

## Material Safety Data Sheet

Version 4.3

Revision Date 09/14/2012

Print Date 02/02/2014

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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Cobalt(II) nitrate hexahydrate

Product Number : 239267

Brand : Sigma-Aldrich

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

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

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2. HAZARDS IDENTIFICATION

## Emergency Overview

## OSHA Hazards

Oxidizer, Carcinogen, Toxic by ingestion, Respiratory sensitiser, Skin sensitiser, Reproductive hazard, Mutagen

## Target Organs

Lungs, Thyroid

## GHS Classification

Oxidizing solids (Category 2)

Acute toxicity, Oral (Category 4)

Skin sensitization (Category 1)

Carcinogenicity (Category 2)

Acute aquatic toxicity (Category 1)

## GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H272 May intensify fire; oxidiser.

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

H351 Suspected of causing cancer.

H400 Very toxic to aquatic life.

Precautionary statement(s)

P220 Keep/Store away from clothing/ combustible materials.

P273 Avoid release to the environment.

P280 Wear protective gloves.

## HMIS Classification

Health hazard:

2

**Chronic Health Hazard:** \*  
**Flammability:** 0  
**Physical hazards:** 2

**NFPA Rating**

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

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. May cause respiratory tract irritation.  
**Skin** May be harmful if absorbed through skin. May cause skin irritation.  
**Eyes** May cause eye irritation.  
**Ingestion** Toxic if swallowed.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : Cobaltous nitrate  
Formula :  $\text{CoN}_2\text{O}_6 \cdot 6\text{H}_2\text{O}$   
Molecular Weight : 291.03 g/mol

Component	Concentration
<b>Cobaltous nitrate, hexahydrate</b>	
CAS-No. 10026-22-9	-

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**4. 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.

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**5. FIREFIGHTING MEASURES**

**Suitable extinguishing media**

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

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NO<sub>x</sub>), Cobalt/cobalt oxides

**Further information**

Use water spray to cool unopened containers.

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**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions**

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

### 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.

### 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.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

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. Normal measures for preventive fire protection.

### Conditions for safe storage

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

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Cobaltous nitrate, hexahydrate	10026-22-9	TWA	0.02 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Confirmed animal carcinogen with unknown relevance to humans			
		TWA	0.02 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
	Pulmonary function Asthma Myocardial effects Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans varies			

### Personal protective equipment

#### 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).

#### Hand 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.

#### Immersion protection

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: > 480 min

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

#### Splash protection

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: > 30 min

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

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, 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 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.

#### **Eye 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 and 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.

#### **Hygiene measures**

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

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

### **Appearance**

Form	crystalline
Colour	red

### **Safety data**

pH	4.0 at 100 g/l at 20 °C (68 °F)
Melting point/freezing point	Melting point/range: 55 °C (131 °F) - lit.
Boiling point	no data available
Flash point	not applicable
Ignition temperature	no data available
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	no data available
Density	1.88 g/cm <sup>3</sup>
Water solubility	soluble
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

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## **10. STABILITY AND REACTIVITY**

### **Chemical stability**

Stable under recommended storage conditions.

### **Possibility of hazardous reactions**

no data available

### **Conditions to avoid**

Heat. Exposure to moisture.

**Materials to avoid**

Organic materials, Reducing agents

**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

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**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Oral LD50**

LD50 Oral - rat - 691 mg/kg

LD50 Oral - rat - 434 mg/kg

Remarks: anhydrous

**Inhalation LC50**

no data available

**Dermal LD50**

no data available

**Other information on acute toxicity**

no data available

**Skin corrosion/irritation**

no data available

**Serious eye damage/eye irritation**

no data available

**Respiratory or skin sensitization**

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)

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**

Presumed human reproductive toxicant

no data available

**Teratogenicity**

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. May cause respiratory tract irritation.
<b>Ingestion</b>	Toxic if swallowed.
<b>Skin</b>	May be harmful if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	May cause eye irritation.

**Signs and Symptoms of Exposure**

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

**Synergistic effects**

no data available

**Additional Information**

RTECS: QU7355500

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**12. ECOLOGICAL INFORMATION****Toxicity**

no data available

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**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****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.  
Marine pollutant: No  
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.  
Marine pollutant: No

**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**

**OSHA Hazards**

Oxidizer, Carcinogen, Toxic by ingestion, Respiratory sensitiser, Skin sensitiser, Reproductive hazard, Mutagen

**SARA 302 Components**

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

**SARA 313 Components**

	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**

No components are subject to the Massachusetts Right to Know Act.

**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**

**Further information**

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