

## SAFETY DATA SHEET

Version 4.10  
Revision Date 11/02/2016  
Print Date 11/10/2018

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1. PRODUCT AND COMPANY IDENTIFICATION

## 1.1 Product identifiers

Product name : Cobalt(II) nitrate hexahydrate

Product Number : 239267  
Brand : Sigma-Aldrich

CAS-No. : 10026-22-9

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

Identified uses : Laboratory chemicals, Synthesis of substances

## 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832  
Fax : +1 800-325-5052

## 1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

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2. HAZARDS IDENTIFICATION

## 2.1 Classification of the substance or mixture

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Oxidizing solids (Category 2), H272  
Acute toxicity, Oral (Category 4), H302  
Respiratory sensitisation (Category 1), H334  
Skin sensitisation (Category 1), H317  
Germ cell mutagenicity (Category 2), H341  
Carcinogenicity (Category 1B), H350  
Reproductive toxicity (Category 1B), H360  
Acute aquatic toxicity (Category 1), H400  
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word : Danger

Hazard statement(s)

|      |  |
|------|--|
| H272 | May intensify fire; oxidizer.  |
| 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 statement(s) |   |
| P201                       | Obtain special instructions before use.   |
| P202                       | Do not handle until all safety precautions have been read and understood.   |
| P210                       | Keep away from heat.  |
| P220                       | Keep/Store away from clothing/ combustible materials.   |
| P221                       | Take any precaution to avoid mixing with combustibles.  |
| P261                       | Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  |
| P264                       | Wash 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.   |
| P285                       | In case of inadequate ventilation wear respiratory protection.  |
| P301 + P312 + P330         | IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.<br>Rinse mouth.   |
| P302 + P352                | IF ON SKIN: Wash with plenty of soap and water.   |
| P304 + P341                | IF INHALED: If breathing is difficult, 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.   |
| P333 + P313                | If skin irritation or rash occurs: Get medical advice/ attention.   |
| P363                       | Wash contaminated clothing before reuse.  |
| P370 + P378                | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.  |
| P391                       | Collect spillage.   |
| P405                       | Store locked up.  |
| P501                       | Dispose of contents/ container to an approved waste disposal plant.   |

## 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

|                  |  |
|------------------|--|
| Synonyms         | : Cobaltous nitrate                                  |
| Formula          | : $\text{CoN}_2\text{O}_6 \cdot 6\text{H}_2\text{O}$ |
| Molecular weight | : 291.03 g/mol                                       |
| CAS-No.          | : 10026-22-9   |

#### Hazardous components

| Component   | Classification   | Concentration |
|---|--|---------------|
| <b>Cobaltous nitrate, hexahydrate</b> Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH) |  |               |
|   | Ox. Sol. 2; Acute Tox. 4;<br>Resp. Sens. 1; Skin Sens. 1;<br>Muta. 2; Carc. 1B; Repr. 1B;<br>Aquatic Acute 1; Aquatic<br>Chronic 1; H272, H302, H317,<br>H334, H341, H350, H360,<br>H410 | <= 100 %      |

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Flush eyes with water as a precaution.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

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**5. FIREFIGHTING MEASURES****5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**5.2 Special hazards arising from the substance or mixture**

No data available

**5.3 Advice for firefighters**

Wear self-contained breathing apparatus for firefighting if necessary.

**5.4 Further information**

Use water spray to cool unopened containers.

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**6. ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.  
For personal protection see section 8.

**6.2 Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**6.3 Methods and materials for containment and cleaning up**

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections**

For disposal see section 13.

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**7. HANDLING AND STORAGE****7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.  
Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.  
For precautions see section 2.2.

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

Keep container tightly closed in a dry and well-ventilated place.

**7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Components with workplace control parameters

| Component                      | CAS-No.    | Value  | Control parameters | Basis                                   |
|--------------------------------|------------|--|--------------------|---|
| Cobaltous nitrate, hexahydrate | 10026-22-9 | TWA  | 0.020000 mg/m3     | USA. ACGIH Threshold Limit Values (TLV) |
|                                | Remarks    | Pulmonary function<br>Asthma<br>Myocardial effects<br>Substances for which there is a Biological Exposure Index or Indices (see BEI® section)<br>Confirmed animal carcinogen with unknown relevance to humans varies |                    |   |
|                                |            | TWA  | 0.02 mg/m3         | USA. ACGIH Threshold Limit Values (TLV) |
|                                |            | Pulmonary function<br>Asthma<br>Myocardial effects<br>Substances for which there is a Biological Exposure Index or Indices (see BEI® section)<br>Confirmed animal carcinogen with unknown relevance to humans varies |                    |   |

#### Biological occupational exposure limits

| Component                      | CAS-No.    | Parameters                      | Value   | Biological specimen | Basis                                     |
|--------------------------------|------------|---------------------------------|---------|---------------------|---|
| Cobaltous nitrate, hexahydrate | 10026-22-9 | Cobalt                          | 15 µg/l | Urine               | ACGIH - Biological Exposure Indices (BEI) |
|                                | Remarks    | End of shift at end of workweek |         |                     |   |
|                                |            | Cobalt                          |         | Urine               | ACGIH - Biological Exposure Indices (BEI) |
|                                |            | End of shift at end of workweek |         |                     |   |

### 8.2 Exposure controls

#### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### Personal protective equipment

##### Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

##### Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

##### Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm  
Break through time: 480 min  
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### **Body Protection**

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### **Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### **Control of environmental exposure**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### **9.1 Information on basic physical and chemical properties**

|   |  |
|---|--|
| a) Appearance                                   | Form: crystalline<br>Colour: red           |
| b) Odour  | No data available                          |
| c) Odour Threshold                              | No data available                          |
| d) pH   | 4.0 at 100 g/l at 20 °C (68 °F)            |
| e) Melting point/freezing point                 | Melting point/range: 55 °C (131 °F) - lit. |
| f) Initial boiling point and boiling range      | No data available                          |
| g) Flash point                                  | Not applicable                             |
| h) Evaporation rate                             | No data available                          |
| i) Flammability (solid, gas)                    | No data available                          |
| j) Upper/lower flammability or explosive limits | No data available                          |
| k) Vapour pressure                              | No data available                          |
| l) Vapour density                               | No data available                          |
| m) Relative density                             | 1.88 g/cm <sup>3</sup>                     |
| n) Water solubility                             | soluble                                    |
| o) Partition coefficient: n-octanol/water       | No data available                          |
| p) Auto-ignition temperature                    | No data available                          |
| q) Decomposition temperature                    | No data available                          |
| r) Viscosity                                    | No data available                          |

- s) Explosive properties      No data available  
t) Oxidizing properties      The substance or mixture is classified as oxidizing with the category 2.

## 9.2 Other safety information

Bulk density      800 kg/m<sup>3</sup>

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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Heat Exposure to moisture

### 10.5 Incompatible materials

Organic materials, Reducing agents

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides (NO<sub>x</sub>), Cobalt/cobalt oxides  
Other decomposition products - No data available  
In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - 691 mg/kg

LD50 Oral - Rat - 434 mg/kg

Remarks: anhydrous

Inhalation: No data available

Dermal: No data available

No data available

#### Skin corrosion/irritation

No data available

#### Serious eye damage/eye irritation

No data available

#### Respiratory or skin sensitisation

No data available

#### Germ cell mutagenicity

In vitro tests showed mutagenic effects

No data available

#### Carcinogenicity

Carcinogenicity - Rabbit

Tumorigenic: Tumors at site of application.

Possible human carcinogen

IARC:      2B - Group 2B: Possibly carcinogenic to humans (Cobaltous nitrate, hexahydrate)

2B - Group 2B: Possibly carcinogenic to humans (Cobaltous nitrate, hexahydrate)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

No data available

Presumed human reproductive toxicant

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**Additional Information**

RTECS: QU7355500

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

No data available

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Very toxic to aquatic life.

No data available

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## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

**Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

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## 14. TRANSPORT INFORMATION

**DOT (US)**

UN number: 1477

Class: 5.1

Packing group: II

Proper shipping name: Nitrates, inorganic, n.o.s.

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

#### IMDG

UN number: 1477      Class: 5.1      Packing group: II      EMS-No: F-A, S-Q  
Proper shipping name: NITRATES, INORGANIC, N.O.S. (Cobaltous nitrate, hexahydrate)  
Marine pollutant: yes

#### IATA

UN number: 1477      Class: 5.1      Packing group: II  
Proper shipping name: Nitrates, inorganic, n.o.s.

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## 15. REGULATORY INFORMATION

### SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

|                                | CAS-No.    | Revision Date |
|--------------------------------|------------|---------------|
| Cobaltous nitrate, hexahydrate | 10026-22-9 | 1993-04-24    |

### SARA 311/312 Hazards

Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

### Massachusetts Right To Know Components

|                                | CAS-No.    | Revision Date |
|--------------------------------|------------|---------------|
| Cobaltous nitrate, hexahydrate | 10026-22-9 | 1993-04-24    |

### Pennsylvania Right To Know Components

|                                | CAS-No.    | Revision Date |
|--------------------------------|------------|---------------|
| Cobaltous nitrate, hexahydrate | 10026-22-9 | 1993-04-24    |

### New Jersey Right To Know Components

|                                | CAS-No.    | Revision Date |
|--------------------------------|------------|---------------|
| Cobaltous nitrate, hexahydrate | 10026-22-9 | 1993-04-24    |

### California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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## 16. OTHER INFORMATION

### Full text of H-Statements referred to under sections 2 and 3.

|                 |  |
|-----------------|--|
| Acute Tox.      | Acute toxicity   |
| Aquatic Acute   | Acute aquatic toxicity   |
| Aquatic Chronic | Chronic aquatic toxicity   |
| Carc.           | Carcinogenicity  |
| H272            | May intensify fire; oxidizer.  |
| 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.                      |
| Muta.           | Germ cell mutagenicity   |

### HMIS Rating

|                        |   |
|------------------------|---|
| Health hazard:         | 2 |
| Chronic Health Hazard: | * |



Flammability: 0  
Physical Hazard 2

**NFPA Rating**

Health hazard: 2  
Fire Hazard: 0  
Reactivity Hazard: 2  
Special hazard.I: OX

**Further information**

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**Preparation Information**

Sigma-Aldrich Corporation  
Product Safety – Americas Region  
1-800-521-8956

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