Repr. 1B</td>
<td>Reproductive toxicity, Category 1B</td>
</tr>
<tr>
<td>Resp. Sens. 1</td>
<td>Sensitisation — Respiratory, category 1</td>
</tr>
<tr>
<td>Skin Sens. 1</td>
<td>Sensitisation — Skin, category 1</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H317</td>
<td>May cause an allergic skin reaction</td>
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<td>Very toxic to aquatic life</td>
</tr>
<tr>
<td>H410</td>
<td>Very toxic to aquatic life with long lasting effects</td>
</tr>
</tbody>
</table>

**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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