

Safety Data Sheet

Zinc Chloride Solution (25-72%)

MRD-216

*** Section 1 - Chemical Product and Company Identification ***

Product Identifier:

Zinc Chloride Solution

Chemical Name

Inorganic Salt Solution

Recommended Use

Electroplating Operations

Manufacturer Information

MINERAL RESEARCH & DEVELOPMENT
5910 Pharr Mill Road
Harrisburg, NC 28075

Phone: 704-455-4811
FAX: 704-454-7390
CHEMTREC: (800) 424-9300
US and Canadian Shipping Only- 1-703-527-3887

General Comments

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

*** Section 2 – Hazard Identification ***

GHS Classification

Hazardous to aquatic environment - Aquatic Acute, Category 1
Hazardous to aquatic environment - Aquatic Chronic, Category 1
Skin corrosion/irritation, Category 1B
Specific target organ toxicity - Single exposure, Category 3
Acute toxicity – Oral, Category 4

GHS Label Elements

Symbol(s)



Signal Word -

Danger

Hazard Statements

Very toxic to aquatic life

Safety Data Sheet

Zinc Chloride Solution (25-72%)

MRD-216

Very toxic to aquatic life with long lasting effects
Causes severe skin burns and eye damage.
May cause respiratory irritation.
Harmful if swallowed.

Precautionary Statements

Prevention

Avoid release to the environment.
Do not breath dusts or mists.
Wash exposed skin thoroughly after handling.
Wear protective gloves / protective clothing / eye protection / face protection.
Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
Use only outdoors or in a well-ventilated area.
Do not eat, drink or smoke when using this product.

Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER or doctor/physician.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

Storage

Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

*** Section 3 - Composition / Information on Ingredients ***

CAS #	Component	Percent
7646-85-7	Zinc Chloride	25-72
7732-18-5	Water	28-75

Component Information/Information on Non-Hazardous Components

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication). This product is considered hazardous under the criteria specified in the Canadian Workplace Hazardous Materials Information System (WHMIS).

*** Section 4 - First Aid Measures ***

Description of Necessary Measures

Eye Contact

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

Safety Data Sheet

Zinc Chloride Solution (25-72%)

MRD-216

Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

Skin Contact

IF ON SKIN (or hair): Take off contaminated clothing and wash before re-use. Rinse skin with water/shower. Immediately call a POISON CENTER or doctor/physician.

Ingestion

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

Notes to Physician

Provide general supportive measures and treat symptomatically.

*** Section 5 - Fire Fighting Measures ***

General Fire Hazards

This product is an aqueous mixture, which will not burn.

Hazardous Combustion Products

Decomposition may yield zinc compounds, hydrogen chloride, and chlorine.

Extinguishing Media

Dry chemical, foam, carbon dioxide, water fog.

Fire Fighting Equipment/Instructions

This product is corrosive, and presents a severe contact hazard to fire-fighters. Fire fighters should wear full-face, self-contained breathing apparatus and impervious protective clothing. Fire fighters should avoid inhaling any combustion products. If this product is involved in a fire, fire run-off water should be contained to prevent possible environmental damage.



NFPA Ratings: Health: 3 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

*** Section 6 - Accidental Release Measures ***

Containment Procedures

Stop the flow of material, if this is without risk. Wear appropriate protective equipment and clothing during clean up. Contain the discharged material and dike the spilled material where possible. Prevent entry into sewers, drains, underground or confined spaces, water intakes and waterways.

Clean-Up Procedures

Absorb spill with inert material. Shovel material into appropriate container for disposal. Decontaminate the area quickly.

Evacuation Procedures

Isolate area. Keep unnecessary personnel away.

Safety Data Sheet

Zinc Chloride Solution (25-72%)

MRD-216

Special Procedures

Isolate exposure. Wear appropriate personal protective equipment. Follow all Local, State, Federal and Provincial regulations for disposal.

*** Section 7 - Handling and Storage ***

Handling Procedures

Do not get this material in your eyes, on your skin, or on your clothing. Avoid breathing vapors or mists of this product. Wash thoroughly after handling. Do not eat, drink or use tobacco products when handling this material. Use this product with adequate ventilation. Launder work clothes frequently. Open containers slowly, on a stable surface. Containers of this product must be properly labeled. Empty containers may contain residual liquid or vapors. Empty containers should be handled with care.

Storage Procedures

Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials. Material should be stored in secondary containers, or in a diked area, as appropriate. Keep container tightly closed when not in use. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.

*** Section 8 - Exposure Controls / Personal Protection ***

Component Exposure Limits

Zinc chloride (7646-85-7)

ACGIH:	1 mg/m ³ TWA (fume)
	2 mg/m ³ STEL (fume)
OSHA (Final):	1 mg/m ³ TWA (fume)
OSHA (Vacated):	1 mg/m ³ TWA
	2 mg/m ³ STEL
NIOSH:	1 mg/m ³ TWA (fume)
	2 mg/m ³ STEL (fume)
Alberta:	1 mg/m ³ TWA (fume)
	2 mg/m ³ STEL (fume)
British Columbia:	1 mg/m ³ TWA (fume)
	2 mg/m ³ STEL (fume)
Manitoba:	1 mg/m ³ TWA (fume)
	2 mg/m ³ STEL (fume)
New Brunswick:	1 mg/m ³ TWA (fume)
	2 mg/m ³ STEL (fume)
NW Territories:	1 mg/m ³ TWA (fume)
	2 mg/m ³ STEL (fume)
Nova Scotia:	1 mg/m ³ TWA (fume)
	2 mg/m ³ STEL (fume)
Nunavut:	1 mg/m ³ TWA (fume)
	2 mg/m ³ STEL (fume)
Ontario:	1 mg/m ³ TWAEV (fume)
	2 mg/m ³ STEV (fume)
Quebec:	1 mg/m ³ TWAEV (fume)

Safety Data Sheet

Zinc Chloride Solution (25-72%)

MRD-216

Saskatchewan: 1 mg/m³ TWA (fume)
2 mg/m³ STEL (fume)
Yukon: 1 mg/m³ TWA (fume)
2 mg/m³ STEL (fume)

Engineering Controls

Provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapors or mists generated from the handling of this product.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear safety glasses; chemical goggles (if splashing is possible).

Personal Protective Equipment: Skin

Use impervious gloves. Use of an impervious apron is recommended.

Personal Protective Equipment: Respiratory

If ventilation is not sufficient to effectively prevent buildup of large quantities of dust/vapor or prolonged exposure is possible, appropriate approved NIOSH respiratory protection must be provided. Respirators should be selected by and used under the direction of a trained health and safety professional following the requirements found in OSHA's respirator standard (29 CFR 1901.134) and ANSI's standard for respiratory protection (Z88.2-1992), applicable U.S. regulations, or the Canadian CSA Standard Z94.4-93 and applicable standards of Canadian Provinces. A written respiratory protection program, including provisions for medical certification, training, fit-testing, exposure assessments, maintenance, inspection, cleaning, and convenient, sanitary storage, must be implemented

Personal Protective Equipment: General

Eye wash fountain and emergency showers are required. An emergency spill response will necessitate the use of more stringent personal protective equipment.

*** Section 9 - Physical & Chemical Properties ***

Appearance:	Pale yellow liquid	Odor:	odorless
Physical State:	Liquid	Odor Threshold:	Not available
Vapor Pressure:	Not available	pH:	<1.0
Vapor Density:	<1.0	Specific Gravity:	1.58 - 1.60 @ 15°C (59°F)
Boiling Point / Boiling Range:	Approx. >275 °F (>135 °C)/ Not available	Evaporation Rate:	Not available
Melting Point / Freezing Point:	Not available	Relative Density:	Not available
Solubility (H₂O):	Soluble	Auto-ignition Temperature:	Not available
Flash Point:	Not Flammable	Decomposition Temperature:	Not available
Upper Flammable Limit (UFL):	Not Applicable	Lower Flammable Limit (LFL):	Not Applicable
Viscosity:	Not available	Partition Coefficient (n-octanol / water):	Not available
Flammability:	Not available		

Safety Data Sheet

Zinc Chloride Solution (25-72%)

MRD-216

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

Stable under normal conditions.

Chemical Stability: Conditions to Avoid

Avoid contact with incompatible materials.

Incompatibility

This product is incompatible with potassium, strong bases and strong oxidizing agents.

Hazardous Decomposition

Decomposition may yield zinc compounds, hydrogen chloride, and chlorine.

Hazardous Polymerization

Will not occur.

*** Section 11 - Toxicological Information ***

Acute Toxicity

Acute exposure can cause severe irritation and burns of the eyes, skin, gastrointestinal tract and respiratory tract.

Zinc chloride is an eye, skin and respiratory system irritant. Inhalation of zinc fumes may result in temporary metal fume fever. Other symptoms such as slight leukocytosis, respiratory disease and hypocalcemia have been reported from occupational exposure to zinc compounds.

Component Analysis - LD50/LC50

Zinc chloride (7646-85-7)

Oral LD50 Rat - 1,100 mg/kg

Information on Likely Routes of Exposure

Skin

This product is severely irritating to the skin and may cause burns. Depending on the duration of skin contact, skin overexposures will cause reddening, discomfort, irritation, ulceration, and chemical burns. Chemical burns can result in blistering of the skin and scarring.

Eye

Contact with the eyes will cause irritation, pain, reddening, and blindness. May cause eye damage or burns.

Ingestion

This product may be harmful or fatal if swallowed. If ingested, this product will immediately cause burns to the mouth, throat, esophagus and possibly the digestive tract. Overexposure symptoms include: drowsiness, confusion, difficulty swallowing, a burning sensation in the esophagus and stomach, intense thirst, nausea, abdominal pain, vomiting, diarrhea, stomach perforation, bloody stools or urine, convulsions, and collapse. Large quantity ingestion may be fatal.

Safety Data Sheet

Zinc Chloride Solution (25-72%)

MRD-216

Inhalation

This product is irritating to the respiratory system. Damage to the tissues of the respiratory system may occur, such as burns and ulcers, especially after prolonged overexposures or overexposures to high concentrations of this product. Additional inhalation symptoms may include the following: choking, coughing, and difficulty breathing. Severe inhalation overexposures can lead to pulmonary edema, pneumonitis, and death.

Immediate Effects

Skin and eye irritation/damage.

Delayed Effects

Repeated skin overexposures can result in dermatitis (inflammation and reddening of the skin).

Medical Conditions Aggravated by Exposure

Pre-existing skin and eye conditions.

Respiratory Sensitization/Skin Sensitization

No information available for the product.

Mutagenicity

No information available for the product.

Carcinogenicity

No information available for the product.

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Reproductive Toxicity

No information available for the product.

Specified Target Organ Toxicity: Single Exposure

May cause irritation to upper and lower respiratory tract.

Specified Target Organ Toxicity: Repeated Exposure

No information available for the product.

Aspiration Hazard

No information available for the product.

*** Section 12 - Ecological Information ***
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Ecotoxicity

A: General Product Information

Due to the acidic nature of this product, a release of this product in a river or other body of water (especially in large volumes) will kill fish and other aquatic life.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data are available for this product's components.

Environmental Fate

The components of this product are relatively stable under ambient, environmental conditions.

Safety Data Sheet

Zinc Chloride Solution (25-72%)

MRD-216

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes. If discarded, this product is considered a RCRA corrosive waste, D002. Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Zinc Chloride, Solution
UN/NA #: UN1840 **Hazard Class:** 8 **Packing Group:** III
Required Label(s): CORROSIVE
ERG#: 154



Canada Transportation of Dangerous Goods Information

Shipping Name: Zinc Chloride, Solution
UN/NA #: UN1840 **Hazard Class:** 8 **Packing Group:** III
Required Label(s): CORROSIVE



International Maritime Dangerous Good

Shipping Name: Zinc Chloride, Solution
UN/NA #: UN1840 **Hazard Class:** 8 **Packing Group:** III
Required Label(s): CORROSIVE
EmS: F-A, S-B



*** Section 15 - Regulatory Information ***

US Federal Regulations

Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4). SARA Section 311/312 (40 CFR 370.21) applies if quantities stored on-site exceed reporting thresholds.

Zinc chloride (7646-85-7)

CERCLA: 1,000 lb final RQ; 454 kg final RQ

Safety Data Sheet

Zinc Chloride Solution (25-72%)

MRD-216

SARA 311/312: Acute Health: Yes Chronic Health: No Fire: No Pressure: No Reactive: No

Federal Insecticide, Fungicide, and Rodenticide Act

No information is available.

Component Marine Pollutants

This material contains one or more of the following chemicals required by US DOT to be identified as marine pollutants.

Component	CAS	
Zinc Chloride	7646-85-7	DOT regulated marine pollutant

State Regulations

A: General Product Information

Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Zinc Chloride	7646-5-7	Yes	Yes	Yes	Yes	Yes	Yes

Canadian WHMIS Ingredient Disclosure List (IDL)

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which fall under WHMIS criteria specified in the Controlled Products Regulations and present above the threshold limits listed on the IDL.

Component	CAS #	Minimum Concentration
Zinc Nitrate	7646-85-7	1%

WHMIS Classification:

E

Additional Regulatory Information

A: General Product Information

No additional information available.

Safety Data Sheet

Zinc Chloride Solution (25-72%)

MRD-216

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	NDSL	EINECS	AU	MITI	PH	KR	ELINCS	CN
Zinc Chloride	7732-18-5	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes
Water	7732-18-5	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes

*** Section 16 - Other Information ***

Summary of Changes

New SDS: 08/06/2014 v1.0; Revised 05/05/2015 v1.5; 07/14/2019 - Updated Section 2 – Hazard Classifications, v.2.0

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; **AU** - Australia; **BOD** - Biochemical Oxygen Demand; **C** - Celsius; **CA** - Canada; **CAS** - Chemical Abstracts Service; **CERCLA** - Comprehensive Environmental Response, Compensation, and Liability Act; **CFR** - Code of Federal Regulations; **CN** - China; **CPR** - Controlled Products Regulations; **cSt** – Centistokes; **DOT** - Department of Transportation; **DSL** - Domestic Substances List; **EINECS** - European Inventory of Existing Commercial Chemical Substances (EIN); **ELINCS** - European List of Notified Chemical Substances; **EPA** - Environmental Protection Agency; **ERG** - Emergency Response Guide; **ErC50** – EC50 (lethal concentration) in terms of reduction of growth weight; **EU** -European Union; **F** - Fahrenheit; **HEPA** - High Efficiency Particulate Air; **HMIS** - Hazardous Material Information System; **HPV** – High Production Volume Chemical (EU); **IARC** - International Agency for Research on Cancer; **IATA** - International Air Transport Association; **ICL** – In Commerce List (Canada); **IDL** - Ingredient Disclosure List; **IDLH** - Immediately Dangerous to Life and Health; **IMDG** – International Maritime Dangerous Goods; **JP** - Japan; **KR** - Korea; **LLNA** – Local Lymph Node Assay; **LEL** - Lower Explosive Limit; **LMPE-CT** – Short term exposure limit; **LMPE-PPT** - Límite Máximo Permissible de Exposición Promedio Ponderado en el Tiempo (Mexico TWA equivalent); **LOEC** – Lowest observed effect concentration; **MITI** - Japan Ministry of International Trade and Industry; **mg/Kg** - milligrams per Kilogram; **mg/L** - milligrams per Liter; **mg/m³** - milligrams per Cubic Meter; **MSHA** - Mine Safety and Health Administration; **MX** – Mexico; **NA** - Not Applicable or Not Available; **NFPA** - National Fire Protection Association; **NIOSH** - National Institute for Occupational Safety and Health; **NJTSR** - New Jersey Trade Secret Registry; **NOEC** – No observed effect concentration; **NTP** - National Toxicology Program; **NZ** - New Zealand; **OSHA** - Occupational Safety and Health Administration; **PH** - Philippines; **RCRA** - Resource Conservation & Recovery Act; **SARA** - Superfund Amendments and Reauthorization Act; **STEL** - Short Term Exposure Limit; **STEV** – Short-term Exposure Values; **TDG** - Transport Dangerous Goods; **TSCA** - Toxic Substances Control Act; **TWA** - Time Weighted Average; **TWAEV** – Time Weighted Average Exposure Values; **UEL** - Upper Explosive Limit; **US** - United States; **VLE-CT** – Short term exposure limit value; **VLE-PPT** – Time weighted average limit value; **WHMIS** - Workplace Hazardous Materials Information System.

Other Information

Disclaimer: Supplier gives no warranty of merchantability or of fitness for a particular purpose. Any product purchased is sold on the assumption the purchaser will make his own tests to determine the quality and suitability of the product. Supplier expressly disclaims any and all liability for incidental and/or consequential property damage arising out of the use of this product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights. Read the Safety Data Sheet before handling product.

End of Sheet MRD-216