

## 1 Identification

### Product identifier

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

**Stock number:** 13114

**CAS Number:**  
1317-42-6

**EC number:**  
215-273-3

**Index number:**  
027-003-00-X

**Relevant identified uses of the substance or mixture and uses advised against.**

**Identified use:** SU24 Scientific research and development

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

#### Manufacturer/Supplier:

Alfa Aesar  
Thermo Fisher Scientific Chemicals, Inc.  
30 Bond Street  
Ward Hill, MA 01835-8099  
Tel: 800-343-0660  
Fax: 800-322-4757  
Email: tech@alfa.com  
www.alfa.com

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

#### Emergency telephone number:

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

## 2 Hazard(s) identification

**Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)**



GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

**Hazards not otherwise classified** No information known.

### Label elements

**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

### Hazard pictograms



GHS07

### Signal word

Warning

### Hazard statements

H317 May cause an allergic skin reaction.

### Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P363 Wash contaminated clothing before reuse.  
P321 Specific treatment (see on this label).  
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

### WHMIS classification

D2A - Very toxic material causing other toxic effects



### Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH	1	Health (acute effects) = 1
FIRE	0	Flammability = 0
REACTIVITY	0	Physical Hazard = 0

### Other hazards

### Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

## 3 Composition/information on ingredients

**Chemical characterization:** Substances

### CAS# Description:

1317-42-6 Cobalt(II) sulfide

**Identification number(s):**

**EC number:** 215-273-3

**Index number:** 027-003-00-X

## 4 First-aid measures

### Description of first aid measures

#### After inhalation

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.

Product name: Cobalt(II) sulfide

After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor.  
After swallowing Seek medical treatment.  
Information for doctor  
Most important symptoms and effects, both acute and delayed No further relevant information available.  
Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

Extinguishing media  
Suitable extinguishing agents Product is not flammable. Use fire-fighting measures that suit the surrounding fire.  
Special hazards arising from the substance or mixture  
If this product is involved in a fire, the following can be released:  
Sulfur oxides (SOx)  
Hydrogen sulfide  
Advice for firefighters  
Protective equipment:  
Wear self-contained respirator.  
Wear fully protective impervious suit.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
Environmental precautions: Do not allow material to be released to the environment without proper governmental permits.  
Methods and material for containment and cleaning up: Pick up mechanically.  
Prevention of secondary hazards: No special measures required.  
Reference to other sections  
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  
Precautions 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: The product is not flammable  
Conditions for safe storage, including any incompatibilities  
Storage  
Requirements to be met by storerooms and receptacles: No special requirements.  
Information about storage in one common storage facility: Store away from oxidizing agents.  
Further information about storage conditions:  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
Specific end use(s) No further relevant information available.

8 Exposure controls/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.  
Control parameters  
Components with limit values that require monitoring at the workplace:

Cobalt, elemental & inorganic compounds, as Co

mg/m3

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)

1317-42-6 Cobalt(II) sulfide (100.0%)



PEL (USA)	Long-term value: 0.1* mg/m³ as Co; *for metal dust and fume
REL (USA)	Long-term value: 0.05 mg/m³ as Co; metal dust & fume
TLV (USA)	Long-term value: 0.02 mg/m³ as Co, BEI

Product name: <b>Cobalt(II) sulfide</b>	
(Contd. of page 2)	
<b>Ingredients with biological limit values:</b>	
<b>1317-42-6 Cobalt(II) sulfide (100.0%)</b>	
BEI (USA)	15 µg/L Medium: urine Time: end of shift at end of workweek Parameter: Cobalt (background)
	1 µg/L Medium: urine Time: end of shift at end of workweek Parameter: Cobalt (background, semi-quantitative)
<b>Additional information:</b> No data	
<b>Exposure controls</b>	
<b>Personal protective equipment</b>	
<b>General protective and hygienic measures</b>	
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.	
Maintain an ergonomically appropriate working environment.	
<b>Breathing equipment:</b> Use suitable respirator when high concentrations are present.	
<b>Protection of hands:</b>	
Impervious gloves	
Check protective gloves prior to each use for their proper condition.	
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.	
<b>Eye protection:</b> Safety glasses	
<b>Body protection:</b> Protective work clothing.	
<b>9 Physical and chemical properties</b>	
<b>Information on basic physical and chemical properties</b>	
<b>General Information</b>	
<b>Appearance:</b>	
Form:	Powder
Color:	Red
Odor:	Odorless
Odor threshold:	Not determined.
pH-value:	Not applicable.
<b>Change in condition</b>	
Melting point/Melting range:	>1116 °C (>2041 °F)
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined
Flash point:	Not applicable
Flammability (solid, gaseous)	Not determined.
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Auto igniting:	Not determined.
<b>Danger of explosion:</b>	
Explosion limits:	Product does not present an explosion hazard.
Lower:	Not determined
Upper:	Not determined
Vapor pressure:	Not applicable.
Density at 20 °C (68 °F):	5.45 g/cm³ (45.48 lbs/gal)
Relative density	Not determined.
Vapor density	Not applicable.
Evaporation rate	Not applicable.
<b>Solubility in / Miscibility with</b>	
Water:	Insoluble
Partition coefficient (n-octanol/water):	Not determined.
<b>Viscosity:</b>	
dynamic:	Not applicable.
kinematic:	Not applicable.
Other information	No further relevant information available.
<b>10 Stability and reactivity</b>	
<b>Reactivity</b> No information known.	
<b>Chemical stability</b> Stable under recommended storage conditions.	
<b>Thermal decomposition / conditions to be avoided:</b> Decomposition will not occur if used and stored according to specifications.	
<b>Possibility of hazardous reactions</b> No dangerous reactions known	
<b>Conditions to avoid</b> No further relevant information available.	
<b>Incompatible materials:</b> Oxidizing agents	
<b>Hazardous decomposition products:</b>	
Sulfur oxides (SOx)	
Hydrogen sulfide	
<b>11 Toxicological information</b>	
<b>Information on toxicological effects</b>	
<b>Acute toxicity:</b> No effects known.	
<b>LD/LC50 values that are relevant for classification:</b> No data	
<b>Skin irritation or corrosion:</b> Irritant to skin and mucous membranes.	
<b>Eye irritation or corrosion:</b> Irritating effect.	
<b>Sensitization:</b> May cause an allergic skin reaction.	
<b>Germ cell mutagenicity:</b> No effects known.	
<b>Carcinogenicity:</b>	
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.	
(Contd. on page 4)	
USA	


Product name: <b>Cobalt(II) sulfide</b>	
<div>Reproductive toxicity: No effects known. Specific target organ system toxicity - repeated exposure: No effects known. Specific target organ system toxicity - single exposure: No effects known. Aspiration hazard: No effects known. Other information (about experimental toxicology): Tumorigenic effects have been observed on tests with laboratory animals. 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. 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 ducts 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: Nutritional and Gross Metabolic - weight loss or decreased weight gain. Tumorigenic - equivocal tumorigenic agent by RTECS criteria. Tumorigenic - tumors at site of application. Musculoskeletal - tumors. Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.</div>	

12 Ecological information	
Toxicity Aquatic toxicity: No further relevant information available. Persistence and degradability No further relevant information available. Bioaccumulative potential No further relevant information available. Mobility in soil No further relevant information available. Ecotoxical effects: Remark: Very toxic for aquatic organisms Additional ecological information: General notes: Do not allow product to reach ground water, water course or sewage system. Do not allow material to be released to the environment without proper governmental permits. Danger to drinking water if even small quantities leak into the ground. Also poisonous for fish and plankton in water bodies. May cause long lasting harmful effects to aquatic life. Avoid transfer into the environment. Very toxic for aquatic organisms Results of PBT and vPvB assessment PBT: Not applicable. vPvB: Not applicable. Other adverse effects No further relevant information available.	

13 Disposal considerations	
Waste treatment methods 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	
UN-Number DOT, IMDG, IATA	UN3077
UN proper shipping name DOT IMDG, IATA	Environmentally hazardous substances, solid, n.o.s. (Cobalt(II) sulfide) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cobalt(II) sulfide)
Transport hazard class(es) DOT, IMDG 	9 Miscellaneous dangerous substances and articles. 9 9 (M7) Miscellaneous dangerous substances and articles 9
Class Label Class Label IATA 	9 Miscellaneous dangerous substances and articles. 9
Packing group DOT, IMDG, IATA	III
Environmental hazards: Special marking (ADR): Special marking (IATA):	Symbol (fish and tree) Symbol (fish and tree)
Special precautions for user	Warning: Miscellaneous dangerous substances and articles
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.

<b>Product name: Cobalt(II) sulfide</b>	
(Contd. of page 4)	
<b>Transport/Additional information:</b>	
<b>DOT</b>	No
<b>Marine Pollutant (DOT):</b>	
<b>UN "Model Regulation":</b>	UN3077, Environmentally hazardous substances, solid, n.o.s. (Cobalt(II) sulfide), 9, III

<b>15 Regulatory information</b>	
<b>Safety, health and environmental regulations/legislation specific for the substance or mixture</b>	
<b>GHS label elements</b> The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)	
<b>Hazard pictograms</b>	
	
GHS07	
<b>Signal word</b> Warning	
<b>Hazard statements</b>	
H317 May cause an allergic skin reaction.	
<b>Precautionary statements</b>	
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.	
P280 Wear protective gloves/protective clothing/eye protection/face protection.	
P363 Wash contaminated clothing before reuse.	
P321 Specific treatment (see on this label).	
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.	
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.	
<b>National regulations</b>	
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).	
<b>SARA Section 313 (specific toxic chemical listings)</b>	
1317-42-6   Cobalt(II) sulfide	
<b>California Proposition 65</b>	
<b>Prop 65 - Chemicals known to cause cancer</b> Substance is not listed.	
<b>Prop 65 - Developmental toxicity</b> Substance is not listed.	
<b>Prop 65 - Developmental toxicity, female</b> Substance is not listed.	
<b>Prop 65 - Developmental toxicity, male</b> Substance is not listed.	
<b>Information about limitation of use:</b>	
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.	
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.	
<b>Other regulations, limitations and prohibitive regulations</b>	
<b>Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.</b> Substance is not listed.	
<b>The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.</b>	
Substance is not listed.	
<b>Annex XIV of the REACH Regulations (requiring Authorisation for use)</b> Substance is not listed.	
<b>Chemical safety assessment:</b> A Chemical Safety Assessment has not been carried out.	

<b>16 Other information</b>	
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.	
<b>Department issuing SDS:</b> Global Marketing Department	
<b>Date of preparation / last revision</b> 11/23/2015 / -	
<b>Abbreviations and acronyms:</b>	
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)	
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)	
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)	
IMDG: International Maritime Code for Dangerous Goods	
DOT: US Department of Transportation	
IATA: International Air Transport Association	
EINECS: European Inventory of Existing Commercial Chemical Substances	
CAS: Chemical Abstracts Service (division of the American Chemical Society)	
HMIS: Hazardous Materials Identification System (USA)	
WHMIS: Workplace Hazardous Materials Information System (Canada)	
LC50: Lethal concentration, 50 percent	
LD50: Lethal dose, 50 percent	
vPvB: very Persistent and very Bioaccumulative	
ACGIH: American Conference of Governmental Industrial Hygienists (USA)	
OSHA: Occupational Safety and Health Administration (USA)	
NTP: National Toxicology Program (USA)	
IARC: International Agency for Research on Cancer	
EPA: Environmental Protection Agency (USA)	
USA	