

## 1 Identification

### Product identifier

**Product name:** Zinc cyanide

**Stock number:** 14158

**CAS Number:**

557-21-1

**EC number:**

209-162-9

**Index number:**

006-007-00-5

**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)



GHS06 Skull and crossbones

Acute Tox. 2 H300 Fatal if swallowed.

Acute Tox. 1 H310 Fatal in contact with skin.

Acute Tox. 2 H330 Fatal if inhaled.

**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



GHS06

### Signal word

Danger

### Hazard statements

H300+H310+H330 Fatal if swallowed, in contact with skin or if inhaled.

### Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...

P320 Specific treatment is urgent (see on this label).

P361 Take off immediately all contaminated clothing.

P405 Store locked up.

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

### WHMIS classification

D1A - Very toxic material causing immediate and serious toxic effects



### Classification system

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

(Hazardous Materials Identification System)

HEALTH 3 Health (acute effects) = 3

FIRE 0 Flammability = 0

REACTIVITY 1 Physical Hazard = 1

### Other hazards

### Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

## 3 Composition/information on ingredients

### Chemical characterization: Substances

#### CAS# Description:

557-21-1 Zinc cyanide

#### Identification number(s):

EC number: 209-162-9

Index number: 006-007-00-5

## 4 First-aid measures

### Description of first aid measures

#### General information

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

Product name: Zinc cyanide	
<div>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. After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor. After swallowing Do not induce vomiting; immediately call for medical help. 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.</div> <div>(Contd. of page 1)</div>	
<div>5 Fire-fighting measures</div> <div>Extinguishing media Suitable extinguishing agents In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water. For safety reasons unsuitable extinguishing agents Water Special hazards arising from the substance or mixture If this product is involved in a fire, the following can be released: Carbon monoxide and carbon dioxide Hydrogen cyanide (HCN) Nitrogen oxides (NOx) Zinc oxide Advice for firefighters Protective equipment: Wear self-contained respirator. Wear fully protective impervious suit.</div>	
<div>6 Accidental release measures</div> <div>Personal precautions, protective equipment and emergency procedures Mount respiratory protective device. 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: Dispose of contaminated material as waste according to section 13. Ensure adequate ventilation. 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.</div>	
<div>7 Handling and storage</div> <div>Handling Precautions for safe handling Handle under dry protective gas. 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. 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 water/moisture. Do not store together with acids. Store away from oxidizing agents. Further information about storage conditions: Store under dry inert gas. This product is hygroscopic. Keep container tightly sealed. Store in cool, dry conditions in well sealed containers. Protect from humidity and water. Specific end use(s) No further relevant information available.</div>	
<div>8 Exposure controls/personal protection</div> <div>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</div>	
Components with limit values that require monitoring at the workplace:	
557-21-1 Zinc cyanide (100.0%)	
PEL (USA)	Long-term value: 5 mg/m³ as CN; Skin
REL (USA)	Ceiling limit value: 5* mg/m³, 4.7* ppm as CN; *10-min
TLV (USA)	Ceiling limit value: 5 mg/m³, 4.7 ppm as CN; Skin
Additional information: No data	
<div>Exposure controls</div> <div>Personal protective equipment</div> <div>General protective and hygienic measures</div> <div>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. Avoid contact with the eyes and skin.</div>	
<div>(Contd. on page 3)</div> <div>USA</div>	

**Product name: Zinc cyanide**

(Contd. of page 2)

Maintain an ergonomically appropriate working environment.  
**Breathing equipment:** Use self-contained respiratory protective device in emergency situations.  
**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:**  
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.  
**Material of gloves** Nitrile rubber, NBR  
**Penetration time of glove material (in minutes)** 480  
**Glove thickness** 0.11 mm  
**Eye protection:** Safety glasses  
**Body protection:** Protective work clothing.

**9 Physical and chemical properties**

**Information on basic physical and chemical properties**

**General Information**

**Appearance:**

**Form:** Crystalline  
**Color:** White  
**Odor:** Not determined  
**Odor threshold:** Not determined.

**pH-value:** Not applicable.

**Change in condition**

**Melting point/Melting range:** 800 °C (1472 °F) (dec)  
**Boiling point/Boiling range:** Not determined  
**Sublimation temperature / start:** Not determined  
**Flammability (solid, gaseous)** Not determined.  
**Ignition temperature:** Not determined  
**Decomposition temperature:** Not determined  
**Auto igniting:** Not determined.

**Danger of explosion:** Not determined.

**Explosion limits:**

**Lower:** Not determined  
**Upper:** Not determined  
**Vapor pressure:** Not applicable.  
**Density at 20 °C (68 °F):** 1.852 g/cm<sup>3</sup> (15.455 lbs/gal)  
**Relative density** Not determined.  
**Vapor 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** Contact with acids liberates very toxic gas.

**Chemical stability** Stable under recommended storage conditions.

**Thermal decomposition / conditions to be avoided:** Decomposition will not occur if used and stored according to specifications.

**Possibility of hazardous reactions**

Reacts with strong oxidizing agents  
Contact with acids liberates very toxic gas.  
**Conditions to avoid** No further relevant information available.

**Incompatible materials:**

Water/moisture  
Oxidizing agents  
Acids

**Hazardous decomposition products:**

Carbon monoxide and carbon dioxide  
Hydrogen cyanide  
Nitrogen oxides  
Zinc oxide

**11 Toxicological information**

**Information on toxicological effects**

**Acute toxicity:**

Fatal if inhaled.  
Fatal in contact with skin.  
Fatal if swallowed.  
Danger through skin absorption.  
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 | 54 mg/kg (rat)

**Skin irritation or corrosion:** May cause irritation

**Eye irritation or corrosion:** May cause irritation

**Sensitization:** No sensitizing effects known.

**Germ cell mutagenicity:** No effects known.

**Carcinogenicity:**

EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.

EPA-I: Data are inadequate for an assessment of human carcinogenic potential.

EPA-II: Inadequate information to assess carcinogenic potential.

**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.

(Contd. on page 4)  
USA

Product name: **Zinc cyanide**

**Aspiration hazard:** No effects known.  
**Subacute to chronic toxicity:** No effects known.  
**Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

(Contd. of page 3)




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.  
**Ecotoxicological effects:**  
**Remark:** Very toxic for aquatic organisms  
**Additional ecological information:**  
**General notes:**  
Do not allow material to be released to the environment without proper governmental permits.  
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.  
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

<b>UN-Number</b> <b>DOT, IMDG, IATA</b>	UN1713
<b>UN proper shipping name</b> <b>DOT</b> <b>IMDG</b> <b>IATA</b>	RQ Zinc cyanide ZINC CYANIDE, MARINE POLLUTANT ZINC CYANIDE
<b>Transport hazard class(es)</b> <b>DOT</b>  <b>Class</b> <b>Label</b> <b>Class</b> <b>Label</b> <b>IMDG</b>  <b>Class</b> <b>Label</b> <b>IATA</b>  <b>Class</b> <b>Label</b>	6.1 Toxic substances. 6.1 6.1 (T5) Toxic substances 6.1  6.1 Toxic substances. 6.1  6.1 Toxic substances. 6.1
<b>Packing group</b> <b>DOT, IMDG, IATA</b>	I
<b>Environmental hazards:</b> <b>Marine pollutant (IMDG):</b>	Environmentally hazardous substance, solid; Marine Pollutant Yes (P) Symbol (fish and tree)
<b>Special precautions for user</b> <b>EMS Number:</b> <b>Segregation groups</b>	Warning: Toxic substances F-A.S-A Cyanides, heavy metals and their salts (including their organometallic compounds)
<b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
<b>Transport/Additional information:</b> <b>DOT</b> <b>Hazardous substance:</b> <b>Marine Pollutant (DOT):</b> <b>Remarks:</b>	10 lbs, 4.54 kg Yes (P) Special marking with the symbol (fish and tree).
<b>UN "Model Regulation":</b>	UN1713, Zinc cyanide, 6.1, I

15 Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture**  
**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

(Contd. on page 5)  
USA

**Product name: Zinc cyanide**

**Hazard pictograms**



GHS06

**Signal word** *Danger*

**Hazard statements**

H300+H310+H330 *Fatal if swallowed, in contact with skin or if inhaled.*

**Precautionary statements**

P260 *Do not breathe dust/fume/gas/mist/vapours/spray.*

P301+P310 *IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...*

P320 *Specific treatment is urgent (see on this label).*

P361 *Take off immediately all contaminated clothing.*

P405 *Store locked up.*

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).

**SARA Section 313 (specific toxic chemical listings)**

557-21-1 *Zinc cyanide*

**California Proposition 65**

**Prop 65 - Chemicals known to cause cancer** *Substance is not listed.*

**Prop 65 - Developmental toxicity** *Substance is not listed.*

**Prop 65 - Developmental toxicity, female** *Substance is not listed.*

**Prop 65 - Developmental toxicity, male**

557-21-1 *Zinc cyanide*

**Information about limitation of use:**

*For use only by technically qualified individuals.*

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

**Other regulations, limitations and prohibitive regulations**

**Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.** *Substance is not listed.*

**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.**

*Substance is not listed.*

**Annex XIV of the REACH Regulations (requiring Authorisation for use)** *Substance is not listed.*

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

**Department issuing SDS:** *Global Marketing Department*

**Date of preparation / last revision** *11/23/2015 / -*

**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)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

P: Marine Pollutant

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)