



## Safety Data Sheet

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### Section 1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Zinc chloride

SDS No. : 87722E-3

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

Research and Development

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Chemical Safety Management Department

Telephone number: +81-6-6946-8061

FAX: +81-6-6946-1607

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### Section 2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

HEALTH HAZARDS

Acute toxicity (Oral): Category 4

Skin corrosion/irritation: Category 1

Serious eye damage/eye irritation: Category 1

Specific target organ toxicity – single exposure: Category 1 (respiratory system)

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment, short-term (acute): Category 1

Hazardous to the aquatic environment, long-term (chronic): Category 1

(Note) GHS classification without description: Not classified/Classification not possible

Label elements



Signal word: Danger

HAZARD STATEMENT

H302 Harmful if swallowed

H314 Causes severe skin burns and eye damage

H370 Causes damage to organs (respiratory system)

H410 Very toxic to aquatic life with long lasting effects

PRECAUTIONARY STATEMENT

Prevention

P273 Avoid release to the environment.

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

P264 Wash contaminated parts thoroughly after handling.

P280 Wear protective gloves, protective clothing or face protection.

P280 Wear eye protection/face protection.

P270 Do not eat, drink or smoke when using this product.

Response



P391 Collect spillage.

P310 Immediately call a POISON CENTER/doctor/physician.

P308 + P311 IF exposed or concerned: Call a POISON CENTER/doctor/physician.

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water or shower.

P363 Wash contaminated clothing before reuse.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P330 IF SWALLOWED: Rinse mouth.

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

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

#### Storage

P405 Store locked up.

#### Disposal

P501 Dispose of contents/container in accordance with local/national regulation.

#### Specific adverse human health effects

See "11. Toxicological Information".

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### Section 3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name	Content (%)	CAS No.	Chemicals No, Japan	Chemical formula
Zinc chloride	95(min)	7646-85-7	1-264	ZnCl <sub>2</sub>

Note : The figures shown above are not the specifications of the product.

#### Impurities

Ammonium chloride ≤0.70% (CAS No.12125-02-9)

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### Section 4. First-aid measures

Descriptions of first-aid measures

#### IF INHALED

Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER/doctor/physician if you feel unwell.

#### IF ON SKIN

Take off immediately all contaminated clothing. Rinse skin with water or shower.

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

#### IF IN EYES

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

If eye irritation persists: Get medical advice/attention.

#### IF SWALLOWED

Rinse mouth.

Do NOT induce vomiting.

Call a POISON CENTER/doctor/physician if you feel unwell.



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**Section 5. Fire-fighting measures**

## Extinguishing media

## Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

## Unsuitable extinguishing media

Unsuitable extinguishing media data is not available.

## Specific hazards arising from the substance or mixture

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

See "10.Stability and Reactivity".

## Advice for firefighters

## Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

## Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.

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

Firefighters should wear self-contained breathing apparatus with a full facepiece operated in the positive pressure mode.

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**Section 6. Accidental release measures**

## Personnel precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

## Environmental precautions

Prevent spills from entering sewers, watercourses, low areas or rivers. To be careful not discharged to the environment without being properly handled waste water contaminated.

## Methods and materials for containment and cleaning up

Sweep up, place in a bag and hold for waste disposal.

## Preventive measures for secondary accident

Collect spillage.

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**Section 7. Handling and storage**

## Precautions for safe handling

## Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

## Safety Measures

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



Wash hands et al thoroughly after handling.

When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity".

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Do not eat, drink or smoke when using this product.

Wash contaminated clothing before reuse.

Storage

Conditions for safe storage

Keep container tightly closed.

Store locked up. (P405)

Store in a cool, dry place. Do not store in direct sunlight.

Storage in accordance with local/national regulation.

Container and packaging materials for safe handling

Use closed unbreakable containers.

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## Section 8. Exposure controls/personal protection

Control parameters

Control value and concentration standard value are not available in ISHA.

Adopted value

(Zinc chloride)

JSOH(2023) (ceiling) 4mg/m<sup>3</sup>

(Zinc chloride)

ACGIH(1992) TWA: 1mg/m<sup>3</sup>

STEL: 2mg/m<sup>3</sup> (LRT & URT irr)

(Ammonium chloride)

ACGIH(1976) TWA: 10mg/m<sup>3</sup>;

STEL: 20mg/m<sup>3</sup> (Eye & URT irr)

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures

Recommend to use protective equipment in conformity with the standards.

Use appropriate protective equipment in accordance with local/national regulation.

Respiratory protection

Wear respiratory protection (dust-proof mask/gas mask). Select chemical cartridge corresponding to type of gases when using a gas mask.

Hand protection

Wear impervious protective glove.

Eye protection

Wear eye/face protection. Wear safety goggles in cases gas is generated.

Skin and body protection

Wear protective clothing.



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**Section 9. Physical and Chemical Properties**

Information on basic physical and chemical properties

Physical state: Crystalline powder or lump

Color: White

Odor: Odorless

Melting point/Freezing point: 290°C

Boiling point or initial boiling point: (Zinc chloride) 732°C

Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit data is not available.

Flash point data is not available.

Auto-ignition temperature data is not available.

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: 432g/100ml (25°C)

Solubility in solvent data is not available.

n-Octanol/water partition coefficient data is not available.

Vapor pressure data is not available.

Density and/or relative density: 2.9 g/cm<sup>3</sup>

Relative vapor density (Air=1) data is not available.

Particle characteristics data is not available.

Other information

Other information is not available.

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**Section 10. Stability and Reactivity**

Reactivity

Not available.

Chemical stability

Deliquescent materials.

Possibility of hazardous reactions

Decomposes on heating. This produces toxic fumes of hydrogen chloride and zinc oxide. The solution in water is a medium strong acid. Reacts violently with strong oxidants and strong bases. This generates fire and explosion hazard. This produces toxic and corrosive fumes. (ICSC 1064)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Strong bases, Strong oxidizing agents

Hazardous decomposition products

Zinc oxide, Hydrogen chloride

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**Section 11. Toxicological Information**

Information on toxicological effects

Acute toxicity

**Acute toxicity (Oral)****[Product]**

Category 4, Harmful if swallowed

**[Data for components of the product]****[GHS Cat. Japan, base data]**

(Zinc chloride)

rat LD50=1100mg/kg (EU-RAR, 2004)

(Ammonium chloride)

rat LD50=1410mg/kg (SIDS, 2009)

**Irritant properties****Skin corrosion/irritation****[Product]**

Category 1, Causes severe skin burns and eye damage

**[Data for components of the product]****[GHS Cat. Japan, base data]**

(Zinc chloride)

rabbit severe (EU-RAR, 2004)

**Serious eye damage/irritation****[Product]**

Category 1, Causes serious eye damage

**[Data for components of the product]****[GHS Cat. Japan, base data]**

(Zinc chloride)

human permanent corneal scarring (EU-RAR, 2004)

(Ammonium chloride)

rabbit mild irritation (ACGIH 7th, 2001)

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

Carcinogenic effects data is not available.

Reproductive toxicity data is not available.

**Specific target organ toxicity (STOT)****STOT-single exposure****[Product]**

Category 1, Causes damage to organs

**[Data for components of the product]****[cat.1]****[GHS Cat. Japan, base data]**

(Zinc chloride)

respiratory system (PATTY 6th, 2012)

STOT-repeated exposure data is not available.

Aspiration hazard data is not available.

**Information on other hazards**

May cause lung disorders by massive inhalation of powdered substance.

-e.g. fibrosis of lung tissue, cough, sputum, breath shortness, dyspnea, decline of lung function, interstitial lung disease, pneumothorax

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**Section 12. Ecological Information****Toxicity****Aquatic toxicity**

**[Product]**

Category 1, Very toxic to aquatic life

Category 1, Very toxic to aquatic life with long lasting effects

**[Data for components of the product]**

Hazardous to the aquatic environment, short-term (acute)

[GHS Cat. Japan, base data]

(Zinc chloride)

Algae (*Nitzschia*) EC<sub>50</sub>=0.135mg/L/72hr (EHC 221, 2001; NITE Initial Risk Assessment Report, 2008)

(Ammonium chloride)

Fish (*Oncorhynchus mykiss*) LC<sub>50</sub>=40.8mg/L/96hr (pH: 8.29) (Thurston et al., 1981)

Hazardous to the aquatic environment, long-term (chronic)

[GHS Cat. Japan, base data]

(Zinc chloride)

Algae (*Pseudokirchneriella subcapitata*) NOEC=0.0325mg/L/72hr (EURAR, 2010)

(Ammonium chloride)

Algae (*Navicula* sp.) NOEC=26.8mg/L/10days (pH: 8.0); Crustacea (*Daphnia magna*)

NOEC=14.6mg/L/21days (pH: 8.3-8.6); Fish (*Menidia beryllina*) NOEC=8mg/L/28days (pH: 7.36-7.86) (SIAR, 2004)

**Water solubility**

(Zinc chloride)

432 g/100 ml (25°C) (ICSC, 2002)

(Ammonium chloride)

28.3 g/100 ml (25°C) (ICSC, 2000)

**Persistence and degradability**

[Data for components of the product]

(Ammonium chloride)

Rapidly degradable (readily converted to nitrate in an aqueous environment (SIDS, 2007))

**Bioaccumulative potential**

[Data for components of the product]

(Zinc chloride)

BCF=178 (Check & Review, Japan)

**Mobility in soil**

Mobility in soil data is not available.

**Other adverse effects**

Ozone depleting chemical data is not available.

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**Section 13. Disposal considerations**

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

**Waste treatment methods**

Avoid release to the environment.

Dispose of contents/container as industrial waste. Accordance with local/national regulation.

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**Section 14. Transport Information**

UN Number or ID Number : 2331

UN Proper Shipping Name :



ZINC CHLORIDE, ANHYDROUS

Class or division (Transport hazard class) : 8

Packing group : III

ERG GUIDE No.: 154

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : 2331

UN Proper Shipping Name :

ZINC CHLORIDE, ANHYDROUS

Class or division (Transport hazard class) : 8

Packing group : III

IATA (Dangerous Goods Regulations)

UN Number or ID Number : 2331

UN Proper Shipping Name :

ZINC CHLORIDE, ANHYDROUS

Class or division (Transport hazard class) : 8

Hazard labels : Corrosive

Packing group : III

Environmental hazards

Marine pollutants (yes/no) : yes

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## Section 15. Regulatory Information

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

U.S. Toxic Substances Control Act (TSCA) Inventory

Chemicals listed in TSCA Inventory

Zinc chloride; Ammonium chloride

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

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## Section 16. Other information

References and sources for data

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 22nd edit., 2021 UN

IMDG Code, 2022 Edition (Incorporating Amendment 41-22)

IATA Dangerous Goods Regulations (65th Edition) 2024

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2024 TLVs and BEIs. (ACGIH)

JIS Z 7252 : 2019

JIS Z 7253 : 2019

2023 Recommendation on TLVs (JISOH)

Supplier's data/information

General Disclaimer

Please provide SDS to customers for selling or transferring.

All chemicals have unknown hazard. Handle the product with care.

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.





The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2022).