



MATERIAL SAFETY DATA SHEET  
Cobalt(II) nitrate hexahydrate

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Cobalt(II) nitrate hexahydrate  
**Catalog Numbers:** C/6640/48, C/6640/53, C/6640/60, C/6680/48, C/6680/50, C/6680/53, C/6680/60  
**Synonyms:** Nitric acid, cobalt(2+) salt, hexahydrate; Cobaltous nitrate hexahydrate.  
**Company Identification:** Fisher Scientific UK  
 Bishop Meadow Road, Loughborough  
 Leics. LE11 5RG  
**For information in Europe, call:** (01509) 231166  
**Emergency Number, Europe:** 01509 231166

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name:	%	EINECS#	Hazard Symbols:	Risk Phrases:
10026-22-9	Cobalt(II) nitrate hexahydrate	>98	unlisted		

Text for R-phrases: see Section 16

**Hazard Symbols:** T O N



**Risk Phrases:** 49 60 42/43 50/53 68 8

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

*May cause sensitization by inhalation and skin contact. Contact with combustible material may cause fire. May cause cancer by inhalation. May impair fertility. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Possible risk of irreversible effects.*

#### Potential Health Effects

- Eye:** Causes eye irritation.
- Skin:** Prolonged and/or repeated contact may cause irritation and/or dermatitis. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.
- Ingestion:** Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May be harmful if swallowed. Ingestion of nitrate containing compounds can lead to methemoglobinemia.
- Inhalation:** Dust is irritating to the respiratory tract. May cause methemoglobinemia, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), convulsions, tachycardia, dyspnea (labored breathing), and death. May cause asthmatic attacks due to allergic sensitization of the respiratory tract. Numerous studies have linked pulmonary effects with exposure to cobalt and its compounds. Exposure at 0.1 mg/m<sup>3</sup> or less of cobalt metal and inorganic compounds of cobalt caused asthma and changes in pulmonary function.
- Chronic:** Repeated exposure may cause allergic respiratory reaction (asthma). Cobalt compounds may cause cancer based upon animal studies.

### Section 4 - First Aid Measures

<b>Eyes:</b>	Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
<b>Skin:</b>	Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse.
<b>Ingestion:</b>	Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.
<b>Inhalation:</b>	Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
<b>Notes to Physician:</b>	Administration of calcium disodium EDTA may be useful in acute poisoning with its use at the discretion of qualified medical personnel.

### Section 5 - Fire Fighting Measures

<b>General Information:</b>	As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Strong oxidizer. Contact with other material may cause fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
<b>Extinguishing Media:</b>	Use water spray, dry chemical, carbon dioxide, or appropriate foam.

### Section 6 - Accidental Release Measures

<b>General Information:</b>	Use proper personal protective equipment as indicated in Section 8.
<b>Spills/Leaks:</b>	Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation. Keep combustibles (wood, paper, oil, etc.,) away from spilled material.

### Section 7 - Handling and Storage

<b>Handling:</b>	Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid contact with clothing and other combustible materials. Keep from contact with clothing and other combustible materials. Do not breathe dust. Inform laundry personnel of contaminant's hazards.
<b>Storage:</b>	Do not store near combustible materials. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

### Section 8 - Exposure Controls, Personal Protection

#### Engineering Controls:

Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

#### Exposure Limits

CAS# 10026-22-9:

United Kingdom, WEL - TWA: ( cobalt compounds): 0.1 mg/m<sup>3</sup> TWA (as Co)

United Kingdom, WEL - STEL: ( cobalt compounds): 0.3 mg/m<sup>3</sup> STEL (as Co)

Japan: ( cobalt compounds): 0.05 mg/m<sup>3</sup> OEL (as Co)

Malaysia: ( cobalt, inorganic compounds): 0.02 mg/m<sup>3</sup> TWA (as Co)

Russia: ( cobalt, inorganic compounds): 0.01 mg/m<sup>3</sup> TWA (aerosol) Russia:

( cobalt, inorganic compounds): 0.05 mg/m<sup>3</sup> STEL (aerosol)

Spain: ( cobalt, inorganic compounds): 0.02 mg/m<sup>3</sup> VLA-ED (as Co)

CAS# 10141-05-6:

United Kingdom, WEL - TWA: ( cobalt compounds): 0.1 mg/m<sup>3</sup> TWA (as Co)

United Kingdom, WEL - STEL: ( cobalt compounds): 0.3 mg/m<sup>3</sup> STEL (as Co)

Japan: ( cobalt compounds): 0.05 mg/m<sup>3</sup> OEL (as Co)  
Malaysia: ( cobalt, inorganic compounds): 0.02 mg/m<sup>3</sup> TWA (as Co)  
Russia: ( cobalt, inorganic compounds): 0.01 mg/m<sup>3</sup> TWA (aerosol) Russia:  
( cobalt, inorganic compounds): 0.05 mg/m<sup>3</sup> STEL (aerosol)  
Spain: ( cobalt, inorganic compounds): 0.02 mg/m<sup>3</sup> VLA-ED (as Co)

### Personal Protective Equipment

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

**Physical State:** Solid  
**Color:** red  
**Odor:** odorless  
**pH:** Not available  
**Vapor Pressure:** Negligible.  
**Viscosity:** Not applicable.  
**Boiling Point:** Not available  
**Freezing/Melting Point:** 55 - 56 deg C  
**Autoignition Temperature:** Not applicable  
**Flash Point:** Noncombustible.  
**Explosion Limits: Lower:** Not available  
**Explosion Limits: Upper:** Not available  
**Decomposition Temperature:**  
**Solubility in water:** Soluble  
**Specific Gravity/Density:** 1.88  
**Molecular Formula:** CoH<sub>12</sub>N<sub>2</sub>O<sub>12</sub>  
**Molecular Weight:** 291.03

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable. However, may decompose if heated. Deliquescent (tending to absorb atmospheric water vapor and become liquid).

**Conditions to Avoid:** Dust generation, moisture, excess heat.

**Incompatibilities with Other Materials** Reducing agents, combustible organics.

**Hazardous Decomposition Products** Nitrogen oxides, oxygen, oxides of cobalt.

**Hazardous Polymerization** Will not occur.

## Section 11 - Toxicological Information

**RTECS#:** CAS# 10026-22-9: QU7355500  
CAS# 10141-05-6: GG1109000

**LD50/LC50:** RTECS:  
**CAS# 10026-22-9:** Oral, rat: LD50 = 691 mg/kg;

RTECS:

**CAS# 10141-05-6:** Oral, rat: LD50 = 434 mg/kg;

Oral, rat: LD50 = 434 mg/kg;

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**Carcinogenicity:**

Cobalt(II) nitrate hexahydrate - IARC: Group 2B carcinogen

Cobalt(II) nitrate anhydrous - IARC: Group 2B carcinogen

**Other:**

See actual entry in RTECS for complete information.

**Section 12 - Ecological Information**

Not available

**Section 13 - Disposal Considerations**

Products considered hazardous for supply are classified as Special Waste and the disposal of such chemicals is covered by regulations which may vary according to location. Contact a specialist disposal company or the local authority or advice. Empty containers must be decontaminated before returning for recycling.

**Section 14 - Transport Information**

	<b>IATA</b>	<b>IMO</b>	<b>RID/ADR</b>
<b>Shipping Name:</b>	NITRATES, INORGANIC, N.O.S.	NITRATES, INORGANIC, N.O.S.	NITRATES, INORGANIC, N.O.S.
<b>Hazard Class:</b>	5.1	5.1	5.1
<b>UN Number:</b>	1477	1477	1477
<b>Packing Group:</b>	II	II	II

**Section 15 - Regulatory Information**

**European/International Regulations**

European Labeling in Accordance with EC Directives

Hazard Symbols: T O N

Risk Phrases:

R 49 May cause cancer by inhalation.

R 42/43 May cause sensitization by inhalation and skin contact.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R 60 May impair fertility.

R 68 Possible risk of irreversible effects.

R 8 Contact with combustible material may cause fire.

Safety Phrases:

S 53 Avoid exposure - obtain special instructions before use.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 60 This material and its container must be disposed of as hazardous waste.

S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

WGK (Water Danger/Protection)

CAS# 10026-22-9: 2

CAS# 10141-05-6: 2

Canada

CAS# 10141-05-6 is listed on Canada's DSL List

**US Federal**

TSCA

CAS# 10026-22-9 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed

if the CAS number for the anhydrous form in on the Inventory (40CFR720.3(u)(2)).  
CAS# 10141-05-6 is listed on the TSCA Inventory.

## Section 16 - Other Information

### Text for R-phrases from Section 2

**MSDS Creation Date:** 4/07/1998

**Revision #8 Date** 6/07/2006

**Revisions were made in Sections:** 9

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.*

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