Zinc Chloride Solution
Safety Data Sheet

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name : Zinc Chloride Solution

Other means of identification : Grades: 50%; 50% Ultra; 56%; 62.5%; 700 Bé; 720 Bé

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

Use of the substance/mixture : Manufacturing

1.3. Details of the supplier of the safety data sheet

Zaclon LLC
2981 Independence Road
Cleveland, OH 44115
T 216-271-1569 or 800-356-7327

1.4. Emergency telephone number

Emergency number : Chemtrec 1 800 424 9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute Tox. 4 (Oral)	H302
Skin Corr. 1B	H314
STOT SE 3	H335
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :

GHS05 GHS07 GHS09

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) :
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H335 - May cause respiratory irritation
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) :
P260 - Do not breathe dust/fume/gas/mist/vapours/spray
P264 - Wash thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+P312 - IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell
P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing
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
P321 - Specific treatment (see label)
P363 - Wash contaminated clothing before reuse
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container in accordance with local/regional/national/international

regulations.

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

Full text of H-phrases: see section 16

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Zinc chloride	(CAS No) 7646-85-7	50 - 72	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Water	(CAS No) 7732-18-5	28 - 50	Not classified

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove to fresh air immediately. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

First-aid measures after skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse and discard shoes.

First-aid measures after eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician.

First-aid measures after ingestion : If swallowed, do not induce vomiting. Give large quantities of water. Call a physician immediately. Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : Fumes, dust from dried-down product, or mist may cause injury to the respiratory tract. Severe exposure may cause lung damage.

Symptoms/injuries after skin contact : Corrosive to the skin.

Symptoms/injuries after eye contact : Causes eye damage

Symptoms/injuries after ingestion : Harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : As appropriate for combustibles in area.

Unsuitable extinguishing media : None.

5.2. Special hazards arising from the substance or mixture

Fire hazard : May release zinc oxide fumes, zinc chloride fumes, and hydrogen chloride gas in a fire.

Explosion hazard : None known.

5.3. Advice for firefighters

Firefighting instructions : Keep personnel removed and upwind of fire. Cool tank/container with water spray.

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Stop the flow of material, if this is without risk.

Methods for cleaning up : Confine spill and soak up with absorbent. Place in an approved container and dispose in accordance with local, state and federal regulations.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Do not get in eyes, on skin, on clothing. Avoid breathing fumes, dust from dried-down product, or mist. Wash thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep drums in upright position; do not roll drums on side. Keep containers closed. Store in a well ventilated area.

7.3. Specific end use(s)

Manufacturing

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Zinc chloride (7646-85-7)		
USA ACGIH	ACGIH TWA (mg/m³)	1 mg/m³
USA ACGIH	ACGIH STEL (mg/m³)	2 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	1 mg/m³

8.2. Exposure controls

Appropriate engineering controls : Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

Hand protection : Use rubber gloves and apron for routine work. If considerable contact is likely, wear impervious (rubber) clothing or acid suit.

Eye protection : Use chemical splash goggles. A full-length face shield should be worn around galvanizing kettles.

Skin and body protection : Wear suitable working clothes.

Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

Appearance : Clear

Colour : Water-white

Odour : Odorless

Odour threshold : No data available

pH : 50% Grade: 2.01; 62.5% Grade: <1.0; 70° Bé Grade: <1.0; 72° Bé Grade: <1.0

Relative evaporation rate (butylacetate=1) : 50% Grade: >1; 62.5% Grade: <1; 70° Bé Grade: <1; 72° Bé Grade: <1

Melting point : No data available

Freezing point : No data available

Boiling point : 50% Grade: 120 °C (248 °F); 62.5% Grade: 134 °C (273 °F); 70° Bé Grade: 146 °C (295 °F); 72° Bé Grade: 157 °C (315 °F)

Flash point : No data available

Self ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : No data available

Vapour pressure : No data available

Relative vapour density at 20 °C	:	No data available
Specific gravity	:	50% Grade: 1.576; 62.5% Grade: 1.814; 70° Bé Grade: 1.933; 72° Bé Grade: 1.985
Solubility	:	100%
Log Pow	:	No data available
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

Will not occur.

10.4. Conditions to avoid

High temperatures

10.5. Incompatible materials

Incompatible with cyanides (may release toxic HCN gas) and sulfide salts (may release toxic H2 gas).

10.6. Hazardous decomposition products

Not Determined

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Harmful if swallowed.

Zinc Chloride Solution	
ATE (oral)	500.000 mg/kg bodyweight

Zinc chloride (7646-85-7)	
LD50 oral rat	350 mg/kg

Skin corrosion/irritation	:	Causes severe skin burns and eye damage.
Serious eye damage/irritation	:	Not classified
Respiratory or skin sensitisation	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified Tests in bacterial or mammalian cell cultures demonstrate mutagenic activity. Tests in some animals indicate that the compound may have embryotoxic activity.
Specific target organ toxicity (single exposure)	:	May cause respiratory irritation. The compound in either solid or solution form, is corrosive to the eyes and skin. Toxic effects described in animals from short exposure include corrosion of mucosal surfaces, liver effects, and kidney effects. Toxic effects in animals occurring only with inhalation exposures, are lower respiratory irritation with pulmonary edema.

Specific target organ toxicity (repeated exposure)	:	Not classified
		Human health effects of overexposure may initially include: eye irritation with discomfort, tearing, or blurring of vision; skin irritation with discomfort or rash; or irritation of the upper respiratory passages. Higher exposures may lead to these effects: skin burns or ulceration; eye irritation with discomfort, tearing, or blurring of vision; temporary lung irritation effects with cough, discomfort, difficulty breathing, or shortness of breath; possibly modest initial symptoms, followed in hours by severe shortness of breath, requiring prompt medical attention; or fatality from gross overexposure by fume inhalation or by significant ingestion. There are inconclusive or unverified reports of human sensitization. Individuals with preexisting diseases of the lungs may have increased susceptibility to the toxicity of excessive exposures.
Aspiration hazard	:	Not classified

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Zinc chloride (7646-85-7)	
BCF fish 1	16000

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

In accordance with DOT

Transport document description	:	UN1840 Zinc chloride, solution, 8, III
UN-No.(DOT)	:	1840
DOT NA no.	:	UN1840
DOT Proper Shipping Name	:	Zinc chloride, solution
Department of Transportation (DOT) Hazard Classes	:	8 - Class 8 - Corrosive material 49 CFR 173.136
Hazard labels (DOT)	:	8 - Corrosive

Packing group (DOT)	:	III - Minor Danger
DOT Special Provisions (49 CFR 172.102)	:	IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / (1 + a (tr - tf)) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	154
DOT Packaging Non Bulk (49 CFR 173.xxx)	:	203
DOT Packaging Bulk (49 CFR 173.xxx)	:	241

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	60 L
DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.

SECTION 15: Regulatory information

15.1. US Federal regulations

Water (7732-18-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Zinc chloride (7646-85-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. US State regulations

Zinc chloride (7646-85-7)

U.S. - Massachusetts - Right To Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Full text of H-phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment — AcuteHazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment — Chronic Hazard, Category 1
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product