

# Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/05/2009

Reviewed on 05/05/2009

## 1 Identification of substance:

### Product details:

**Product name:** Cobalt (II) sulfate, primary standard

**Stock number:** 22870

### 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](http://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) sulfate, anhydrous (CAS# 10124-43-3); 100%

#### Identification number(s):

**EINECS Number:** 233-334-2

**Index number:** 027-005-00-0

## 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 Also 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

#### HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH	1
FIRE	1
REACTIVITY	1

Health (acute effects) = 1

Flammability = 1

Reactivity = 1

### GHS label elements



**Danger**

3.1/3 - Toxic if swallowed.

3.4/1 - May cause an allergic skin reaction.



**Danger**

3.4/1 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.

3.6/1B - May cause cancer.



**Warning**

4.1/1 - Very toxic to aquatic life with long lasting effects.

### Prevention:

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

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Do not eat, drink or smoke when using this product.  
 Contaminated work clothing should not be allowed out of the workplace.  
 Avoid release to the environment.  
 Wear protective gloves/protective clothing/eye protection/face protection.  
 Use personal protective equipment as required.  
 In case of inadequate ventilation wear respiratory protection.

**Response:**

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
 IF ON SKIN: Wash with plenty of soap and water.  
 IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.  
 IF exposed or concerned: Get medical advice/attention.  
 Specific treatment (see label).  
 Rinse mouth.  
 If skin irritation or rash occurs: Get medical advice/attention.  
 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.  
 Wash contaminated clothing before reuse.  
 Collect spillage.

**Storage:**

Store locked up.

**Disposal:**

Dispose of contents/container in accordance with local/regional/national/international regulations.

### 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.

**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.  
**Information about protection against explosions and fires:** No special measures required.

**Storage****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:** Not required.

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**Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

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

<b>Form:</b>	Powder
<b>Color:</b>	Blue
<b>Odor:</b>	Odorless

**Change in condition**

<b>Melting point/Melting range:</b>	735°C (1355°F) ((dec) (CAS# 10124-4)
<b>Boiling point/Boiling range:</b>	Not determined
<b>Sublimation temperature / start:</b>	Not determined

**Flash point:** Not applicable**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Danger of explosion:** Product does not present an explosion hazard.**Explosion limits:**

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

**Vapor pressure:** Not determined**Density at 20°C (68°F):** 3.71 g/cm<sup>3</sup>

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**Solubility in / Miscibility with**  
**Water at 20°C (68°F):** 362 g/l

### 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:**
**Dangerous reactions** No dangerous reactions known

**Dangerous products of decomposition:**

Sulfur oxides (SOx)

Toxic metal oxide fume

### 11 Toxicological information

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

Oral	LD50	425 mg/kg (rat)
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**Primary irritant effect:**
**on the skin:** Irritant to skin and mucous membranes.

**on the eye:** Irritating effect.

**Sensitization:**

Sensitization possible through inhalation.

Sensitization possible through skin contact.

**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.

**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.

NTP-2: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.

### 12 Ecological information:

**Ecotoxical effects:**
**Remark:** Very toxic for fish

**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.

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**Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 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 Also 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.

20 When using do not eat or drink.

22 Do not breathe dust.

24 Avoid contact with skin.

37 Wear suitable gloves.

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

57 Use appropriate container to avoid environmental contamination.

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.

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

**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:** Zachariah Holt

**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

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GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
HMIS: Hazardous Materials Identification System (USA)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent

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