

1 Identification of the substance/mixture and of the company/undertaking

Product identifier

Trade name **Cobalt(II) oxide**

Stock number: 23141

CAS Number:

1307-96-6

EC number:

215-154-6

Index number:

027-002-00-4

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

Informing department: Product safety 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 (800) 579-7421.

2 Hazards identification

Classification of the substance or mixture



Acute Toxicity (Oral) - Category 4 H302 Harmful if swallowed.

Skin Sensitizer - Category 1 H317 May cause an allergic skin reaction.

Other hazards that do not result in classification No information known.

Label elements

GHS label elements The substance is classified and labelled according to the Globally Harmonised System (GHS).

Hazard pictograms



GHS07

Signal word Warning

Hazard statements

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves.

P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

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.

3 Composition/information on ingredients

Chemical characterisation: Substances

CAS# Designation:

1307-96-6 Cobalt(II) oxide

Concentration: ≤100%

Identification number(s):

EC number: 215-154-6

Index number: 027-002-00-4

4 First aid measures

Description of first aid measures

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

Seek immediate medical advice.

After skin contact

Instantly 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 doctor.

After swallowing Seek medical treatment.

Information for doctor

Most important symptoms and effects, both acute and delayed

Harmful if swallowed.

May cause an allergic skin reaction.

Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Firefighting 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:

Trade name Cobalt(II) oxide

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Advice for firefighters

Protective equipment:

Wear self-contained breathing apparatus.

Wear full protective 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 product to reach sewage system or water bodies.

Methods and material for containment and cleaning up: Dispose of contaminated material as waste according to section 13.

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 information on disposal.

7 Handling and storage

Handling

Precautions for safe handling

Handle under dry protective gas.

Keep containers tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation/exhaustion 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 containers: No special requirements.

Information about storage in one common storage facility:

Store away from air.

Store away from oxidising agents.

Further information about storage conditions:

Store under dry inert gas.

This product is air sensitive.

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 critical values that require monitoring at the workplace:

1307-96-6 Cobalt(II) oxide (100,0%)

EL (Canada) Long-term value: 0,02 mg/m³
as Co; IARC 2B

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

Ingredients with biological limit values:

1307-96-6 Cobalt(II) oxide (100,0%)

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)

Additional information: No data

Exposure controls

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures should be adhered to in handling the chemicals.

Keep away from foodstuffs, beverages and food.

Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

Maintain an ergonomically appropriate working environment.

Breathing equipment: Use breathing protection with high concentrations.

Recommended filter device for short term use:

Use a respirator with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.

Protection of hands:

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

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Material of gloves Impervious gloves

Eye protection:

Face protection

Safety glasses with side shields / NIOSH (US) or EN 166(EU)

Body protection: Protective work clothing.

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9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form: Powder
Odour: Not determined
Odour threshold: Not determined.

pH-value: Not applicable.

Change in condition

Melting point/freezing point: 1935 °C
Initial boiling point and boiling range: Not determined
Sublimation temperature / start: Not determined
Inflammability (solid, gaseous): Not determined.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Self-inflammability: Not determined.

Explosive properties: Not determined.

Critical values for explosion:

Lower: Not determined
Upper: Not determined
Steam pressure: Not applicable.
Density at 20 °C: 6,45 g/cm³
Relative density: Not determined.
Vapour density: Not applicable.
Evaporation rate: Not applicable.

Solubility in / Miscibility with

Water: Insoluble
Partition coefficient: n-octanol/water: Not determined.
Viscosity:
dynamic: Not applicable.
kinematic: Not applicable.
Other information: No further relevant information available.

10 Stability and reactivity

Reactivity No information known.

Chemical stability Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications.

Possibility of hazardous reactions Reacts with strong oxidising agents

Conditions to avoid No further relevant information available.

Incompatible materials:

Air
Oxidising agents

11 Toxicological information

Information on toxicological effects

Acute toxicity

Harmful if swallowed.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

LD/LC50 values that are relevant for classification:

Oral LD50 202 mg/kg (rat)

Skin irritation or corrosion: May cause irritation

Eye irritation or corrosion: May cause irritation

Respiratory or skin sensitisation May cause an allergic skin reaction.

Germ cell mutagenicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.

Carcinogenicity:

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.

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

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.

Subacute to chronic toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.

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

12 Ecological information

Toxicity

Aquatic toxicity: No further relevant information available.

Persistence and degradability No further relevant information available.

Behaviour in environmental systems:

Bioaccumulative potential No further relevant information available.

Mobility in soil No further relevant information available.

Ecotoxicological effects:

Remark: Very toxic for fish

Additional ecological information:

General notes:

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

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

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

(Contd. on page 4)

CA

Trade name **Cobalt(II) oxide**

(Contd. of page 3)

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

Hand over to disposers of hazardous waste.

Must be specially treated under adherence to official regulations.

Consult state, local or national regulations for proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

14 Transport information

UN-Number

TDG, IMDG, IATA

UN2811

UN proper shipping name

DOT

TDG

IMDG, IATA

Toxic solids, organic, n.o.s. (Cobalt(II) oxide)

2811 TOXIC SOLID, ORGANIC, N.O.S. (Cobalt(II) oxide)

TOXIC SOLID, ORGANIC, N.O.S. (Cobalt(II) oxide)

Transport hazard class(es)

Class

6.1 Toxic substances.

TDG (Transport dangerous goods):



Class

Label

IMDG, IATA

6.1 (T2) Toxic substances.

6.1



Class

Label

6.1 Toxic substances.

6.1

Packing group

TDG, IMDG, IATA

III

Environmental hazards:

Environmentally hazardous substance, solid

Special precautions for user

EMS Number:

Stowage Category

Warning: Toxic substances.

F-A, S-A

A

Transport in bulk according to Annex II of Marpol and the IBC Code Not applicable.

Transport/Additional information:

Limited quantities (LQ)

Excepted quantities (EQ)

5 kg

Code: E1

Maximum net quantity per inner packaging: 30 g

Maximum net quantity per outer packaging: 1000 g

Transport category

Tunnel restriction code

2

E

IMDG

Limited quantities (LQ)

Excepted quantities (EQ)

5 kg

Code: E1

Maximum net quantity per inner packaging: 30 g

Maximum net quantity per outer packaging: 1000 g

UN "Model Regulation":

UN 2811 TOXIC SOLID, ORGANIC, N.O.S. (COBALT(II) OXIDE), 6.1, III

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Australian Inventory of Chemical Substances Substance is listed.

Standard for the Uniform Scheduling of Medicines and Poisons Substance is not listed.

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Hazard pictograms



GHS07

Signal word Warning

Hazard statements

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P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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.

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Trade name **Cobalt(II) oxide**

Technical instructions (air):

(Contd. of page 4)

Class	Share in %
II	100,0

Water hazard class: Water danger class 3 (Self-assessment): extremely hazardous for water.
Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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 Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Global Marketing Department

Abbreviations and acronyms:

- 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)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety
- OSHA: Occupational Safety and Health Administration (USA)
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit