SAFETY DATA SHEET

1. IDENTIFICATION

Product identifier

<table>
<thead>
<tr>
<th>Product code:</th>
<th>C-186</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Name:</td>
<td>COBALTOUS CHLORIDE, COLORIMETRIC SOLUTION (CS)</td>
</tr>
</tbody>
</table>

Other means of identification

<table>
<thead>
<tr>
<th>Synonyms:</th>
<th>Cobaltous Chloride, Colorimetric Solution (CS), 1ml = 59.5 mg COCl₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS #:</td>
<td>Mixture</td>
</tr>
<tr>
<td>RTECS #:</td>
<td>Not available</td>
</tr>
<tr>
<td>CI#:</td>
<td>Not available</td>
</tr>
</tbody>
</table>

Recommended use of the chemical and restrictions on use

<table>
<thead>
<tr>
<th>Recommended use:</th>
<th>No information available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses advised against</td>
<td>No information available</td>
</tr>
</tbody>
</table>

Supplier:

Spectrum Chemical Mfg. Corp
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000

Order Online At:  [https://www.spectrumchemical.com](https://www.spectrumchemical.com)

Emergency telephone number: Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

<table>
<thead>
<tr>
<th>Skin corrosion/irritation</th>
<th>Category 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td>Category 1</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>Category 1</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Category 2</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Category 2</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Category 1A, No effects on or via lactation</td>
</tr>
<tr>
<td>Corrosive to metals</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

Label elements
Danger

Hazard statements
Causes severe skin burns and eye damage
May cause allergy or asthma symptoms or breathing difficulties if inhaled
May cause an allergic skin reaction
Suspected of causing genetic defects
Suspected of causing cancer
May damage fertility or the unborn child
May be corrosive to metals

Hazards not otherwise classified (HNOC)
Not Applicable

Other hazards
Not available

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear respiratory protection
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
In case of inadequate ventilation wear respiratory protection
Contaminated work clothing must not be allowed out of the workplace
Wear protective gloves/protective clothing/eye protection/face protection
Keep only in original container

Precautionary Statements - Response
Immediately call a POISON CENTER or doctor/physician
Absorb spillage to prevent material damage
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
If skin irritation or rash occurs: Get medical advice/attention
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage
Store locked up
Store in corrosive resistant/.? container with a resistant inner liner

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>93-93.5</td>
</tr>
</tbody>
</table>

Product code: C-186  Product name: COBALTOUS CHLORIDE, COLORIMETRIC SOLUTION (CS)
4. FIRST AID MEASURES

First aid measures

General Advice: National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.

Skin Contact: Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediate medical attention is required. Call a physician immediately.

Eye Contact: Flush eyes with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. WARNING! It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. Call a physician immediately.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Call a physician or Poison Control Center immediately.

Most important symptoms and effects, both acute and delayed

Symptoms

Severe skin and eye irritation or burns
Irritating to respiratory system
May cause pulmonary edema
May cause chemical pneumonitis
Causes digestive (gastrointestinal) tract irritation
May cause abdominal pain, nausea, vomiting, diarrhea
May cause gastrointestinal (digestive) tract burns
May cause metallic taste
Thirst
May affect the liver
It may affect the kidneys
May affect the cardiovascular system
May cause allergic respiratory reaction
May cause an allergic skin reaction

Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically.

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: The product is not flammable. If it is involved in a fire,
extinguish the fire using an agent suitable for the type of surrounding fire.

**Unsuitable Extinguishing Media:**
No information available.

**Specific hazards arising from the chemical**

**Hazardous Combustion Products:**
No information available.

**Specific hazards:**
No information available.

**Special Protective Actions for Firefighters**

**Specific Methods:**
No information available.

**Special Protective Equipment for Firefighters:**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

**Personal Precautions:**
Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protective equipment. Avoid contact with skin, eyes and clothing.

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not let product enter drains. Do not flush into surface water or sanitary sewer system. Prevent entry into waterways, sewers, basements or confined areas.

**Methods and material for containment and cleaning up**

**Methods for containment**
Stop leak if you can do it without risk.

**Methods for cleaning up**
Neutralize with Sodium carbonate or Sodium bicarbonate. Dilute with water. Absorb spill with inert material (e.g. vermiculite, dry sand or earth), then place in a suitable chemical waste container. Clean contaminated surface thoroughly.

### 7. HANDLING AND STORAGE

**Precautions for safe handling**

**Technical Measures/Precautions:**
Use only in area provided with appropriate exhaust ventilation. Keep away from incompatible materials.

**Safe Handling Advice**
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not ingest. Do not breathe vapors or spray mist. Handle in accordance with good industrial hygiene and safety practice.

**Conditions for safe storage, including any incompatibilities**

**Technical Measures/Storage Conditions:**
Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. May corrode metallic surfaces. Do not store in uncoated metallic containers. Store in a segregated and approved area. Store away from incompatible materials.

**Product code:** C-186  **Product name:** COBALTOUS CHLORIDE, COLORIMETRIC SOLUTION (CS)
Incompatible Materials:
- Oxidizing agents
- Metals
- Alkalis
- Organic materials
- Amines
- Copper
- Brass
- Zinc
- Hydroxides
- Alkali Metals
- Carbides
- Borides
- Metal oxides
- Vinyl acetate
- Acetylides
- Sulfides
- Phosphides
- Cyanides
- Carbonates
- Formaldehyde

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Cobalt Chloride, Hexahydrate</td>
<td>7791-13-1</td>
<td>None</td>
<td>None</td>
<td>0.02 mg/m³ TWA (as Co)</td>
<td>None</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>7647-01-0</td>
<td>5 ppm Ceiling 7 mg/m³ Ceiling</td>
<td>5 ppm Ceiling 7 mg/m³ Ceiling</td>
<td>2 ppm Ceiling</td>
<td>None</td>
</tr>
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</table>

Canada

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Canada - Alberta</th>
<th>Canada - British Columbia</th>
<th>Canada - Ontario</th>
<th>Canada - Quebec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Cobalt Chloride, Hexahydrate</td>
<td>7791-13-1</td>
<td>0.02 mg/m³ TWA (as Co)</td>
<td>0.02 mg/m³ TWA (as Co)</td>
<td>0.02 mg/m³ TWA (as Co)</td>
<td>0.02 mg/m³ TWAEV (as Co)</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>7647-01-0</td>
<td>2 ppm Ceiling 3 mg/m³ Ceiling</td>
<td>2 ppm Ceiling 3 mg/m³ Ceiling</td>
<td>2 ppm Ceiling 3 mg/m³ Ceiling</td>
<td>5 ppm Ceiling 7.5 mg/m³ Ceiling</td>
</tr>
</tbody>
</table>

Australia and Mexico

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Australia</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Cobalt Chloride, Hexahydrate</td>
<td>7791-13-1</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>7647-01-0</td>
<td>None</td>
<td>5 ppm Ceiling 7 mg/m³ Ceiling</td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering measures to reduce exposure:
Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne.

Product code: C-186  Product name: COBALTOUS CHLORIDE, COLORIMETRIC SOLUTION (CS)
concentrations of vapors and mist below their respective threshold limit value.

**Individual protection measures, such as personal protective equipment**

**Personal Protective Equipment**

- **Eye protection:** Face-shield
- **Skin and body protection:** Chemical resistant protective suit, Gloves, Boots
- **Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
- **Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical state: Liquid</th>
<th>Appearance: Clear</th>
<th>Color: Pink to Red</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor: Nearly odorless.</td>
<td>Taste: No information available</td>
<td>Formula: No information available</td>
</tr>
<tr>
<td>Molecular/Formula weight: No information available</td>
<td>Flammability: No information available</td>
<td>Flashpoint (°C/°F): No information available</td>
</tr>
<tr>
<td>Flash Point Tested according to: Not available</td>
<td>Autoignition Temperature (°C/°F): No information available</td>
<td>Lower Explosion Limit (%): No information available</td>
</tr>
<tr>
<td>Upper Explosion Limit (%): No information available</td>
<td>Melting point/range(°C/°F): No information available</td>
<td>Decomposition temperature(°C/°F): No information available</td>
</tr>
<tr>
<td>Boiling point/range(°C/°F): No information available</td>
<td>Bulk density: No information available</td>
<td>Density (g/cm³): No information available</td>
</tr>
<tr>
<td>Specific gravity: 1.05</td>
<td>pH: No information available</td>
<td>Vapor pressure @ 20°C (kPa): No information available</td>
</tr>
<tr>
<td>Evaporation rate: No information available</td>
<td>Vapor density: No information available</td>
<td>VOC content (g/L): No information available</td>
</tr>
<tr>
<td>Odor threshold (ppm): No information available</td>
<td>Partition coefficient (n-octanol/water): No information available</td>
<td>Viscosity: No information available</td>
</tr>
<tr>
<td>Miscibility: No information available</td>
<td>Solubility: Easily soluble in cold water</td>
<td></td>
</tr>
</tbody>
</table>

### 10. STABILITY AND REACTIVITY

**Reactivity**

It reacts with oxidizers releasing chlorine gas.

**Product code:** C-186 **Product name:** COBALTOUS CHLORIDE, COLORIMETRIC SOLUTION (CS)
Reactive with alkalis, amines, metals [Copper and alloys (brass), zinc (galvanized materials)], hydroxides, organic materials, alkali metals, carbides, borides, metal oxides, vinyl acetate, acetylides, sulphides, phosphides, cyanides, carbonates, formaldehyde. Reacts with most metals to produce flammable Hydrogen gas.

**Chemical stability**

**Stability:** Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:** Hazardous polymerization does not occur

**Conditions to avoid:** Incompatible materials.

**Incompatible Materials:**
- Oxidizing agents
- Metals
- Alkalis
- Organic materials
- Amines
- Copper
- Brass
- Zinc
- hydroxides
- Alkali Metals
- Carbides
- borides
- metal oxides
- Vinyl acetate
- acetylides
- sulfides
- Phosphides
- Cyanides
- carbonates
- Formaldehyde

**Hazardous decomposition products:**

**Other Information**

**Corrosivity:** Corrodes on contact with metals

**Special Remarks on Corrosivity:** No information available

### 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

**Principal Routes of Exposure:**
Skin. Ingestion. Inhalation. Eyes.

**Acute Toxicity**

**Component Information**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>LD50/oral/rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>&gt; 90 mL/kg Oral LD50 Rat</td>
</tr>
</tbody>
</table>

**Product code:** C-186  **Product name:** COBALTOUS CHLORIDE, COLORIMETRIC SOLUTION (CS)
### Cobalt Chloride, Hexahydrate

**CAS-No.:** 7791-13-1

<table>
<thead>
<tr>
<th>Test Route</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50/oral/rat</td>
<td>766 mg/kg Oral LD50 Rat</td>
</tr>
<tr>
<td>LD50/oral/mouse</td>
<td>No information available</td>
</tr>
<tr>
<td>LD50/dermal/rabbit</td>
<td>No information available</td>
</tr>
<tr>
<td>LD50/dermal/rat</td>
<td>&gt;2000 mg/kg</td>
</tr>
<tr>
<td>LC50/inhalation/rat</td>
<td>No information available</td>
</tr>
<tr>
<td>LC50/inhalation/mouse</td>
<td>No information available</td>
</tr>
</tbody>
</table>

**Other LD50 or LC50 Information:** No information available

### Hydrogen chloride

**CAS-No.:** 7647-01-0

<table>
<thead>
<tr>
<th>Test Route</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50/oral/rat</td>
<td>238 - 277 mg/kg Oral LD50 Rat</td>
</tr>
<tr>
<td>LD50/oral/mouse</td>
<td>700 mg/kg (test substance: 31.5% hydrochloric acid solution)</td>
</tr>
<tr>
<td>LD50/dermal/rabbit</td>
<td>&gt;5010 mg/kg (Test substance: 31.5% hydrochloric acid solution - from European Chemicals Bureau IUCLID dataset)</td>
</tr>
<tr>
<td>LD50/dermal/rat</td>
<td>No information available</td>
</tr>
<tr>
<td>LC50/inhalation/rat</td>
<td>3124 ppm Inhalation LC50 Rat 1 h</td>
</tr>
<tr>
<td></td>
<td>1562 ppm 4 h</td>
</tr>
<tr>
<td></td>
<td>1.68 mg/L Inhalation LC50 Rat 1h</td>
</tr>
<tr>
<td>LC50/inhalation/mouse</td>
<td>1108 ppm 1 h</td>
</tr>
<tr>
<td><strong>Other LD50 or LC50 Information</strong></td>
<td>900 mg/kg oral LD50 Rabbit (no information on test substance)</td>
</tr>
</tbody>
</table>

#### Product Information

**LD50/oral/rat** =
VALUE- Acute Tox Oral = No information available

**LD50/oral/mouse** =
Value - Acute Tox Oral = No information available

**LD50/dermal/rabbit**
VALUE-Acute Tox Dermal = No information available

**LD50/dermal/rat**
VALUE - Acute Tox Dermal = No information available

**LC50/inhalation/rat**
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

**LC50/Inhalation/mouse**
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

#### Symptoms

**Skin Contact:** Corrosive. Causes severe irritation and burns. It may affect the liver if absorbed

**Product code:** C-186  **Product name:** COBALTOUS CHLORIDE, COLORIMETRIC SOLUTION (CS)
through the skin.

**Eye Contact:** Corrosive. Causes severe irritation and burns. May affect vision (corneal opacity and degeneration of optic nerve).

**Inhalation**

Material is destructive to the tissue of the mucous membrane and upper respiratory tract. Symptoms may include nose, throat, and laryngeal burning pain, upper respiratory tract edema and inflammation, coughing, sneezing, choking sensation, hoarseness, laryngeal spasms, chest pains, headaches, and palpitations. Inhalation of high concentrations can result in corrosive burns, necrosis of bronchial epithelium, construction of the larynx and bronchi, nasospetal perforation, glottal closure, dyspnea, bronchitis. Chemical pneumonitis and pulmonary edema can also occur, particularly if exposure is prolonged. May affect the liver.

**Ingestion**

Ingestion of large doses causes irritation and burning, ulceration, abdominal pain, nausea, vomiting, hypermotility, diarrhea, and may cause metallic taste, thirst, difficulty swallowing, salivation, chills, fever, uneasiness, shallow respiration, shock, strictures and stenosis (esophageal, gastric, pyloric), and perforation of the gastrointestinal tract and resultant peritonitis, gastric hemorrhage and infection. May affect behavior (excitement), the cardiovascular system (weak rapid pulse, tachycardia), respiration (shallow respiration), and urinary system (kidneys-renal failure, nephritis). May affect behavior (somnolence, convulsions, excitement, tremor), heart/cardiovascular system (hypotension, weak rapid pulse, tachycardia, cardiac failure), shallow respiration, thyroid gland (goiter), and metabolism (weight loss), blood (polycythemia, decreased red blood cell count, impair aggregation of platelets, changes in blood clotting time, changes in thromboplastic activity), liver, kidneys (nephritis, renal failure). Acute exposure via inhalation or ingestion can also cause erosion of tooth enamel.

**Aspiration hazard**

No information available.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Chronic Toxicity**

Prolonged or repeated ingestion may affect the liver, kidneys, blood, behavior (muscle contraction or spasticity), lungs, thyroid gland (reduced thyroid activity, goiter), pancreas (hyperglycemia), liver, heart, and may cause oral mucosal ulceration. Repeated or prolonged skin contact may cause skin sensitization. Prolonged or repeated eye contact can cause conjunctivitis. Prolonged or repeated inhalation may cause respiratory hypersensitivity, chronic bronchitis, changes in pulmonary function, nasal bleeding. Prolonged or repeated inhalation and/or ingestion can cause yellowing of the teeth, and erosion of tooth enamel.

**Sensitization:**

Causes sensitization.

**Mutagenic Effects:**

Mutagenic effects in mammalian somatic cells
Suspected of causing genetic defects

**Carcinogenic effects:**

Suspected of causing cancer. Possibly carcinogenic to humans.

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>IARC</th>
<th>ACGIH - Carcinogens</th>
<th>NTP</th>
<th>OSHA HCS - Carcinogens</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Cobalt Chloride, Hexahydrate</td>
<td>7791-13-1</td>
<td>Group 2B - Monograph 52 [1991] Cobalt</td>
<td>A3 - Confirmed animal carcinogen with</td>
<td>Not listed</td>
<td>Present</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

**Product code:** C-186

**Product name:** COBALTOUS CHLORIDE, COLORIMETRIC SOLUTION (CS)
and Cobalt compounds  
unknown relevance to humans (cobalt inorganic compounds)  

<table>
<thead>
<tr>
<th>Compound</th>
<th>CAS Number</th>
<th>Classification</th>
<th>Other Information</th>
</tr>
</thead>
</table>

ACGIH (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)

NTP (National Toxicology Program)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

**Reproductive toxicity**
May damage fertility or the unborn child

Reproductive Effects: May cause adverse reproductive effects
Developmental Effects: No information available
Teratogenic Effects: No information available

**Specific Target Organ Toxicity**

STOT - single exposure: No information available.
STOT - repeated exposure: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: Aquatic environment.

*Cobalt Chloride, Hexahydrate* - 7791-13-1
Freshwater Fish Species Data: LC50- Cyprinus Carpio (Carp) 96h: 0.33 mg/l
Water Flea Data: EC50- Daphnia Magna (Water Flea) 48h: 1.4 mg/l

*Hydrogen chloride* - 7647-01-0
Freshwater Fish Species Data: 282 mg/L LC50 Gambusia affinis 96 h
862 mg/L LC50 Leuciscus idus
Water Flea Data: <56 mg/L LC50 Daphnia magna 72h

Persistence and degradability: No information available
Bioaccumulative potential: No information available.
Mobility: No information available.

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products: Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging: Empty containers should be taken for local recycling, recovery or waste disposal

Product code: C-186  
Product name: COBALTOUS CHLORIDE, COLORIMETRIC SOLUTION (CS)
<table>
<thead>
<tr>
<th></th>
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<tr>
<td>Water</td>
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<td>None</td>
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<td>None</td>
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<td>Hydrogen chloride</td>
<td>7647-01-0</td>
<td>None</td>
<td>None</td>
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<td>None</td>
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</tbody>
</table>

14. TRANSPORT INFORMATION

DOT
UN-No: UN1789
Proper Shipping Name: Hydrochloric acid solution
Hazard Class: 8
Subsidiary Class: No information available
Packing group: II
Emergency Response Guide Number: 157
Marine Pollutant: No data available
DOT RQ (lbs): No information available
Special Provisions: No Information available
Symbol(s): [DOT]: (R5) - Identifies a material that is a hazardous substance that has a reportable quantity (RQ) of 5000 pounds (2270 Kilograms).
Description: UN1789, Hydrochloric acid, 8, PG II

TDG (Canada)
UN-No: UN1789
Proper Shipping Name: Hydrochloric acid solution
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant: No Information available
Description: UN1789, HYDROCHLORIC ACID, 8, PG II

ADR
UN-No: UN1789
Proper Shipping Name: Hydrochloric acid solution
Hazard Class: 8
Packing Group: II
Subsidiary Risk: No information available
Description: UN1789, Hydrochloric acid, 8, II

IMO / IMDG
UN-No: UN1789
Proper Shipping Name: Hydrochloric acid solution
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant: No information available
EMS: F-A

RID
UN-No: UN1789
Proper Shipping Name: Hydrochloric acid solution
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
Description: UN1789, Hydrochloric acid, 8, II

Product code: C-186
Product name: COBALTOUS CHLORIDE, COLORIMETRIC SOLUTION (CS)
ICAO
UN-No: UN1789
Proper Shipping Name: Hydrochloric acid solution
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
Description: UN1789, Hydrochloric acid, 8, PG II

IATA
UN-No: UN1789
Proper Shipping Name: Hydrochloric acid solution
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
ERG Code: 8L
Special Provisions: No information available
Description: UN1789, Hydrochloric acid, 8, PG II

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>U.S. TSCA</th>
<th>KOREA KECL (PICCS)</th>
<th>Philippines (PICCS)</th>
<th>Japan ENCS (1)-207</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobalt Chloride, Hexahydrate</td>
<td>7791-13-1</td>
<td>Not Listed</td>
<td>Not present</td>
<td>Present</td>
<td>Present (1)-207</td>
<td>Present</td>
<td>Present</td>
<td>Not present</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>7647-01-0</td>
<td>Present ACTIV E</td>
<td>Present KE-20189</td>
<td>Present</td>
<td>Present (1)-215</td>
<td>Present</td>
<td>Present</td>
<td>Present231-595-7</td>
</tr>
</tbody>
</table>

U.S. Regulations

Cobalt Chloride, Hexahydrate
New Jersey RTK Hazardous Substance List: sn 2222 (cobalt compounds)
New Jersey (EHS) List: SN2222 500lb TPQ (cobalt compounds)
New Jersey - Discharge Prevention - List of Hazardous Substances: Present (cobalt compounds)
Pennsylvania RTK: Present (cobalt compounds)
Pennsylvania RTK - Environmental Hazard List: Present (cobalt compounds)

Hydrogen chloride
Massachusetts RTK: Present
Massachusetts EHS: extraordinarily hazardous
New Jersey RTK Hazardous Substance List: 1012
New Jersey (EHS) List: 1012 500 lb TPQ 2909 500 lb TPQ
New Jersey - Discharge Prevention - List of Hazardous Substances: Present
New Jersey TCPA - EHS: 15000lbTQ 5000lbTQ 5600lbTQ 2000lbTQ
Pennsylvania RTK: Environmental hazard
Pennsylvania RTK - Environmental Hazard List: Present
Michigan PSM HHC: = 5000 lb TQ
Minnesota - Hazardous Substance List: Present
New York Release Reporting - List of Hazardous Substances:
5000 lb RQ 1000 lb RQ
Louisiana Reportable Quantity List for Pollutants:
5000lbfinal RQAs listed in 40 CFR 117.3 Table 117.3 and 40 CFR 302.4 Table 302.4
2270kgfinal RQAs listed in 40 CFR 117.3 Table 117.3 and 40 CFR 302.4 Table 302.4
5000lbRQAs listed in Louisiana Administrative Code, Title 33, Part 1, Subpart 2, Chapter 39, Subchapter E. Applies to unauthorized emissions based on total mass emitted into or onto all media within any consecutive 24-hour period
1000lbRQAs listed in Louisiana Administrative Code, Title 33, Part 1, Subpart 2, Chapter 39, Subchapter E. Applies to unauthorized emissions

Product code: C-186 Product name: COBALTOUS CHLORIDE, COLORIMETRIC SOLUTION (CS)
based on total mass emitted into the atmosphere.

**California Directors List of Hazardous Substances:** Present

**FDA - Food Additives Generally Recognized as Safe (GRAS):** 21 CFR 182.1057

**FDA - 21 CFR - Total Food Additives**


**California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.**

**Chemicals Known to the State of California to Cause Cancer:**
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

**Chemicals Known to the State of California to Cause Reproductive Toxicity:**
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

### Components

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Cobalt Chloride, Hexahydrate</td>
<td>7791-13-1</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>7647-01-0</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

**CERCLA/SARA**

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPOs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Cobalt Chloride, Hexahydrate</td>
<td>7791-13-1</td>
<td>None</td>
<td>None</td>
<td>Cobalt inorganic compounds</td>
<td>0.1% de minimus concentration</td>
<td></td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>7647-01-0</td>
<td>5000 lb final RQ</td>
<td>5000 lb EPCRA RQ</td>
<td>None</td>
<td>1.0 % de minimus concentration</td>
<td></td>
</tr>
</tbody>
</table>

**U.S. TSCA**

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)</th>
<th>TSCA 8(d) - Health and Safety Reporting</th>
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</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Cobalt Chloride, Hexahydrate</td>
<td>7791-13-1</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>7647-01-0</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

**Canada**

**WHIMIS 2015 - GHS Classifications**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>WHIMIS 2015 Hazard Classification Information:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>str_93-93.5 ) Hydrogen Chloride: Gases under pressure - Liquefied gas: H280 Contains gas under pressure, may explode when heated.; Corrosive to Metals - Category 1: H290 May be corrosive to metals. (potentially corrosive to metals; the supplier should be contacted for more information); Acute toxicity - Inhalation - Category 3: H331 Toxic if inhaled.; Health Hazard Not Otherwise Classified - Category 1: Causes severe damage to the respiratory tract; Skin corrosion/irritation - Category 1: H314 Causes severe skin burns and eye damage.; Serious Eye Damage/Eye Irritation - Category 1: H318 Causes serious eye damage. Hydrochloric Acid: Corrosive to Metals - Category 1: H290 May be corrosive to metals. (potentially corrosive to metals; the supplier should be contacted for more information); Acute toxicity - Oral - Category 4: H302 Harmful if swallowed. (3.6% in aqueous</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>7647-01-0</td>
<td>str_1-1 )</td>
</tr>
</tbody>
</table>

**Product code:** C-186  
**Product name:** COBALTOUS CHLORIDE, COLORIMETRIC SOLUTION (CS)
solution); Acute toxicity - Inhalation - Category 2: H330 Fatal if inhaled.; Health Hazard Not Otherwise Classified - Category 1: Causes severe damage to the respiratory tract; Skin corrosion/irritation - Category 1: H314 Causes severe skin burns and eye damage.; Skin corrosion/irritation - Category 2: H315 Causes skin irritation. (3.6% in aqueous solution); Serious Eye Damage/Eye Irritation - Category 1: H318 Causes serious eye damage.; Serious Eye Damage/Eye Irritation - Category 2: H319 Causes serious eye irritation. (3.6% in aqueous solution)

Canada Hazardous Products Regulation

This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

WHMIS 1988 Hazard Class
E  Corrosive material

Components

Water
Cobalt Chloride, Hexahydrate
Hydrogen chloride

WHMIS 1988
Uncontrolled product according to WHMIS classification criteria
D2A D2B
A,D1A,E
D1A,E
E 0.036% in aqueous solution, 0.36% in aqueous solution, 3.6% in aqueous solution
D1B,E 28% in aqueous solution
D1A,E 31.45% in aqueous solution, 35.2% in aqueous solution

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components

Hydrogen chloride 1 %

Inventory

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Present</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Cobalt Chloride, Hexahydrate</td>
<td>7791-13-1</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>7647-01-0</td>
<td>Present</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>CEPA Schedule I - Toxic Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Not listed</td>
</tr>
<tr>
<td>Cobalt Chloride, Hexahydrate</td>
<td>7791-13-1</td>
<td>Not listed</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>7647-01-0</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Not listed</td>
</tr>
<tr>
<td>Cobalt Chloride, Hexahydrate</td>
<td>7791-13-1</td>
<td>Not listed</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>7647-01-0</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>EU GHS - SV - CLP (1272/2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td></td>
</tr>
<tr>
<td>Cobalt Chloride, Hexahydrate</td>
<td>7791-13-1</td>
<td>No information</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>7647-01-0</td>
<td>Hydrogen Chloride: Gases under pressure: H280 Contains gas under pressure, may explode when heated.; Acute toxicity - Inhalation - Acute Tox. 3: H331 Toxic if inhaled. (Minimum</td>
</tr>
</tbody>
</table>

Product code: C-186  Product name: COBALTOUS CHLORIDE, COLORIMETRIC SOLUTION (CS)
classification); Skin corrosion/irritation - Skin Corr. 1A: H314 Causes severe skin burns and eye damage.017-002-00-2 Hydrochloric Acid: Skin corrosion/irritation - Skin Corr. 1B: H314 Causes severe skin burns and eye damage. (C >= 25 %); Specific target organ toxicity - Single exposure - STOT SE 3: H335 May cause respiratory irritation. (C >= 10 %)017-002-01-X Skin corrosion/irritation - Skin Corr. 1B: H314 Causes severe skin burns and eye damage. (C >= 25 %); Skin corrosion/irritation - Skin Irrit. 2: H315 Causes skin irritation. (10 % <= C <25 %); Serious Eye Damage/Eye Irritation - Eye Irrit. 2: H319 Causes serious eye irritation. (10 % <= C <25 %); Specific target organ toxicity - Single exposure - STOT SE 3: H335 May cause respiratory irritation. (C >= 10 %)017-002-01-X

EU - CLP (1272/2008)

R-phrase(s)

R42/43 - May cause sensitization by inhalation and skin contact.
R36/37/38 - Irritating to eyes, respiratory system and skin.

S -phrase(s)

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S 1/2 - Keep locked up and out of the reach of children.

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Classification</th>
<th>Concentration Limits:</th>
<th>Safety Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>No information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cobalt Chloride, Hexahydrate</td>
<td>7791-13-1</td>
<td>No information</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>7647-01-0</td>
<td>Hydrogen Chloride: T; R23 C; R35 Hydrochloric Acid: + hydrochloric acid ...% C; R34 - Xi; R37 Concentration Limit(s): C &gt;= 25 % C; R34-37 10 % &lt;= C &lt; 25 % Xi; R36/37/38</td>
<td>Hydrogen Chloride: 0.02%&lt;=C&lt;0.2% Xi;R36/37/38 0.2%&lt;=C&lt;0.5% C;R34 0.5%&lt;=C&lt;1% C;R20-34 1%&lt;=C&lt;5% C;R20-35 5%&lt;=C T;C;R23-35</td>
<td>For Hydrogen Chloride: S1/2 S9 S26 S36/37/39 S45 Hydrochloric Acid: S(1/2)-S26-S45</td>
</tr>
</tbody>
</table>

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:
Xi - Irritant.

Product code: C-186
Product name: COBALTOUS CHLORIDE, COLORIMETRIC SOLUTION (CS)
16. OTHER INFORMATION

Preparation Date: 04/13/2015
Revision Date: 05/01/2018
Prepared by: Sonia Owen

Disclaimer: All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet