



MAGNESIUM CHLORIDE HEXAHYDRATE

ALPHA CHEMICALS PTY LTD

Chemwatch Hazard Alert Code: 2

Chemwatch: 10491
Version No: 7.1.1.1
Safety Data Sheet according to WHS and ADG requirements

Issue Date: 30/12/2020
Print Date: 18/01/2021
S.GHS.AUS.EN

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

Product Identifier

| | |
|-------------------------------|--|
| Product name | MAGNESIUM CHLORIDE HEXAHYDRATE |
| Chemical Name | magnesium chloride |
| Synonyms | Cl ₂ -Mg; MgCl ₂ ; magnesium dichloride; magnesium dichloride anhydrous; Bischofite; Dus-top Magnogene; magnesium chloride, hexahydrate; magnesium chloride, anhydrous; hydrated |
| Chemical formula | Cl ₂ Mg Cl ₂ Mg.H ₁₂ O ₆ |
| Other means of identification | Not Available |
| CAS number | 7786-30-3 |

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

| | |
|--------------------------|---|
| Relevant identified uses | Used in fireproofing wood; disinfectants; various magnesia cements; fire extinguishers; dressing cotton fabrics; in floor sweeping compounds; carbonizing wool; manufacture of parchment paper and artificial leather. Also used as an addition to casein glue. |
|--------------------------|---|

Details of the supplier of the safety data sheet

| | |
|-------------------------|---|
| Registered company name | ALPHA CHEMICALS PTY LTD |
| Address | 4 ALLEN PLACE WETHERILL PARK NSW 2099 Australia |
| Telephone | 61 (0)2 9982 4622 |
| Fax | Not Available |
| Website | ≈ |
| Email | shane@alphachem.com.au |

Emergency telephone number

| | |
|-----------------------------------|-------------------------|
| Association / Organisation | ALPHA CHEMICALS PTY LTD |
| Emergency telephone numbers | 61 (0)418 237 771 |
| Other emergency telephone numbers | Not Available |

SECTION 2 Hazards identification

Classification of the substance or mixture

HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

ChemWatch Hazard Ratings

| | Min | Max | |
|--------------|-----|-----|--------------|
| Flammability | 0 | | |
| Toxicity | 1 | | 0 = Minimum |
| Body Contact | 2 | | 1 = Low |
| Reactivity | 0 | | 2 = Moderate |
| Chronic | 0 | | 3 = High |
| | | | 4 = Extreme |

| | |
|--------------------|--|
| Poisons Schedule | Not Applicable |
| Classification [1] | Eye Irritation Category 2A, Skin Corrosion/Irritation Category 2, Specific target organ toxicity - single exposure Category 3 (respiratory tract irritation) |
| Legend: | 1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI |

Label elements

MAGNESIUM CHLORIDE HEXAHYDRATE

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|---------------------|---|
| Hazard pictogram(s) |  |
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| | |
|-------------|----------------|
| Signal word | Warning |
|-------------|----------------|

Hazard statement(s)

| | |
|------|-----------------------------------|
| H319 | Causes serious eye irritation. |
| H315 | Causes skin irritation. |
| H335 | May cause respiratory irritation. |

Precautionary statement(s) Prevention

| | |
|------|--|
| P271 | Use only outdoors or in a well-ventilated area. |
| P261 | Avoid breathing dust/fumes. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |

Precautionary statement(s) Response

| | |
|----------------|--|
| P321 | Specific treatment (see advice on this label). |
| P362 | Take off contaminated clothing and wash before reuse. |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P312 | Call a POISON CENTER or doctor/physician if you feel unwell. |
| P337+P313 | If eye irritation persists: Get medical advice/attention. |
| P302+P352 | IF ON SKIN: Wash with plenty of water. |
| P304+P340 | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. |
| P332+P313 | If skin irritation occurs: Get medical advice/attention. |

Precautionary statement(s) Storage

| | |
|-----------|--|
| P405 | Store locked up. |
| P403+P233 | Store in a well-ventilated place. Keep container tightly closed. |

Precautionary statement(s) Disposal

| | |
|------|--|
| P501 | Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation. |
|------|--|

SECTION 3 Composition / information on ingredients

Substances

| CAS No | %[weight] | Name |
|-----------|-----------|---------------------------------------|
| 7786-30-3 | >98 | <u>Magnesium Chloride Hexahydrate</u> |

Mixtures

See section above for composition of Substances

SECTION 4 First aid measures

Description of first aid measures

| | |
|---------------------|--|
| Eye Contact | <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with fresh running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| Skin Contact | <p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation. |
| Inhalation | <ul style="list-style-type: none"> ▶ If fumes or combustion products are inhaled remove from contaminated area. ▶ Lay patient down. Keep warm and rested. ▶ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▶ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▶ Transport to hospital, or doctor, without delay. |
| Ingestion | <ul style="list-style-type: none"> ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Seek medical advice. |

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

Magnesium is present in the blood, as a normal constituent, at concentrations between 1.6 to 2.2 meq/L. Some 30% is plasma bound. At serum magnesium levels of 3-4 meq/L, signs of CNS depression, loss of reflexes, muscular tone and power, and bradycardia occur. Cardiac arrest (sometimes fatal) and/or respiratory paralysis can occur at plasma levels of 10-15 meq/L. For acute or short term repeated exposures to magnesium:

- ▶ Symptomatic hypermagnesaemia appears rarely in the absence of intestinal or renal disease.
- ▶ Elevated magnesium levels may cause hypocalcaemia because of decreased parathyroid hormone activity and decreased end-organ responsiveness.
- ▶ Patients with severe hypermagnesaemia may develop sudden respiratory arrest and must be watched closely for apnoea.
- ▶ Use fluids, then vasopressors for hypotension. Frequently hypotension responds to calcium administration.
- ▶ Induce emesis or administer lavage if patient presents within 4 hours of ingestion. Use sodium cathartics, with caution, in presence of cardiac or renal failure.
- ▶ Activated charcoal is not useful.
- ▶ Calcium is an antagonist of magnesium action and is an effective antidote when serum levels exceed 5 meq/L and the patient exhibits symptoms. The adult dose of calcium gluconate is 10 ml of a 10% solution over several minutes. [Ellenhorn and Barceloux: Medical Toxicology]

SECTION 5 Firefighting measures**Extinguishing media**

- ▶ There is no restriction on the type of extinguisher which may be used.
- ▶ Use extinguishing media suitable for surrounding area.

Special hazards arising from the substrate or mixture

| | |
|-----------------------------|-------------|
| Fire Incompatibility | None known. |
|-----------------------------|-------------|

Advice for firefighters

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| Fire Fighting | <ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves in the event of a fire. ▶ Prevent, by any means available, spillage from entering drains or water courses. ▶ Use fire fighting procedures suitable for surrounding area. ▶ DO NOT approach containers suspected to be hot. ▶ Cool fire exposed containers with water spray from a protected location. ▶ If safe to do so, remove containers from path of fire. ▶ Equipment should be thoroughly decontaminated after use. |
| Fire/Explosion Hazard | <ul style="list-style-type: none"> ▶ Non combustible. ▶ Not considered a significant fire risk, however containers may burn. Decomposition may produce toxic fumes of: hydrogen chloride metal oxides May emit poisonous fumes. May emit corrosive fumes. |
| HAZCHEM | Not Applicable |

SECTION 6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

| | |
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| Minor Spills | <ul style="list-style-type: none"> ▶ Remove all ignition sources. ▶ Clean up all spills immediately. ▶ Avoid contact with skin and eyes. ▶ Control personal contact with the substance, by using protective equipment. ▶ Use dry clean up procedures and avoid generating dust. ▶ Place in a suitable, labelled container for waste disposal. |
| Major Spills | Moderate hazard. <ul style="list-style-type: none"> ▶ CAUTION: Advise personnel in area. ▶ Alert Emergency Services and tell them location and nature of hazard. ▶ Control personal contact by wearing protective clothing. ▶ Prevent, by any means available, spillage from entering drains or water courses. ▶ Recover product wherever possible. ▶ IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. |

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 Handling and storage**Precautions for safe handling**

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|----------------------|--|
| Safe handling | <ul style="list-style-type: none"> ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of exposure occurs. ▶ Use in a well-ventilated area. ▶ Prevent concentration in hollows and sumps. ▶ DO NOT enter confined spaces until atmosphere has been checked. ▶ DO NOT allow material to contact humans, exposed food or food utensils. ▶ Avoid contact with incompatible materials. |
|----------------------|--|

MAGNESIUM CHLORIDE HEXAHYDRATE

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| | <ul style="list-style-type: none"> ▶ When handling, DO NOT eat, drink or smoke. |
| Other information | <ul style="list-style-type: none"> ▶ Store in original containers. ▶ Keep containers securely sealed. ▶ Store in a cool, dry area protected from environmental extremes. ▶ Store away from incompatible materials and foodstuff containers. ▶ Protect containers against physical damage and check regularly for leaks. ▶ Observe manufacturer's storage and handling recommendations contained within this SDS. <p>For major quantities:</p> <ul style="list-style-type: none"> ▶ Consider storage in banded areas - ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams). ▶ Ensure that accidental discharge to air or water is the subject of a contingency disaster management plan; this may require consultation with local authorities. |

Conditions for safe storage, including any incompatibilities

| | |
|--------------------------------|--|
| Suitable container | <ul style="list-style-type: none"> ▶ Glass container is suitable for laboratory quantities ▶ Polyethylene or polypropylene container. ▶ Check all containers are clearly labelled and free from leaks. |
| Storage incompatibility | <p>Inorganic alkaline earth metal derivative. Derivative of very electropositive metal.</p> <ul style="list-style-type: none"> ▶ Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride. ▶ These trifluorides are hypergolic oxidisers. They ignite on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition. ▶ The state of subdivision may affect the results. |

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Not Available

Emergency Limits

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|--------------------------------|--------------------------------|----------|-----------|-------------|
| Magnesium Chloride Hexahydrate | Magnesium chloride | 11 mg/m3 | 120 mg/m3 | 550 mg/m3 |
| Magnesium Chloride Hexahydrate | Magnesium chloride hexahydrate | 34 mg/m3 | 370 mg/m3 | 1,600 mg/m3 |


| Ingredient | Original IDLH | Revised IDLH |
|--------------------------------|---------------|---------------|
| Magnesium Chloride Hexahydrate | Not Available | Not Available |

Occupational Exposure Banding

| Ingredient | Occupational Exposure Band Rating | Occupational Exposure Band Limit |
|--------------------------------|-----------------------------------|----------------------------------|
| Magnesium Chloride Hexahydrate | E | ≤ 0.01 mg/m ³ |

Notes: Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.

Exposure controls

| | |
|---|--|
| Appropriate engineering controls | <p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection. The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.</p> <p>Employers may need to use multiple types of controls to prevent employee overexposure.</p> <ul style="list-style-type: none"> ▶ Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction. |
| Personal protection |  |
| Eye and face protection | <ul style="list-style-type: none"> ▶ Safety glasses with side shields. ▶ Chemical goggles. ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. |
| Skin protection | See Hand protection below |

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| Hands/feet protection | <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p> <p>The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.</p> <p>Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.</p> <p>Suitability and durability of glove type is dependent on usage.</p> <p>Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present.</p> <ul style="list-style-type: none"> ▶ polychloroprene. ▶ nitrile rubber. ▶ butyl rubber. ▶ fluorocautchouc. ▶ polyvinyl chloride. <p>Gloves should be examined for wear and/ or degradation constantly.</p> |
| Body protection | See Other protection below |
| Other protection | <ul style="list-style-type: none"> ▶ Overalls. ▶ P.V.C apron. ▶ Barrier cream. ▶ Skin cleansing cream. ▶ Eye wash unit. |

Respiratory protection

Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:001, ANSI Z88 or national equivalent)

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|------------------------------------|----------------------|----------------------|------------------------|
| up to 10 x ES | P1 Air-line* | - - | PAPR-P1 - |
| up to 50 x ES | Air-line** | P2 | PAPR-P2 |
| up to 100 x ES | - | P3 Air-line* | - |
| 100+ x ES | - | Air-line** | PAPR-P3 |

* - Negative pressure demand ** - Continuous flow

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- ▶ Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- ▶ The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- ▶ Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- ▶ Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- ▶ Use approved positive flow mask if significant quantities of dust becomes airborne.
- ▶ Try to avoid creating dust conditions.

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

| | | | |
|---|---|--|------------------|
| Appearance | Odourless, soft, highly deliquescent, thin white to opaque grey granules or flakes. Soluble in water, with the evolution of much heat, giving a clear solution. Soluble in alcohol. | | |
| Physical state | Divided Solid | Relative density (Water = 1) | 2.32-2.33 (1.57) |
| Odour | Not Available | Partition coefficient n-octanol / water | Not Available |
| Odour threshold | Not Available | Auto-ignition temperature (°C) | Not Applicable |
| pH (as supplied) | Not Applicable | Decomposition temperature | 118 hydrate-H2O |
| Melting point / freezing point (°C) | 714 (118 hydrate) | Viscosity (cSt) | Not Applicable |
| Initial boiling point and boiling range (°C) | 1412 | Molecular weight (g/mol) | 95.21 |
| Flash point (°C) | Not Applicable | Taste | Not Available |
| Evaporation rate | Not Applicable | Explosive properties | Not Available |
| Flammability | Not Applicable | Oxidising properties | Not Available |
| Upper Explosive Limit (%) | Not Applicable | Surface Tension (dyn/cm or mN/m) | Not Applicable |
| Lower Explosive Limit (%) | Not Applicable | Volatile Component (%vol) | Not available. |
| Vapour pressure (kPa) | 0.13 @ 778 deg. | Gas group | Not Available |
| Solubility in water | Miscible | pH as a solution (1%) | Not available. |
| Vapour density (Air = 1) | Not Applicable | VOC g/L | Not Available |

SECTION 10 Stability and reactivity

| | |
|---|--|
| Reactivity | See section 7 |
| Chemical stability | <ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur. |
| Possibility of hazardous reactions | See section 7 |
| Conditions to avoid | See section 7 |
| Incompatible materials | See section 7 |
| Hazardous decomposition products | See section 5 |

SECTION 11 Toxicological information**Information on toxicological effects**

| | |
|---------------------|---|
| Inhaled | <p>Inhalation may cause coughing and mild irritation to the mucous membranes.</p> <p>The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.</p> <p>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.</p> |
| Ingestion | <p>Acts as a laxative if ingested in small doses. Massive doses may cause dangerous and even fatal intoxications. Symptoms may include nausea, vomiting, general discomfort and confusion.</p> <p>Accidental ingestion of the material may be damaging to the health of the individual.</p> <p>Magnesium salts are generally absorbed so slowly that swallowing these cause few toxic effects, with purging being the most significant. If it cannot be removed (for example in bowel obstruction or paralysis), it may irritate the gut lining and be absorbed into the body.</p> <p>Side effects of magnesium salts include upset stomach, dry mouth, dry nose, dry throat, drowsiness, nausea, heartburn, and thickening of the lining of the throat and nose.</p> <p>The magnesium ion causes salt disturbances, central nervous system depression, involvement of the heart, loss of reflexes and death from paralysis of breathing; these effects, however, are rare without pre-existing kidney or bowel disorders.</p> <p>Early signs and symptoms of magnesium poisoning include nausea, vomiting, general unwellness and confusion. There may be low blood pressure due to dilation of blood vessels. A slow heart beat is common, which may eventually lead to stoppage of the heart.</p> <p>Bulk laxatives can cause temporary bloating and blockage of the oesophagus and/or intestine. As they shorten the time of digestion, the absorption of other drugs will be affected.</p> |
| Skin Contact | <p>This material can cause inflammation of the skin on contact in some persons.</p> <p>The material may accentuate any pre-existing dermatitis condition</p> <p>Skin contact is not thought to have harmful health effects (as classified under EC Directives); the material may still produce health damage following entry through wounds, lesions or abrasions.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>Solution of material in moisture on the skin, or perspiration, may increase irritant effects</p> <p>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</p> |
| Eye | This material can cause eye irritation and damage in some persons. |
| Chronic | <p>Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems.</p> <p>Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.</p> <p>In a case of chronic abuse of magnesium citrate, symptoms seen included tiredness and severe low blood pressure which did not respond to treatment. Blood tests revealed extremely high levels of magnesium, and the patient was found to have a perforated ulcer of the duodenum.</p> <p>Kidney failure and death followed.</p> <p>A patient with normal kidney function developed stoppage of breathing and slow heart rate after receiving 90 grams of magnesium sulfate over 18 hours. Animal testing suggests that magnesium sulfate may reduce both fertility and the weight of offspring.</p> <p>Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis, caused by particles less than 0.5 micron penetrating and remaining in the lung.</p> |

| Magnesium Chloride Hexahydrate | TOXICITY | IRRITATION |
|---------------------------------------|---|-------------------|
| | dermal (rat) LD50: >2000 mg/kg ^[1] | Not Available |
| | Oral(Rat) LD50: >5000 mg/kg ^[1] | |

Legend: 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

| | | |
|---------------------------------------|--|--|
| MAGNESIUM CHLORIDE HEXAHYDRATE | <p>Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.</p> | |
|---------------------------------------|--|--|

| | | | |
|--------------------------------------|---|-------------------------------|---|
| Acute Toxicity | ✗ | Carcinogenicity | ✗ |
| Skin Irritation/Corrosion | ✓ | Reproductivity | ✗ |
| Serious Eye Damage/Irritation | ✓ | STOT - Single Exposure | ✓ |

MAGNESIUM CHLORIDE HEXAHYDRATE

| | | | |
|-----------------------------------|---|--------------------------|---|
| Respiratory or Skin sensitisation | ✗ | STOT - Repeated Exposure | ✗ |
| Mutagenicity | ✗ | Aspiration Hazard | ✗ |

Legend: ✗ – Data either not available or does not fill the criteria for classification
 ✔ – Data available to make classification

SECTION 12 Ecological information

Toxicity

| Magnesium Chloride Hexahydrate | Endpoint | Test Duration (hr) | Species | Value | Source |
|--------------------------------|----------|--------------------|-------------------------------|-------------|----------|
| | LC50 | 96 | | Fish | 480-mg/L |
| EC50 | 48 | | Crustacea | -95-342mg/L | 4 |
| EC50 | 72 | | Algae or other aquatic plants | >100mg/L | 2 |
| EC10 | 504 | | Crustacea | 82mg/L | 2 |
| NOEC | 1008 | | Fish | 0.1mg/L | 4 |

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

for magnesium compounds in general:
Fish LC50: 100-400 mg/l

For Chloride: Although inorganic chloride ions are not normally considered toxic they can exist in effluents at acutely toxic levels. Incidental exposure to inorganic chloride may occur in occupational settings where chemicals management policies are improperly applied. The toxicity of chloride salts depends on the counter-ion (cation) present; that of chloride itself is unknown. Chloride toxicity has not been observed in humans except in the special case of impaired sodium chloride metabolism, e.g. in congestive heart failure. Healthy individuals can tolerate the intake of large quantities of chloride provided that there is an intake of fresh water following ingestion. Although excessive intake of drinking-water containing sodium chloride at concentrations above 2.5 g/L has been reported to produce hypertension, this effect is believed to be related to the sodium ion concentration. Chloride concentrations in excess of about 250 mg/L can give rise to detectable taste in water. Consumers can, however, become accustomed to concentrations in excess of 250 mg/L.

DO NOT discharge into sewer or waterways.

Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|--------------------------------|-------------------------|------------------|
| Magnesium Chloride Hexahydrate | HIGH | HIGH |

Bioaccumulative potential

| Ingredient | Bioaccumulation |
|--------------------------------|-----------------------|
| Magnesium Chloride Hexahydrate | LOW (LogKOW = 0.0494) |

Mobility in soil

| Ingredient | Mobility |
|--------------------------------|-------------------|
| Magnesium Chloride Hexahydrate | LOW (KOC = 23.74) |

SECTION 13 Disposal considerations

Waste treatment methods

| | |
|------------------------------|--|
| Product / Packaging disposal | <p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.</p> <p>A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> ▶ Reduction ▶ Reuse ▶ Recycling ▶ Disposal (if all else fails) <p>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. In most instances the supplier of the material should be consulted.</p> <ul style="list-style-type: none"> ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority. ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Management Authority for disposal. ▶ Bury residue in an authorised landfill. ▶ Recycle containers if possible, or dispose of in an authorised landfill. |
|------------------------------|--|

SECTION 14 Transport information

Labels Required

| | |
|------------------|----|
| Marine Pollutant | NO |
|------------------|----|

MAGNESIUM CHLORIDE HEXAHYDRATE

HAZCHEM | Not Applicable

Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS****Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS****Transport in bulk according to Annex II of MARPOL and the IBC code**

| Product name | Pollution Category | Ship Type |
|-----------------------------|--------------------|-----------|
| Magnesium chloride solution | Z | 3 |

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

| Product name | Group |
|--------------------------------|---------------|
| Magnesium Chloride Hexahydrate | Not Available |

Transport in bulk in accordance with the ICG Code

| Product name | Ship Type |
|--------------------------------|---------------|
| Magnesium Chloride Hexahydrate | Not Available |

SECTION 15 Regulatory information**Safety, health and environmental regulations / legislation specific for the substance or mixture****Magnesium Chloride Hexahydrate is found on the following regulatory lists**

Australian Inventory of Industrial Chemicals (AIIC)

National Inventory Status

| National Inventory | Status |
|---|---|
| Australia - AIIC / Australia Non-Industrial Use | Yes |
| Canada - DSL | Yes |
| Canada - NDSL | No (Magnesium Chloride Hexahydrate) |
| China - IECSC | Yes |
| Europe - EINEC / ELINCS / NLP | Yes |
| Japan - ENCS | Yes |
| Korea - KECI | Yes |
| New Zealand - NZIoC | Yes |
| Philippines - PICCS | Yes |
| USA - TSCA | Yes |
| Taiwan - TCSI | Yes |
| Mexico - INSQ | Yes |
| Vietnam - NCI | Yes |
| Russia - ARIPS | Yes |
| Legend: | Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets) |

SECTION 16 Other information

| | |
|----------------------|------------|
| Revision Date | 30/12/2020 |
| Initial Date | 18/02/2006 |

SDS Version Summary

| Version | Issue Date | Sections Updated |
|---------|------------|---|
| 6.1.1.1 | 05/05/2016 | Chronic Health, Environmental, Storage (storage incompatibility), Storage (storage requirement), Supplier Information, Synonyms |
| 7.1.1.1 | 30/12/2020 | Expiration. Review and Update |

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit

Continued...

MAGNESIUM CHLORIDE HEXAHYDRATE

IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit.
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

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