SAFETY DATA SHEET

Zinc Chloride 42% w/w Soln.

SECTION 1: IDENTIFICATION

Product identifier used on a label:	**Zinc Chloride 42% w/w Soln.**
Product code:	5441
HS Code:	28273990
CAS-No.:	7646-85-7
Synonyms:	Zinc Chloride Solution
Recommended use of the chemical and restrictions on use:	Electrolyte for Carbon-Zinc and Zinc-Air batteries Not for food or drug use
Chemical formula:	$ZnCl_2$
Name, address and phone # of supplier:	Aqua Bond Inc. PO Box 63635, Woodside Square Toronto, ON, M1V 5K2 (416) 754-7211
24 Hr. Emergency phone #:	**CANUTEC (613) 996-6666**

SECTION 2: HAZARDS IDENTIFICATION

Classification of the chemical: This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Hazard classification:

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)

Label elements:



Signal word: DANGER

Hazard statements:

Prevention
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:	P260 Do not breathe dust/fume/gas/mist/vapours/spray. P264 Wash thoroughly after handling. P270 Do not eat, drink or smoke when using the 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 CENTRE or doctor/physician if you feel unwell. P301 + P330 +P331 IF SWALLOWED rinse mouth. DoNOT induce vomiting. P303 + P361 + P353 IF ON SKIN (or hair). Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P303 + P340 IF INHALED remove victim to fresh air and keep 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. 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 to an approved waste disposal plant.
Other Hazards:	Very toxic to aquatic life with long lasting effects.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient name	Product Identifier	% by Weight
Zinc chloride	Cas No 7646-85-7	35-45
Water	Cas No 7732-18-5	55-65

SECTION 4: FIRST-AID MEASURES

Description of first aid measures:

Inhalation	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Call a physician immediately.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
Ingestion	Do not induce vomiting. Immediate medical attention is required. Drink plenty of water. Call a physician immediately. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed:

Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated:

Zinc Chloride 42 w/w % Soln.

Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Immediate medical attention and special treatment, if necessary: Treat symptomatically

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media:	Use media appropriate for the surrounding fire.
Suitable:	CO_2, dry chemical, dry sand, alcohol-resistant foam..
Unsuitable:	Not Available.
Flash point:	Not Available.
Autoignition Temperature:	Not Available.
Specific hazards arising from the substance:	Not combustible. Ambient fire may liberate hazardous vapors.
Hazardous thermal decomposition products:	Hydrogen chloride gas, Zinc/zinc oxides
Special protective equipment and precautions for fire-fighters:	In case of fire: Evacuate area. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Do not allow run-off from fire-fighting to enter drains or water courses. Do not inhale explosion and combustion gases. Use water spray/stream to protect personnel and to cool endangered containers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	Use personal protective equipment. Avoid breathing vapours, mist or gas. Avoid dust formation. Ensure adequate ventilation. Wear respiratory protection. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.
Environmental precautions:	Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up:	Wear protective eyeware, gloves, and clothing. Refer to Section 8. Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation. Keep in suitable, closed containers for disposal. Always obey local regulations. Keep in suitable closed containers for disposal. Refer to Section 13. If necessary use trained response staff or contractor.
Special spill response procedures:	In case of transportation accident, contact CANUTEC at 1-615-996-6666.

SECTION 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:	Recommended storage temperature: Ambient temperature Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Incompatible materials:	No data available.
Hazardous decomposition products:	Fire may result in the formation of Hydrogen chloride gas, Zinc/zinc oxides.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Ingredient	**Exposure limits**
Zinc Chloride (CAS No.: 7646-85-7)	TWA 1.000000 mg/m^3, Canada. Ontario OEL STEL 2.000000 mg/m^3, Canada. Ontario OEL TWA 1.000000 mg/m^3, Canada. Alberta, Occupational Health and Safety Code (table 2: OEL) STEL 2.000000 mg/m^3 Canada. Alberta, Occupational Health and Safety Code (table 2: OEL) TWA 1.000000 mg/m^3 Canada. British Columbia OEL STEL 2.000000 mg/m^3 Canada. British Columbia OEL TWAEV 1.000000 mg/m^3 Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants TWA 1.000000 mg/m^3 Canada. Manitoba, Occupational Health and Safety Code (table 2: OEL) STEL 2.000000 mg/m^3 Canada. Manitoba, Occupational Health and Safety Sigma - Z4875 Page 4 of 8 Code (table 2: OEL)

TWA 1.000000 mg/m^3 Canada. New Brunswick OEL
STEL 2.000000 mg/m^3 Canada. New Brunswick OEL
TWA 1.000000 mg/m^3 USA. ACGIH Threshold Limit Values (TLV)
STEL 2.000000 mg/m^3 USA. ACGIH Threshold Limit Values (TLV)

Engineering controls:

Use mechanical exhaust or laboratory fumehood to avoid exposure. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Individual protection measures:

Eye Protection: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin Protection: Wear appropriate protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Handle with gloves. Gloves must be inspected prior to use.
Respiratory protection: When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear
Odour:	Odorless
Odour threshold:	No data available
pH	< 1
Freezing point:	-7.2°C
Boiling point:	134°C
Flash point:	No data available
Evaporation rate:	No data available
Flammability (solid; gas) :	No data available
Lower flammable/explosive limit:	No data available
Upper flammable/explosive limit:	No data available
Vapour pressure:	No data available
Vapour density:	No data available
Specific Gravity:	1.8
Solubility:	100%

Partition coefficient (n-octanol/water) :	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.

SECTION 10: STABILITY AND REACTIVITY

Reactivity:	No data available.
Chemical stability:	Stable under recommended storage conditions.
Possibility of hazardous reactions:	No data available.
Conditions to avoid:	Incompatible products. Excess heat.
Incompatible materials:	Strong bases, Strong acids, Cyanides, Sulfides
Hazardous decomposition products:	Not determined.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicity data:

Acute effects Acute oral toxicity: LD50: > 350 mg/kg - Rat - (RTECS)

Acute dermal toxicity: no data available

Acute inhalation toxicity: LCLo: > 2 mg/l (10min) - Rat - (IUCLID)

Irritant and corrosive effects Primary irritation to the skin: Causes severe skin burns and eye damage.

Irritation to eyes: Causes serious eye damage.

Irritation to respiratory tract: May cause respiratory irritation.

Respiratory or skin sensitization In case of skin contact: not sensitising After inhalation: not sensitising
STOT-single exposure May cause respiratory irritation.
STOT-repeated exposure not applicable

Acute toxicity

Information on the likely routes of exposure:	Skin, eye, inhalation, ingestion

Potential health effects (acute):	Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation **Inhalation**: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. **Ingestion**: Toxic if swallowed. **Skin:** May be harmful if absorbed through skin. Causes skin burns. **Eyes:** Causes eye burns.
Target organ effects:	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.
Potential chronic health effects:	No data available.
Teratogenicity:	No data available.
Developmental effects:	No data available.
Fertility effects:	No data available.
Irritation/corrosion:	No data available.

SECTION 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
Bioaccumulation:	Pimephales promelas (fathead minnow) - 63 d Bioconcentration factor (BCF): 21,000
Biodegradation:	No data available
Abiotic Degradation:	No data available
Mobility in soil, water:	No data available
Other adverse effects:	No data available
Persistence and degradability:	No data available

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal methods:	**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.

SECTION 14: TRANSPORT INFORMATION

Land transport (TDG)	
UN Number:	1840
Proper Shipping Name: (DOT)	ZINC CHLORIDE SOLUTION
Class(es):	8 - Corrosive Material
Packing group:	III
Environmental hazards:	Dangerous for the environment
Marine pollutant:	Yes
Transport document description: (TDG)	UN1840 ZINC CHLORIDE SOLUTION,8,III

Sea transport (IMDG)	
UN number : (TDG)	1840
Proper shipping name:	ZINC CHLORIDE SOLUTION
Class:	8 - Corrosive Substances
Packing group:	III - substances presenting low danger
Transport document description: (IMDG)	UN 1840 ZINC CHLORIDE SOLUTION, 8, III, MARINE POLLUTANT/ ENVIRONNMENTALLY HAZARDOUS

Air transport (IATA)	
UN number:	1840
Proper shipping name:	Zinc chloride solution
Class	8 - Corrosives
Packing group	III - Minor Danger
Transport document description: (IATA)	UN 1840 Zinc Chloride solution, 8, III, ENVIRONMENTALLY HAZARDOUS

SECTION 15: REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR. The ingredients are listed on the Canadian DSL (Canadian Domestic List) and the USA TSCA (Toxic Substances Control Act).

SECTION 16: OTHER INFORMATION

Revision date: April 30, 2025

UN = United Nations

Disclaimer

While the information and recommendations set forth are believed to be accurate as of data hereof, Aqua Bond Inc., makes no warranty with respect thereto and disclaims all liability from reliance thereon.