

## Material Safety Data Sheet

Version 4.5

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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Zinc chloride

Product Number : 229997

Brand : Aldrich

Supplier : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

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2. HAZARDS IDENTIFICATION

## Emergency Overview

## OSHA Hazards

Target Organ Effect, Toxic by ingestion, Corrosive

## Target Organs

Liver, KidneyLiver, Kidney

## GHS Classification

Acute toxicity, Oral (Category 4)

Skin corrosion (Category 1B)

Serious eye damage (Category 1)

Acute aquatic toxicity (Category 1)

Chronic aquatic toxicity (Category 1)

## GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H302

Harmful if swallowed.

H314

Causes severe skin burns and eye damage.

H410

Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P273

Avoid release to the environment.

P280

Wear protective gloves/ protective clothing/ eye protection/ face protection.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310

Immediately call a POISON CENTER or doctor/ physician.

P501

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

## HMIS Classification

Health hazard: 3  
Chronic Health Hazard: \*  
Flammability: 0  
Physical hazards: 0

**NFPA Rating**

Health hazard: 3  
Fire: 0  
Reactivity Hazard: 0

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.  
**Skin** May be harmful if absorbed through skin. Causes skin burns.  
**Eyes** Causes eye burns.  
**Ingestion** Toxic if swallowed.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Formula :  $\text{Cl}_2\text{Zn}$   
Molecular Weight : 136.30 g/mol

| Component            |              | Concentration |
|----------------------|--------------|---------------|
| <b>Zinc chloride</b> |              |               |
| CAS-No.              | 7646-85-7    | -             |
| EC-No.               | 231-592-0    |               |
| Index-No.            | 030-003-00-2 |               |

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**4. 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**

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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**5. FIREFIGHTING MEASURES**

**Conditions of flammability**

Not flammable or combustible.

**Suitable extinguishing media**

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

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas, Zinc/zinc oxides

**Further information**

The product itself does not burn.

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**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions**

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

**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.

**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.

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**7. HANDLING AND STORAGE****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.

**Conditions for safe storage**

Handle under nitrogen, protect from moisture. Store under nitrogen. Keep container tightly closed in a dry and well-ventilated place.

strongly hygroscopic

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

| Components    | CAS-No.                                                      | Value | Control parameters | Basis                                                                            |
|---------------|--------------------------------------------------------------|-------|--------------------|----------------------------------------------------------------------------------|
| Zinc chloride | 7646-85-7                                                    | TWA   | 1 mg/m3            | USA. ACGIH Threshold Limit Values (TLV)                                          |
| Remarks       | Upper Respiratory Tract & Lower Respiratory Tract irritation |       |                    |                                                                                  |
|               |                                                              | STEL  | 2 mg/m3            | USA. ACGIH Threshold Limit Values (TLV)                                          |
|               | Upper Respiratory Tract & Lower Respiratory Tract irritation |       |                    |                                                                                  |
|               |                                                              | TWA   | 1 mg/m3            | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
|               |                                                              | TWA   | 1 mg/m3            | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000                    |
|               |                                                              | STEL  | 2 mg/m3            | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000                    |
|               |                                                              | TWA   | 1 mg/m3            | USA. NIOSH Recommended Exposure Limits                                           |
|               |                                                              | ST    | 2 mg/m3            | USA. NIOSH Recommended Exposure Limits                                           |

**Personal protective equipment****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).

**Hand 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.

Immersion protection

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm  
Break through time: > 480 min  
Material tested: Dermatrill® (Aldrich Z677272, Size M)

Splash protection  
Material: Nitrile rubber  
Minimum layer thickness: 0.11 mm  
Break through time: > 30 min  
Material tested: Dermatrill® (Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### Eye 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 and 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.

### Hygiene measures

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

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

|        |                     |
|--------|---------------------|
| Form   | Crystals with lumps |
| Colour | white               |

### Safety data

|                                        |                                           |
|----------------------------------------|-------------------------------------------|
| pH                                     | 5 at 100 g/l at 20 °C (68 °F)             |
| Melting point/freezing point           | Melting point/range: 293 °C (559 °F)      |
| Boiling point                          | 732 °C (1,350 °F) at 1,013 hPa (760 mmHg) |
| Flash point                            | no data available                         |
| Ignition temperature                   | no data available                         |
| Autoignition temperature               | no data available                         |
| Lower explosion limit                  | no data available                         |
| Upper explosion limit                  | no data available                         |
| Vapour pressure                        | 1 hPa (1 mmHg) at 428 °C (802 °F)         |
| Density                                | 2.907 g/cm <sup>3</sup>                   |
| Water solubility                       | soluble                                   |
| Partition coefficient: n-octanol/water | no data available                         |
| Relative vapour density                | no data available                         |
| Odour                                  | no data available                         |
| Odour Threshold                        | no data available                         |

Evaporation rate      no data available

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## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

no data available

### Conditions to avoid

Exposure to moisture.

### Materials to avoid

Strong oxidizing agents

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Hydrogen chloride gas, Zinc/zinc oxides

Other decomposition products - no data available

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

#### Oral LD50

LD50 Oral - rat - 350 mg/kg

#### Inhalation LC50

no data available

#### Dermal LD50

no data available

#### Other information on acute toxicity

no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/eye irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

no data available

### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component 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 identified as a carcinogen or potential carcinogen by OSHA.

### Reproductive toxicity

no data available

### Teratogenicity

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

|                   |                                                                                                                                 |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhalation</b> | May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. |
| <b>Ingestion</b>  | Toxic if swallowed.                                                                                                             |
| <b>Skin</b>       | May be harmful if absorbed through skin. Causes skin burns.                                                                     |
| <b>Eyes</b>       | Causes eye burns.                                                                                                               |

**Signs and Symptoms of Exposure**

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**

no data available

**Additional Information**

RTECS: ZH1400000

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

|                                                     |                                                                             |
|-----------------------------------------------------|-----------------------------------------------------------------------------|
| Toxicity to fish                                    | LC50 - Cyprinus carpio (Carp) - 0.4 - 2.2 mg/l - 96.0 h                     |
| Toxicity to daphnia and other aquatic invertebrates | EC50 - Daphnia magna (Water flea) - 0.2 mg/l - 48 h                         |
| Toxicity to algae                                   | Growth inhibition LOEC - Pseudokirchneriella subcapitata - 12.5 mg/l - 96 h |

**Persistence and degradability**

no data available

**Bioaccumulative potential**

|                 |                                                                                      |
|-----------------|--------------------------------------------------------------------------------------|
| Bioaccumulation | Pimephales promelas (fathead minnow) - 63 d<br>Bioconcentration factor (BCF): 21,000 |
|-----------------|--------------------------------------------------------------------------------------|

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

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**13. DISPOSAL CONSIDERATIONS****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)**

UN number: 2331 Class: 8 Packing group: III  
Proper shipping name: Zinc chloride, anhydrous  
Reportable Quantity (RQ): 1000 lbs  
Marine pollutant: No  
Poison Inhalation Hazard: No

**IMDG**

UN number: 2331 Class: 8 Packing group: III EMS-No: F-A, S-B  
Proper shipping name: ZINC CHLORIDE, ANHYDROUS  
Marine pollutant: No

**IATA**

UN number: 2331 Class: 8 Packing group: III  
Proper shipping name: Zinc chloride, anhydrous

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**15. REGULATORY INFORMATION****OSHA Hazards**

Target Organ Effect, Toxic by ingestion, Corrosive

**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:

|               | CAS-No.   | Revision Date |
|---------------|-----------|---------------|
| Zinc chloride | 7646-85-7 | 2007-03-01    |

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

|               | CAS-No.   | Revision Date |
|---------------|-----------|---------------|
| Zinc chloride | 7646-85-7 | 2007-03-01    |

**Pennsylvania Right To Know Components**

|               | CAS-No.   | Revision Date |
|---------------|-----------|---------------|
| Zinc chloride | 7646-85-7 | 2007-03-01    |

**New Jersey Right To Know Components**

|               | CAS-No.   | Revision Date |
|---------------|-----------|---------------|
| Zinc chloride | 7646-85-7 | 2007-03-01    |

**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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**16. OTHER INFORMATION****Further information**

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