

## SAFETY DATA SHEET

Version 6.3  
Revision Date 04/16/2021  
Print Date 02/05/2022

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Zinc cyanide

Product Number : 256498  
Brand : Aldrich  
Index-No. : 006-007-00-5  
CAS-No. : 557-21-1

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

Identified uses : Laboratory chemicals, Synthesis of substances

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

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

**1.4 Emergency telephone**

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-  
527-3887 CHEMTREC (International) 24  
Hours/day; 7 Days/week

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Acute toxicity, Oral (Category 2), H300  
Acute toxicity, Inhalation (Category 2), H330  
Acute toxicity, Dermal (Category 1), H310  
Short-term (acute) aquatic hazard (Category 1), H400  
Long-term (chronic) aquatic hazard (Category 1), H410

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

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

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|                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hazard statement(s)<br>H300 + H310 + H330<br>H410                                                                                                                                                           | Fatal if swallowed, in contact with skin or if inhaled.<br>Very toxic to aquatic life with long lasting effects.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Precautionary statement(s)<br>P260<br>P262<br>P264<br>P270<br>P271<br>P273<br>P280<br>P284<br>P301 + P310 + P330<br>P302 + P350 + P310<br>P304 + P340 + P310<br>P362<br>P391<br>P403 + P233<br>P405<br>P501 | Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.<br>Do not get in eyes, on skin, or on clothing.<br>Wash skin thoroughly after handling.<br>Do not eat, drink or smoke when using this product.<br>Use only outdoors or in a well-ventilated area.<br>Avoid release to the environment.<br>Wear protective gloves/ protective clothing.<br>Wear respiratory protection.<br>IF SWALLOWED: Immediately call a POISON CENTER/ doctor.<br>Rinse mouth.<br>IF ON SKIN: Gently wash with plenty of soap and water.<br>Immediately call a POISON CENTER or doctor/ physician.<br>IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.<br>Take off contaminated clothing and wash before reuse.<br>Collect spillage.<br>Store in a well-ventilated place. Keep container tightly closed.<br>Store locked up.<br>Dispose of contents/ container to an approved waste disposal plant. |

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

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

|                  |                                    |
|------------------|------------------------------------|
| Formula          | : C <sub>2</sub> N <sub>2</sub> Zn |
| Molecular weight | : 117.42 g/mol                     |
| CAS-No.          | : 557-21-1                         |
| EC-No.           | : 209-162-9                        |
| Index-No.        | : 006-007-00-5                     |

| Component           | Classification                                                                                                                                                | Concentration |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>Zinc cyanide</b> |                                                                                                                                                               |               |
|                     | Acute Tox. 2; Acute Tox. 1; Aquatic Acute 1; Aquatic Chronic 1; H300, H330, H310, H400, H410<br>M-Factor - Aquatic Acute: 10<br>M-Factor - Aquatic Chronic: 1 | <= 100 %      |

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

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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Remove contact lenses.

#### If swallowed

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

### 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

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

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

Carbon oxides  
Zinc/zinc oxides  
Not combustible.  
Ambient fire may liberate hazardous vapours.

### 5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### 5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6: Accidental release measures

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

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.  
For personal protection see section 8.

### 6.2 Environmental precautions

Do not let product enter drains.

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

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### 6.4 Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

#### Advice on safe handling

Work under hood. Do not inhale substance/mixture.

#### Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.  
For precautions see section 2.2.

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

#### Storage conditions

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.  
Storage class (TRGS 510): 6.1B: Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

### 7.3 Specific end use(s)

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

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

| Component    | CAS-No.  | Value                          | Control parameters  | Basis                                                                               |
|--------------|----------|--------------------------------|---------------------|-------------------------------------------------------------------------------------|
| Zinc cyanide | 557-21-1 | TWA                            | 5 mg/m <sup>3</sup> | USA. Occupational Exposure Limits (OSHA) - Table Z-1<br>Limits for Air Contaminants |
|              | Remarks  | Skin designation               |                     |                                                                                     |
|              |          | C                              | 5 mg/m <sup>3</sup> | USA. ACGIH Threshold Limit Values (TLV)                                             |
|              |          | Danger of cutaneous absorption |                     |                                                                                     |

|  |  |      |                                |                                                                                         |
|--|--|------|--------------------------------|-----------------------------------------------------------------------------------------|
|  |  | TWA  | 5 mg/m <sup>3</sup>            | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000                           |
|  |  | C    | 4.7 ppm<br>5 mg/m <sup>3</sup> | USA. NIOSH Recommended Exposure Limits                                                  |
|  |  | PEL  | 5 mg/m <sup>3</sup>            | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
|  |  | Skin |                                |                                                                                         |

## 8.2 Exposure controls

### Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

### Personal protective equipment

#### Eye/face protection

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

#### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

#### Body Protection

protective clothing

#### Respiratory protection

required when dusts are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

#### Control of environmental exposure

Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

|                                                 |                                                             |
|-------------------------------------------------|-------------------------------------------------------------|
| a) Appearance                                   | Form: powder<br>Color: beige                                |
| b) Odor                                         | No data available                                           |
| c) Odor Threshold                               | No data available                                           |
| d) pH                                           | No data available                                           |
| e) Melting point/freezing point                 | Melting point: 800 °C (1472 °F) - (ECHA), (Lit.)            |
| f) Initial boiling point and boiling range      | No data available                                           |
| g) Flash point                                  | ( )Not applicable                                           |
| h) Evaporation rate                             | No data available                                           |
| i) Flammability (solid, gas)                    | The product is not flammable.                               |
| j) Upper/lower flammability or explosive limits | No data available                                           |
| k) Vapor pressure                               | No data available                                           |
| l) Vapor density                                | No data available                                           |
| m) Relative density                             | No data available                                           |
| n) Water solubility                             | 0.0047 g/l at 20 °C (68 °F)                                 |
| o) Partition coefficient: n-octanol/water       | Not applicable for inorganic substances                     |
| p) Autoignition temperature                     | The substance or mixture is not classified as self heating. |
| q) Decomposition temperature                    | No data available                                           |
| r) Viscosity                                    | No data available                                           |
| s) Explosive properties                         | No data available                                           |
| t) Oxidizing properties                         | No data available                                           |

### 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Generates dangerous gases or fumes in contact with:

Acids

A risk of explosion and/or of toxic gas formation exists with the following substances:

Carbon dioxide (CO<sub>2</sub>)

Risk of explosion with:

magnesium

Risk of ignition or formation of inflammable gases or vapours with:

Fluorine

Violent reactions possible with:

Strong oxidizing agents

### 10.4 Conditions to avoid

no information available

### 10.5 Incompatible materials

No data available

### 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Acute toxicity estimate Oral - 5.1 mg/kg  
(Expert judgment)

Acute toxicity estimate Inhalation - 4 h - 0.051 mg/l  
(Expert judgment)

Acute toxicity estimate Dermal - 5.1 mg/kg  
(Expert judgment)  
No data available

#### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation  
(OECD Test Guideline 404)

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation  
(OECD Test Guideline 405)

#### Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: Not a skin sensitizer.

#### Germ cell mutagenicity

No data available

### **Carcinogenicity**

- IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
- NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
- OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

### **Reproductive toxicity**

No data available

### **Specific target organ toxicity - single exposure**

No data available

### **Specific target organ toxicity - repeated exposure**

No data available

### **Aspiration hazard**

No data available

## **11.2 Additional Information**

RTECS: ZH1575000

Nausea, Dizziness, Headache, Lung irritation, Cyanosis, Central nervous system depression  
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

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## **SECTION 12: Ecological information**

### **12.1 Toxicity**

|                                                     |                                                                                                                   |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Toxicity to fish                                    | static test NOEC - <i>Oryzias latipes</i> (Orange-red killifish) - 0.31 mg/l - 96 h<br>(OECD Test Guideline 203)  |
|                                                     | static test LC50 - <i>Oryzias latipes</i> (Orange-red killifish) - 1.038 mg/l - 96 h<br>(OECD Test Guideline 203) |
| Toxicity to daphnia and other aquatic invertebrates | static test EC50 - <i>Daphnia magna</i> (Water flea) - 3.35 mg/l - 48 h<br>(OECD Test Guideline 202)              |
|                                                     | static test NOEC - <i>Daphnia magna</i> (Water flea) - 1.66 mg/l - 48 h<br>(OECD Test Guideline 202)              |
| Toxicity to algae                                   | static test EC50 - <i>Pseudokirchneriella subcapitata</i> - 0.322 mg/l - 72 h<br>(OECD Test Guideline 201)        |

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static test NOEC - Pseudokirchneriella subcapitata - 0.09 mg/l - 72 h  
(OECD Test Guideline 201)

Toxicity to bacteria EC50 - activated sludge - 2.3 mg/l - 0.5 h  
(OECD Test Guideline 209)

## 12.2 Persistence and degradability

Biodegradability Result: - Not readily biodegradable.  
Remarks: The methods for determining the biological degradability  
are not applicable to inorganic substances.

## 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

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste material must be disposed of in accordance with the national and local regulations.  
Leave chemicals in original containers. No mixing with other waste. Handle uncleaned  
containers like the product itself. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the  
return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

### DOT (US)

UN number: 1713 Class: 6.1 Packing group: I  
Proper shipping name: Zinc cyanide  
Reportable Quantity (RQ): 10 lbs  
Poison Inhalation Hazard: No

### IMDG

UN number: 1713 Class: 6.1 Packing group: I EMS-No: F-A, S-A  
Proper shipping name: ZINC CYANIDE  
Marine pollutant : yes

### IATA

UN number: 1713 Class: 6.1 Packing group: I  
Proper shipping name: Zinc cyanide

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## SECTION 15: Regulatory information

**SARA 302 Components**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 313 Components**

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

|              | CAS-No.  | Revision Date |
|--------------|----------|---------------|
| Zinc cyanide | 557-21-1 | 1993-02-16    |

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

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**SECTION 16: Other information****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. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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