Date of issue: 2018/01/05
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Safety Data Sheet

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

Product identifier:
Product name: 0.05mol/L(M/20)-Zinc chloride solution
SDS No. : A0171E-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

Section 2. Hazards identification

GHS classification and label elements of the product
Classification of the substance or mixture
ENVIRONMENT HAZARDS
Hazardous to the aquatic environment, short-term (acute): Category 3
Hazardous to the aquatic environment, long-term (chronic): Category 3
(Note) GHS classification without description: Not classified/Classification not possible
Label elements
No GHS label element
No Signal word
HAZARD STATEMENT
H412 Harmful to aquatic life with long lasting effects
PRECAUTIONARY STATEMENT
Prevention
P273 Avoid release to the environment.
Disposal
P501 Dispose of contents/container in accordance with local/national regulation.
Specific adverse human health effects
See "11. Toxicological Information".

Section 3. Composition/information on ingredients

Mixture/Substance selection:
Mixture

Ingredient name	Content (%)	CAS No.	ENCS	Chemical formula
Zinc chloride	0.68	7646-85-7	1-264	ZnCl2
Hydrochloric acid	0.0083	7647-01-0	1-215	HCl
Water	99	7732-18-5	-	H2O

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

products may exceed the figures shown above.

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

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.

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

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste

container.

Preventive measures for secondary accident

Collect spillage.

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".

Storage

Conditions for safe storage

Keep container tightly closed.

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.

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/m3

(Hydrochloric acid)

JSOH(2014) (ceiling) 2ppm; 3.0mg/m3

(Zinc chloride)

ACGIH(1992) TWA: 1mg/m3

STEL: 2mg/m3 (LRT & URT irr)

(Hydrochloric acid)

ACGIH(2002) STEL: C 2ppm (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.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid

Color: Colorless, Clear

Odor data is not available.

Melting point/Freezing point data is not available.

Boiling point or initial boiling point data is not available.

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: Soluble

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: 1.0

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

Particle characteristics data is not available.

Other information

Other information is not available.

Section 10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

(Zinc chloride)

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)
(Hydrochloric acid)
The gas is heavier than air and may accumulate in lowered spaces causing a deficiency of oxygen.
The solution in water is a strong acid. It reacts violently with bases and is corrosive. Reacts violently with oxidants. This produces toxic gas (chlorine). Attacks many metals in the presence of water. This produces flammable/explosive gas (hydrogen). (ICSC 0163)

Conditions to avoid

Contact with incompatible materials.
Contact with fire source.

Incompatible materials

Bases, Oxidizing agents, Metals

Hazardous decomposition products

Zinc oxide, Chlorine, Hydrogen chloride, Hydrogen

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[Data for components of the product]

[NITE-CHRIP]
(Zinc chloride)
rat LD50: 350 mg/kg (source: NITE)
(Hydrochloric acid)
rat LD50: 238 - 277 mg/kg (source: NITE)

Acute toxicity (Dermal)

[Data for components of the product]

[NITE-CHRIP]
(Hydrochloric acid)
rabbit LD50: > 5010 mg/kg (source: NITE)

Acute toxicity (Inhalation)

[Data for components of the product]

[NITE-CHRIP]
(Hydrochloric acid)
gas: rat LC50: 4.2 mg/L (60-minute) (converted 4-hour equivalent value: 1411 ppm) (source: NITE)
aerosol: rat LC50: 1.68 mg/L (1-hour) (converted 4-hour equivalent value: 0.42 mg/L) (source: NITE)

Irritant properties

Skin corrosion/irritation

[Data for components of the product]

[NITE-CHRIP]
(Zinc chloride)
Category 1 (source: NITE)
(Hydrochloric acid)
Category 1 (source: NITE)

Serious eye damage/irritation

[Data for components of the product]
[NITE-CHRIP]
(Zinc chloride)
Category 1 (source: NITE)
(Hydrochloric acid)
Category 1 (source: NITE)

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

Carcinogenicity

[Data for components of the product]
[IARC]
(Hydrochloric acid)
Group 3 : Not classifiable as to its carcinogenicity to humans
[ACGIH]
(Hydrochloric acid)
A4(2002) : Not Classifiable as a Human Carcinogen

Reproductive toxicity data is not available.

Specific target organ toxicity (STOT)

STOT-single exposure data is not available.

STOT-repeated exposure data is not available.

Aspiration hazard data is not available.

Section 12. Ecological Information

Toxicity

Aquatic toxicity

[Product]
Category 3, Harmful to aquatic life
Category 3, Harmful to aquatic life with long lasting effects

[Data for components of the product]

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

[NITE-CHRIP]
(Zinc chloride)
Algae72-hour EC50: 0.065 mg Zn/L (a converted value equivalent to this substance: 0.135 mg/L) (source: NITE)
(Hydrochloric acid)
Crustacea (Daphnia magna) 48-hour EC50: 0.492 mg/L (source: NITE)

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

[NITE-CHRIP]
(Zinc chloride)
Algae (Pseudokirchneriella subcapitata) 72-hour NOEC: 15.6 μg Zn/L (a converted value equivalent to this substance: 32.5 μg/L) (source: NITE)

Water solubility

(Zinc chloride)
432 g/100 mL (25℃) (source: ICSC, 2017)
(Hydrochloric acid)
67 g/100 mL (30℃) (source: ICSC, 2016)

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

[Data for components of the product]
(Hydrochloric acid)
log Pow: 0.25 (source: ICSC, 2016)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

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.

Section 14. Transport Information

UN Number or ID Number : Not regulated

IMDG Code (International Maritime Dangerous Goods Regulations)

UN Number or ID Number : Not regulated

IATA (Dangerous Goods Regulations)

UN Number or ID Number : Not regulated

Environmental hazards

Marine pollutants (yes/no) : no

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; Hydrochloric acid; Water

Other regulatory information

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

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 (JSOH)
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 Data published in Japan (National Institute of Technology and Evaluation (NITE) Chemical Risk Information Platform (NITE-CHRIP), up to FY2023).