

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### 1.1 Product identifiers

Product name : **Cobalt Oxide**  
 Product code :

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

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

Company : Arlimin Industries, LLC  
 P.O. Box 271497  
 Fort Collins, CO 80527

Telephone : 832-280-9980

#### 1.4 Emergency telephone number

CHEMTREC (24h emergency): 1-800-424-9300

### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

##### Classification in accordance with REGULATION (EC) No 1272/2008

Respiratory sensitisation (Category 1B), H334

Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

#### 2.2 Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H334

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H412

Harmful to aquatic life with long-lasting effects.

Precautionary statement(s)

P201

Obtain special instructions before use.

P202

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

P261

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

P272

Contaminated work clothing should not be allowed out of the workplace.

P273

Avoid release to the environment.

P284

Wear respiratory protection.

P302 + P352

IF ON SKIN: Wash with plenty of soap and water.

P308 + P313

IF exposed or concerned: Get medical advice/ attention.

P333 + P313

If skin irritation or rash occurs: Get medical advice/ attention.

P363

Wash contaminated clothing before reuse.

P501

Dispose of contents/ container to an approved waste disposal plant.

#### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1 Substances

Formula :  $\text{Co}_3\text{O}_4$   
 Molecular Weight : 240.80 g/mol  
 CAS-No. : 1308-06-1



Component	Classification	Concentration
<b>Tricobalt tetraoxide</b>	Resp. Sens. 1B; Aquatic Chronic 3; H334, H412	< 100%

For the full text of the H-Statements mentioned in this Section, see Section 16.

#### 4. FIRST AID MEASURES

##### 4.1 Description of first aid measures

###### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

###### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

###### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

###### In case of eye contact

Flush eyes with water as a precaution.

###### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

##### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

##### 4.3 Indication of any immediate medical attention and special treatment needed

no data available

#### 5. FIREFIGHTING MEASURES

##### 5.1 Extinguishing media

###### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

##### 5.2 Special hazards arising from the substance or mixture

Cobalt/cobalt oxides

##### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

##### 5.4 Further information

no data available

#### 6. ACCIDENTAL RELEASE MEASURES

##### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

##### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

##### 6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

##### 6.4 Reference to other sections

For disposal see section 13.

**7. HANDLING AND STORAGE****7.1 Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

**7.2 Conditions for safe storage, including any incompatibilities**

Keep container tightly closed in a dry and well-ventilated place. Hygroscopic Keep in a dry place.

**7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****8.1 Control parameters****Components with workplace control parameters**

Component	CAS-No.	Value	Control parameters	Basis
Tricobalt tetraoxide	1308-06-1	TWA	0.02 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Pulmonary function Asthma Myocardial effects Substances for which there is a Biological Exposure Index or Indices (see BEI® section)		

**8.2 Exposure controls****Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Personal protective equipment****Eye/face protection**

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Body Protection**

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.



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**9. PHYSICAL AND CHEMICAL PROPERTIES****9.1 Information on basic physical and chemical properties**

a) Appearance	Black powder
b) Odor	Odorless
c) Odor Threshold	not applicable
d) pH	3-8
e) Melting point/freezing point	1935°C @760mm Hg
f) Initial boiling point and boiling range	no data available
g) Flash point	no data available
h) Evaporation rate	not applicable
i) Flammability (solid, gas)	non flammable
j) Upper/lower flammability or explosive limits	no data available
k) Vapor pressure	not applicable
l) Vapor density	no data available
m) Relative density	6.11 g/mL at 25 °C (77 °F)
n) Water solubility	insoluble
o) Partition coefficient: n-octanol/water	no data available
p) Auto-ignition temperature	no data available
q) Decomposition temperature	> 900 °C (> 1,652 °F)
r) Viscosity	Not applicable
s) Explosive properties	no data available
t) Oxidizing properties	no data available

**9.2 Other safety information**

Bulk density 0.78 g/l

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**10. STABILITY AND REACTIVITY****10.1 Reactivity**

no data available

**10.2 Chemical stability**

Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions**

no data available

**10.4 Conditions to avoid**

Avoid moisture.

**10.5 Incompatible materials**

Reducing agents

**10.6 Hazardous decomposition products**

Other decomposition products - no data available

In the event of fire: see section 5

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**11. TOXICOLOGICAL INFORMATION****11.1 Information on the likely routes of exposure**

By respiratory organ: May cause respiratory tract irritation.  
By mouth: May cause gastrointestinal irritation with nausea, vomiting and diarrhea.  
By skin and eye contact: No information available

**11.2 Health hazard information**

Acute toxicity Oral: LD50>5000 mg/kg (Rat)  
Inhalation: LC50>4.83 mg/L/4h (Rat)  
Dermal: LD50>2000mg/kg (Rat)  
Skin corrosion/irritation: Not irritating.  
Serious eye damage/irritation: Not irritating.  
Respiratory sensitization: Not sensitizing  
Skin sensitization: Not sensitizing.  
Carcinogenicity: No information available.  
Germ Cell Mutagenicity: No information available.  
Reproductive Toxicity: No information available.  
Specific target organ toxicity: No information available.  
(single exposure)  
Specific target organ toxicity: No information available.  
(repeated exposure)  
Aspiration Hazard: No information available.

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**12. ECOLOGICAL INFORMATION****12.1 Toxicity**

Toxicity to fish LC50 - Danio rerio (zebra fish) - > 136 mg/l - 96 h  
Toxicity to daphnia and EC50 - Daphnia magna (Water flea) - > 136 mg/l - 48 h  
other aquatic invertebrates  
Toxicity to algae EC50 - Pseudokirchneriella subcapitata (green algae) - 88 mg/l - 72 h

**12.2 Persistence and degradability** no data available**12.3 Bioaccumulative potential** no data available**12.4 Mobility in soil** no data available**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Harmful to aquatic life.

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**13. DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

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**14. TRANSPORT INFORMATION****DOT (US)**

Not dangerous goods

**IMDG**

Not dangerous goods

**IATA**

Not dangerous goods

**15. REGULATORY INFORMATION**

TSCA. Chemical listed and approved on the TSCA Inventory.

**SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

Tricobalt tetraoxide CAS-No. 1308-06-1 Revision Date 2007-07-01

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

Tricobalt tetraoxide CAS-No. 1308-06-1 Revision Date 2007-07-01

**Pennsylvania Right To Know Components**

Tricobalt tetraoxide CAS-No. 1308-06-1 Revision Date 2007-07-01

**New Jersey Right To Know Components**

Tricobalt tetraoxide CAS-No. 1308-06-1 Revision Date 2007-07-01

**California Prop. 65 Components**

WARNING! This product contains a chemical known to the State of California to cause cancer. Tricobalt tetraoxide CAS-No. 1308-06-1 Revision Date 2007-07-01

**16. OTHER INFORMATION****Full text of H-Statements referred to under sect 2 and 3.**Aquatic Chronic Chronic aquatic toxicity  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled  
H412 Harmful to aquatic life with long lasting effects.

STOT RE Specific target organ toxicity - repeated exposure

**HMIS Rating**Health hazard: 2  
Chronic Health Hazard: \*  
Flammability: 0  
Physical Hazard 0**NFPA Rating**Health hazard: 2  
Fire Hazard: 0  
Reactivity Hazard: 0**Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Arlimin Industries, LLC shall not be held liable for any damage resulting from handling or from contact with the above product.

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