

Material Safety Data Sheet

Material Name: Magnesium Chloride Hexahydrate

ID: CI-201

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

Chemical Name: Magnesium Chloride Hexahydrate; Technical , Prilled

Product Use: For Commercial Use

Synonyms: Magnesium Dichloride Hexahydrate

Supplier Information

Chem One Ltd.

Phone: (713) 896-9966

8017 Pinemont Drive, Suite 100

Fax: (713) 896-7540

Houston, Texas 77040-6519

Emergency # (800) 424-9300 or (703) 527-3887

General Comments: FOR COMMERCIAL USE ONLY; NOT TO BE USED AS A PESTICIDE.

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 - Composition / Information on Ingredients *****

CAS #	Component	Percent
7791-18-6	Magnesium Chloride Hexahydrate	> 98-100

Component Information/Information on Non-Hazardous Components

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

***** Section 3 - Hazards Identification *****

Emergency Overview

Magnesium Chloride Hexahydrate is a deliquescent, white solid, in prilled form. Dusts of this product may cause irritation to the eyes, skin, nose and throat. Magnesium Chloride Hexahydrate is not combustible. Use extinguishing media appropriate for surrounding fire. Thermal decomposition of this product produces irritating vapors and toxic gases (e.g. hydrogen chloride, chlorine). Emergency responders should wear proper personal protective equipment for the releases to which they are responding.

Hazard Statements

CAUTION! MAY CAUSE RESPIRATORY TRACT IRRITATION. MAY CAUSE EYE AND SKIN IRRITATION. Avoid contact with eyes and skin. Avoid breathing dusts. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation.

Potential Health Effects: Eyes

Exposure to particulates or solution of this product may cause irritation of the eyes with symptoms such as stinging, tearing, redness and pain.

Potential Health Effects: Skin

Magnesium Chloride Hexahydrate can cause irritation of the skin, especially after prolonged exposures. Repeated skin contact may lead to dermatitis (red, cracked skin). Symptoms are generally alleviated when exposure ends.

Potential Health Effects: Ingestion

Ingestion of Magnesium Chloride Hexahydrate (especially in large volumes) can irritate the tissues of the mouth, esophagus, and other tissues of the digestive system. Symptoms of exposure can include vomiting, diarrhea, and nausea.

Potential Health Effects: Inhalation

Breathing dusts or particulates generated by Magnesium Chloride Hexahydrate can lead to irritation of the nose, throat or respiratory system. Symptoms of such exposure could include coughing, sneezing, and chest discomfort. Symptoms are generally alleviated when exposure ends. Inhalation of fumes from decomposition of Magnesium Chloride Hexahydrate can cause metal fume fever. Symptoms of metal fume fever include chills, cough, weakness, chest pain, muscle pain and increased white blood cell count.

HMIS Ratings: Health Hazard: 1 Fire Hazard: 0 Physical Hazard: 1

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

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

First Aid: Eyes

In case of contact with eyes, rinse immediately with plenty of water for at least 20 minutes. Seek immediate medical attention if any adverse effect occurs.

Material Safety Data Sheet

Material Name: Magnesium Chloride Hexahydrate

ID: CI-201

*** Section 4 - First Aid Measures (Continued) ***

First Aid: Skin

Remove all contaminated clothing. For skin contact, wash thoroughly with soap and water for at least 20 minutes. Seek immediate medical attention if irritation develops or persists.

First Aid: Ingestion

DO NOT INDUCE VOMITING, unless directed by medical personnel. Have victim rinse mouth thoroughly with water, if conscious. Never give anything by mouth to a victim who is unconscious or having convulsions. Contact a physician or poison control center immediately.

First Aid: Inhalation

Remove source of contamination or move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Get immediate medical attention.

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically.

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

Flash Point: Not flammable

Method Used: Not applicable

Upper Flammable Limit (UEL): Not applicable

Lower Flammable Limit (LEL): Not applicable

Auto Ignition: Not applicable

Flammability Classification: Not applicable

Rate of Burning: Not applicable

General Fire Hazards

Magnesium Chloride Hexahydrate is not combustible, and does not contribute to the intensity of a fire; however, water should be used to fight fire involving this material in flooding quantities, as reaction with water can produce sufficient heat to ignite other combustible materials. Closed containers exposed to heat may explode. When involved in a fire, this material may decompose and produce irritating vapors, acrid smoke and toxic gases.

Hazardous Combustion Products

Chlorine and hydrogen chloride.

Extinguishing Media

Use methods for surrounding fire. Water should be used in flooding quantities.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self-contained breathing apparatus. If possible control runoff from fire control or dilution water to prevent environmental contamination.

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 1 Other:

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 can be done without risk. Contain the discharged material. . If sweeping of a contaminated area is necessary use a dust suppressant agent, which does not react with product (see Section 10 for incompatibility information).

Keep spilled material dry and away from moisture.

Clean-Up Procedures

Small releases can be cleaned-up in gloves, goggles and suitable body protection. In case of a large spill (in which excessive dusts can be generated), clear the affected area, protect people, and respond with trained personnel. Do not allow the spilled product to enter public drainage system or open water courses. Place all spill residues in an appropriate container and seal. Thoroughly wash the area after a spill or leak clean-up. Prevent spill rinsate from contamination of storm drains, sewers, soil or groundwater.

Evacuation Procedures

Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. In case of large spills, follow all facility emergency response procedures.

Special Procedures

Remove soiled clothing and laundry before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

Material Safety Data Sheet

Material Name: Magnesium Chloride Hexahydrate

ID: CI-201

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

Handling Procedures

All employees who handle this material should be trained to handle it safely. Do not breathe dust. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling. Avoid contact with water or moisture.

Storage Procedures

Keep container tightly closed when not in use. Store containers in a cool, dry location, away from water, direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Storage areas should be made of corrosion- and fire-resistant materials. Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Use corrosion-resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers).

Empty containers may contain residual particulates; therefore, empty containers should be handled with care. Do not cut, grind, weld, or drill near this container. Never store food, feed, or drinking water in containers that held this product. Keep this material away from food, drink and animal feed. Do not store this material in open or unlabeled containers. Limit quantity of material stored.

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

Exposure Guidelines

A: General Product Information

Follow the applicable exposure limits.

B: Component Exposure Limits

The exposure limits given are for Particulates Not Otherwise Classified.

ACGIH: 10 mg/m³ TWA (Inhalable fraction)

3 mg/m³ TWA (Respirable fraction)

OSHA: 15 mg/m³ TWA (Total dust)

5 mg/m³ TWA (Respirable fraction)

DFG MAKs 4 mg/m³ TWA (Inhalable fraction)

1.5 mg/m³ TWA (Respirable fraction)

Engineering Controls

Use mechanical ventilation such as dilution and local exhaust. Use a corrosion-resistant ventilation system and exhaust directly to the outside. Supply ample air replacement.

PERSONAL PROTECTIVE EQUIPMENT

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132). Please reference applicable regulations and standards for relevant details.

Personal Protective Equipment: Eyes/Face

Wear safety glasses (or goggles). If necessary, refer to U.S. OSHA 29 CFR 1910.133.

Personal Protective Equipment: Skin

Wear impervious gloves, boots and coveralls to avoid skin contact. If necessary, refer to U.S. OSHA 29 CFR 1910.138.

Personal Protective Equipment: Respiratory

No specific guidelines are available. If airborne concentrations are above the applicable exposure limits, use NIOSH-approved respiratory protection. An approved dust and mist air-purifying respirator may be adequate. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

Personal Protective Equipment: General

Have an eyewash fountain and safety shower available in the work area. Use good hygiene practices when handling this material including changing and laundering work clothing after use. Wash hands thoroughly after handling material. Do not eat, drink, or smoke in work areas.

Material Safety Data Sheet

Material Name: Magnesium Chloride Hexahydrate

ID: CI-201

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

Physical Properties: Additional Information

The data provided in this section are to be used for product safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.

Appearance: White prilled	Odor: Odorless
Physical State: Solid	pH: 7.0 (aqueous solution)
Vapor Pressure: Not applicable	Vapor Density: Not applicable
Boiling Point: 160 deg C (320 deg F)	Freezing/Melting Point: 118 deg C (244.4 deg F)
Solubility (H2O): Appreciable	Specific Gravity: 1.56 (H2O = 1)
Point: Not applicable	Particle Size: Not determined
Softening Point: Not applicable	Bulk Density: Not available
Molecular Weight: 203.30	Chemical Formula: MgCl ₂ • 6H ₂ O

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

Chemical Stability

Product is normally stable.

Chemical Stability: Conditions to Avoid

Avoid high temperatures, exposure to moisture and incompatible materials.

Incompatibility

This material is incompatible with strong oxidizers. Magnesium Chloride Hexahydrate can react explosively when combined with 2-furan percarboxylic acid. When dissolved in water, Magnesium Chloride Hexahydrate gives off considerable heat.

Hazardous Decomposition

Hydrogen chloride, chlorine.

Hazardous Polymerization

Will not occur.

*** Section 11 - Toxicological Information ***

Acute and Chronic Toxicity

A: General Product Information

Poisonous by intravenous route. Moderately toxic by intraperitoneal routes. Mildly toxic by ingestion. Ingestion can result in gastrointestinal absorption and pain. Irritating by contact with skin, eyes and by inhalation. Inhalation of fumes of decomposition may result in metal fume fever.

Chronic: Long term skin overexposure to this product may lead to dermatitis (red, itchy skin).

B: Component Analysis - LD50/LC50

Magnesium Chloride Hexahydrate:

LD₅₀ (Oral-Rat) 8100 mg/kg; LD₅₀ (Oral-Mouse) 7600 mg/kg; LD₅₀ (Intraperitoneal-Mouse) 775 mg/kg

B: Component Analysis - TDLo/LDLo

LDLo (Intravenous-Rat) 176 mg/kg; Behavioral: convulsions or effect on seizure threshold; coma; Lungs, Thorax, or Respiration: other changes; LDLo (Intravenous-Guinea Pig) 250 mg/kg; LDLo (Intraarterial-Guinea Pig) 250 mg/kg

Carcinogenicity

A: General Product Information

Magnesium Chloride Hexahydrate is not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

B: Component Carcinogenicity

No information available.

Epidemiology

No information available.

Neurotoxicity

No information available.

Mutagenicity

Cytogenetic Analysis (Hamster-lung) 12 g/L

Teratogenicity

No information available.

Other Toxicological Information

No information available.

Material Safety Data Sheet

Material Name: Magnesium Chloride Hexahydrate

ID: CI-201

*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

This compound may be harmful to aquatic life in high concentrations, as it will generate excessive heat upon contact with water.

B: Ecotoxicity

No information available.

Environmental Fate

No potential for food chain concentration.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

As shipped, this product is not considered a hazardous waste.

B: Component Waste Numbers

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

Disposal Instructions

All wastes must be handled in accordance with local, state and federal regulations or with regulations of Canada and its Provinces. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

*** Section 14 - Transportation Information ***

NOTE: The shipping classification information in this section (Section 14) is meant as a guide to the overall classification of the product. However, transportation classifications may be subject to change with changes in package size. Consult shipper requirements under I.M.O., I.C.A.O. (I.A.T.A.) and 49 CFR to assure regulatory compliance.

US DOT Information

Shipping Name: Not Regulated

Hazard Class: Not Applicable

UN/NA #: Not Applicable

Packing Group: Not Applicable

Required Label(s): Not Applicable

RQ Quantity: Not Applicable

International Air Transport Association (IATA)

For Shipments by Air transport: We classify this product as hazardous (Class 9) when shipped by air because 49 CFR 173.140 (a). "For the purposes of this subchapter, miscellaneous hazardous material (Class 9) means a material which presents a hazard during transportation, but which does not meet the definition of any other hazard class. This class includes: (a) Any material which has an anesthetic, noxious, or other similar property which could cause extreme annoyance or discomfort to a flight crew member so as to prevent the correct performance of assigned duties."

UN: UN 3077

Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s. (Magnesium Chloride)

Hazard Class: 9

Packing Group: III

Passenger & Cargo Aircraft Packing Instruction: 911

Passenger & Cargo Aircraft Maximum Net Quantity: No Limit

Limited Quantity Packing Instruction (Passenger & Cargo Aircraft): Y911

Limited Quantity Maximum Net Quantity (Passenger & Cargo Aircraft): 30 kg

Special Provisions: A97

ERG Code: 9L

I.M.O. Classification:

Magnesium Chloride Hexahydrate is not considered hazardous under IMDG/ I.M.O. regulations.

Material Safety Data Sheet

Material Name: Magnesium Chloride Hexahydrate

ID: CI-201

*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

Magnesium Chloride Hexahydrate (CAS # 7791-18-6) is not on the TSCA inventory. As a hydrate of a listed compound, Magnesium Chloride Hexahydrate is excepted from TSCA Inventory requirements (per 40 CFR 720.3 (u) (2)).

B: Component Analysis

This material does not have requirements under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Magnesium Chloride Hexahydrate (10124-56-8)

SARA 302 There are no specific Threshold Planning Quantities for Magnesium Chloride Hexahydrate. The default Federal (EHS TPQ) MSDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

C: Sara 311/312 Tier II Hazard Ratings:

Component	CAS #	Fire Hazard	Reactivity Hazard	Pressure Hazard	Immediate Health Hazard	Chronic Health Hazard
Magnesium Chloride Hexahydrate	7791-18-6	No	No	No	Yes	No

State Regulations

A: General Product Information

California Proposition 65

Magnesium Chloride Hexahydrate is not on the California Proposition 65 chemical lists.

B: Component Analysis - State

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

Component	CAS #	CA	FL	MA	MN	NJ	PA
Magnesium Chloride Hexahydrate	7791-18-6	No	No	No	No	No	Yes

Other Regulations

A: General Product Information

Canadian WHMIS Classification: D2B- Skin Irritation, Eye Irritation

B: Component Information (Canada)

Magnesium Chloride Hexahydrate is not listed in the WHMIS IDL

Component	CAS #	Minimum Concentration
Magnesium Chloride Hexahydrate	7791-18-6	No disclosure limit

ANSI LABELING (Z129.1): CAUTION! MAY CAUSE SKIN AND EYE IRRITATION. HARMFUL IF INGESTED OR INHALED. Avoid contact with skin, eyes, or clothing. Do not taste or swallow. Avoid breathing dusts and particulates. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves, goggles, faceshields, suitable body protection, and NIOSH/MSHA-approved respiratory protection, as appropriate. **FIRST-AID:** In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention. **IN CASE OF FIRE:** Use water fog, dry chemical, CO₂, or "alcohol" foam. **IN CASE OF SPILL:** Absorb spill with inert material. Place residue in suitable container. Consult Material Safety Data Sheet for additional information.

Material Safety Data Sheet

Material Name: Magnesium Chloride Hexahydrate

ID: CI-201

*** Section 16 - Other Information ***

Other Information

Chem One Ltd. ("Chem One") shall not be responsible for the use of any information, product, method, or apparatus herein presented ("Information"), and you must make your own determination as to its suitability and completeness for your own use, for the protection of the environment, and for health and safety purposes. You assume the entire risk of relying on this Information. In no event shall Chem One be responsible for damages of any nature whatsoever resulting from the use of this product or products, or reliance upon this Information. By providing this Information, Chem One neither can nor intends to control the method or manner by which you use, handle, store, or transport Chem One products. If any materials are mentioned that are not Chem One products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed. Chem One makes no representations or warranties, either express or implied of merchantability, fitness for a particular purpose or of any other nature regarding this information, and nothing herein waives any of Chem One's conditions of sale. This information could include technical inaccuracies or typographical errors. Chem One may make improvements and/or changes in the product (s) and/or the program (s) described in this information at any time. If you have any questions, please contact us at Tel. 713-896-9966 or E-mail us at Safety@chemone.com.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration

Contact: Sue Palmer-Koleman, PhD

Contact Phone: (713) 896-9966

Revision log

08/04/00 3:59 PM SEP Changed company name, Sect 1 and 16, from Corporation to Ltd.
05/14/01 9:31 AM HDF Checked exposure limits; made changes to Sect 9; overall review, add SARA 311/312 Haz Ratings.
08/20/01 12:50 PM CLJ Add Shipments by Air information to Section 14, Changed contact to Sue, non-800 Chemtrec Num.
06/03/03: 8:45 PM HDF General review and up-date of entire MSDS. Up-date of HMIS categories. Up-date of Section 8. Up-date of Section 14.
06/22/05 3:08pm SEP Update IATA Section 14

This is the end of MSDS # CL-201