

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 03/27/2007

Reviewed on 03/27/2007

**1 Identification of substance:****Product details:****Product name:** Cobalt (II) chloride**Stock number:**

A16346

L14465

**Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Emergency Phone: (978) 521-6300

CHEMTREC: (800) 424-9300

Web Site: www.alfa.com

**Information Department:** Health, Safety and Environmental Department**Emergency information:**

During normal hours the Health, Safety and Environmental Department.

After normal hours call Chemtrec at (800) 424-9300.

**2 Composition/Data on components:****Chemical characterization:****Description: (CAS#)**

Cobalt (II) chloride, hexahydrate (CAS# 7791-13-1): 100%

**Identification number(s):****EINECS Number:** 231-589-4**EU Number:** 027-004-00-5**3 Hazards identification****Hazard description:**

T Toxic

N Dangerous for the environment

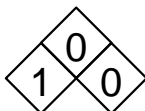
**Information pertaining to particular dangers for man and environment**

R 49 May cause cancer by inhalation.

R 22 Harmful if swallowed.

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

**Classification system****NFPA Ratings (scale 0-4)**

Health = 1

Fire = 0

Reactivity = 0

**HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	1
FIRE	0
REACTIVITY	0

Health (acute effects) = 1

Flammability = 0

Reactivity = 0

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 03/27/2007

Reviewed on 03/27/2007

**Product name: Cobalt (II) chloride**

(Contd. of page 1)

**4 First aid measures****After inhalation**

Supply fresh air and to be sure call for a doctor.

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

**After skin contact**

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

**After eye contact**

Rinse opened eye for several minutes under running water. Then consult a doctor.

**After swallowing** Seek immediate medical advice.**5 Fire fighting measures****Suitable extinguishing agents**

Product is not flammable. Use fire fighting measures that suit the surrounding fire.

**Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Toxic metal oxide fume

Hydrogen chloride (HCl)

**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

**6 Accidental release measures****Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

**Measures for environmental protection:**

Do not allow material to be released to the environment without proper governmental permits.

**Measures for cleaning/collecting:**

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

**Additional information:**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**7 Handling and storage****Handling****Information for safe handling:**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

Prevent formation of dust.

**Information about protection against explosions and fires:**

The product is not flammable

(Contd. on page 3)

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 03/27/2007

Reviewed on 03/27/2007

**Product name: Cobalt (II) chloride**

(Contd. of page 2)

**Storage****Requirements to be met by storerooms and receptacles:**

No special requirements.

**Information about storage in one common storage facility:**

Store away from water/moisture.

Store away from oxidizing agents.

**Further information about storage conditions:**

This product is hygroscopic.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Protect from humidity and water.

**8 Exposure controls and personal protection****Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Components with limit values that require monitoring at the workplace:**

Cobalt, elemental &amp; inorganic compounds, as Co

mg/m<sup>3</sup>

ACGIH TLV 0.02; Confirmed animal carcinogen

Austria Carcinogen

Belgium TWA 0.05

Denmark TWA 0.05

Finland TWA 0.05 (skin)

Germany Carcinogen

Hungary TWA 0.1; 0.2-STEL

Japan OEL 0.05; 2B Carcinogen

Korea TLV 0.02; Confirmed animal carcinogen

Ireland TWA 0.1

Netherlands MAC-TGG 0.05

Norway TWA 0.05

Poland TWA 0.05; 0.2-STEL

Russia 0.5-STEL

Sweden NGV 0.05

Switzerland MAK-W 0.1; Carcinogen

United Kingdom TWA 0.1

USA PEL 0.1 (dust and fume)

**Additional information:** No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

**Breathing equipment:**

Use suitable respirator when high concentrations are present.

**Protection of hands:**

Impervious gloves

Check protective gloves prior to each use for their proper condition.

**Material of gloves**

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

(Contd. on page 4)

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 03/27/2007

Reviewed on 03/27/2007

**Product name: Cobalt (II) chloride**

(Contd. of page 3)

**Eye protection:** Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

<b>Form:</b>	Crystalline
<b>Color:</b>	Red

**Change in condition**

<b>Melting point/Melting range:</b>	86°C (187°F)
<b>Boiling point/Boiling range:</b>	Not determined
<b>Sublimation temperature / start:</b>	Not determined

<b>Flash point:</b>	Not applicable
---------------------	----------------

<b>Ignition temperature:</b>	Not determined
------------------------------	----------------

<b>Decomposition temperature:</b>	Not determined
-----------------------------------	----------------

<b>Danger of explosion:</b>	Product does not present an explosion hazard.
-----------------------------	---

**Explosion limits:**

<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined

<b>Vapor pressure:</b>	Not determined
------------------------	----------------

<b>Density at 20°C (68°F):</b>	1.924 g/cm <sup>3</sup>
--------------------------------	-------------------------

<b>Solubility in / Miscibility with Water:</b>	Soluble
--	---------

**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

**Materials to be avoided:**

Water/moisture

Oxidizing agents

**Dangerous reactions** No dangerous reactions known**Dangerous products of decomposition:**

Toxic metal oxide fume

Hydrogen chloride (HCl)

**11 Toxicological information****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	766 mg/kg (rat)
Dermal	LD50	>2 gm/kg (rat)

**Primary irritant effect:****on the skin:** Irritant to skin and mucous membranes.**on the eye:** Irritating effect.

(Contd. on page 5)

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 03/27/2007

Reviewed on 03/27/2007

**Product name: Cobalt (II) chloride**

(Contd. of page 4)

**Sensitization:**

Sensitization possible through inhalation.

Sensitization possible through skin contact.

**Other information (about experimental toxicology):**

Reproductive effects have been observed on tests with laboratory animals.

Mutagenic effects have been observed on tests with bacteria.

Mutagenic effects have been observed on tests with human lymphocytes.

Mutagenic effects have been observed on tests with laboratory animals.

**Subacute to chronic toxicity:**

Cobalt is an experimental neoplastigen and tumorigen. It is an experimental carcinogen of the connective tissue and lungs. Cobalt metal and inorganic compounds are classified as an animal carcinogen by the ACGIH. Ingestion may cause burning in the mouth, esophagus, and stomach. Inhalation of dusts and fumes may cause irritation of the respiratory tract and labored breathing and coughing. Sensitization, nausea, flushing of the face and ringing in the ears is also possible. Chronic ingestion may result in pericardial effusion, polycardial effusion, polycythemia, cardiac failure, vomiting, convulsions and thyroid enlargement.

**Subacute to chronic toxicity:**

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Behavioral - tremor.

Gastrointestinal - hypermotility, diarrhea.

Nutritional and Gross Metabolic - weight loss or decreased weight gain.

Cardiac - other changes.

Skin and Appendages - dermatitis, other (after systemic exposure).

Liver - other changes.

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - other oxidoreductases.

Reproductive - Paternal Effects - testes, epididymis, sperm duct.

Reproductive - Paternal Effects - other effects on male.

Reproductive - Paternal Effects - prostate, seminal vesicle, Cowper's gland, accessory glands.

Reproductive - Paternal Effects - spermatogenesis (including genetic material, sperm morphology, motility, and count).

Reproductive - Fertility - male fertility index (e.g. # males

impregnating females per # males exposed to fertile nonpregnant females)

Reproductive - Specific Developmental Abnormalities - musculoskeletal system.

**Additional toxicological information:**

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.

ACGIH A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) not considered relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.

**12 Ecological information:****Ecotoxicological effects:**

**Remark:** Very toxic for fish

(Contd. on page 6)

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 03/27/2007

Reviewed on 03/27/2007

**Product name: Cobalt (II) chloride**

(Contd. of page 5)

**General notes:**

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Do not allow material to be released to the environment without proper governmental permits.

Very toxic for aquatic organisms

**13 Disposal considerations****Product:****Recommendation**

Consult state, local or national regulations to ensure proper disposal.

**Uncleaned packagings:**

**Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

Not a hazardous material for transportation.

**DOT regulations:**

**Hazard class:** None

**Land transport ADR/RID (cross-border)**

**ADR/RID class:** None

**Maritime transport IMDG:**

**IMDG Class:** None

**Air transport ICAO-TI and IATA-DGR:**

**ICAO/IATA Class:** None

**Transport/Additional information:**

Not dangerous according to the above specifications.

**15 Regulations****Product related hazard informations:****Hazard symbols:**

T Toxic

N Dangerous for the environment

**Risk phrases:**

49 May cause cancer by inhalation.

22 Harmful if swallowed.

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

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

**Safety phrases:**

53 Avoid exposure - obtain special instructions before use.

22 Do not breathe dust.

45 In case of accident or if you feel unwell, seek medical advice immediately.

(Contd. on page 7)

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 03/27/2007

Reviewed on 03/27/2007

**Product name: Cobalt (II) chloride**

(Contd. of page 6)

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

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

**National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

**Information about limitation of use:**

For use only by technically qualified individuals.

This product contains cobalt and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

**16 Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing MSDS:** Health, Safety and Environmental Department.

**Contact:** Paul V. Connolly