Section 1. Chemical Product and Company Identification

Product name: Magnesium chloride hexahydrate

Supplier: In USA:
Pierce
P.O. Box 117
Rockford, IL 61105
USA
815.968.0747 or
1.800.874.3723
In Europe:
Perbio Science
Industriezone III
9320 Erembodegem-Aalst
Belgium
Tel:+32 53 83 44 04
Fax:+32 53 83 76 38

Manufacturer: Pierce Biotechnology
P.O. Box 117
Rockford, IL 61105
USA
815.968.0747 or
1.800.874.3723

Product No.: 0017878

Material Safety Data Sheet

Section 2. Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS No.</th>
<th>%</th>
<th>EC Number</th>
<th>Symbol</th>
<th>R-Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Magnesium chloride hexahydrate</td>
<td>7791-18-6</td>
<td>98-100</td>
<td>Not available.</td>
<td>Xi</td>
<td>R36/37/38</td>
</tr>
</tbody>
</table>

Section 3. Hazards Identification

United States

Review the most current and approved institutional guideline, protocol, standard operating procedure(s) and MSDS(s) for the proper handling of institutional materials/equipment associated with the use of this product.

Emergency Overview

WARNING!
CAUSES DAMAGE TO THE FOLLOWING ORGANS: KIDNEYS, NERVOUS SYSTEM, MUCOUS MEMBRANES, GASTROINTESTINAL TRACT, RESPIRATORY TRACT, SKIN, EYES.
MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.

Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

Routes of Entry

Absorbed through skin. Eye contact. Inhalation. Ingestion.

Potential Acute Health Effects

Hazardous in case of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion. 
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.

Medical Conditions Aggravated by Overexposure:

Repeated or prolonged exposure is not known to aggravate medical condition.

Overexposure / Signs / Symptoms

Not available.

Europe

Classification: R36/37/38
Physical/chemical hazards: Not applicable.
Human health hazards: Irritating to eyes, respiratory system and skin.
Environmental hazards: Not applicable.

See Toxicological Information (section 11)

Continued on Next Page
Section 4. First Aid Measures

Notice to Reader
Get immediate medical attention.

Effects and symptoms
- **Inhalation**: Hazardous in case of inhalation (lung irritant).
- **Ingestion**: Slightly hazardous in case of ingestion.
- **Skin Contact**: Slightly hazardous in case of skin contact (irritant, permeator). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
- **Eye Contact**: Slightly hazardous in case of eye contact (irritant).
- **Aggravating conditions**: Repeated or prolonged exposure is not known to aggravate medical condition.

First-Aid Measures
- **Inhalation**: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
- **Ingestion**: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.
- **Skin Contact**: In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
- **Eye Contact**: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Notes to Physician
- Not available.

Protection of first-aiders
- Not available.

Section 5. Fire Fighting Measures

Flammability of the Product
Non-flammable.

Flash Points
Not applicable.

Fire Hazards in Presence of Various Substances
Not applicable.

Fire Fighting Media and Instructions
Not applicable.

Protective Clothing (Fire)
Not applicable.

Special Remarks on Fire Hazards
Store under nitrogen. When heated to decomposition it emits toxic fumes.

Hazardous thermal (de)composition products
Not applicable.

Section 6. Accidental Release Measures

Personal precautions
Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Environmental Precautions and Clean-up Methods
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Small Spill and Leak
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Section 7. Handling and Storage

Handling
Avoid contact with eyes, skin, and clothing. Avoid breathing vapors or spray mists. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

Storage
Keep container tightly closed. Keep container in a cool, well-ventilated area.

Intended Use
Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

Packaging materials

Continued on Next Page
Section 8. Exposure Controls/Personal Protection

Engineering Controls  Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Exposure Limit Values

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>Occupational Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>1) Magnesium chloride hexahydrate</td>
<td>Not available.</td>
</tr>
<tr>
<td>Sweden</td>
<td></td>
</tr>
<tr>
<td>1) Magnesium chloride hexahydrate</td>
<td>Not available.</td>
</tr>
<tr>
<td>Denmark</td>
<td></td>
</tr>
<tr>
<td>1) Magnesium chloride hexahydrate</td>
<td>Not available.</td>
</tr>
<tr>
<td>Norway</td>
<td></td>
</tr>
<tr>
<td>1) Magnesium chloride hexahydrate</td>
<td>Not available.</td>
</tr>
<tr>
<td>France</td>
<td></td>
</tr>
<tr>
<td>1) Magnesium chloride hexahydrate</td>
<td>Not available.</td>
</tr>
<tr>
<td>Netherlands</td>
<td></td>
</tr>
<tr>
<td>1) Magnesium chloride hexahydrate</td>
<td>Not available.</td>
</tr>
<tr>
<td>Germany</td>
<td></td>
</tr>
<tr>
<td>1) Magnesium chloride hexahydrate</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

Personal Protection

<table>
<thead>
<tr>
<th>Eyes</th>
<th>Splash goggles.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body</td>
<td>Lab coat.</td>
</tr>
<tr>
<td>Hands</td>
<td>Gloves.</td>
</tr>
<tr>
<td>Respiratory</td>
<td>Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.</td>
</tr>
</tbody>
</table>

Section 9. Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Physical State and Appearance</th>
<th>Liquid.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular Weight</td>
<td>203.33 g/mole</td>
</tr>
<tr>
<td>Molecular Formula</td>
<td>MgCl2.6H2O</td>
</tr>
<tr>
<td>pH (1% Soln/Water)</td>
<td>7 [Neutral.]</td>
</tr>
<tr>
<td>Boiling/Condensation Point</td>
<td>117.78°C (244°F)</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.59 (Water = 1)</td>
</tr>
<tr>
<td>Odor</td>
<td>Not available.</td>
</tr>
<tr>
<td>Taste</td>
<td>Not available.</td>
</tr>
<tr>
<td>Color</td>
<td>Clear</td>
</tr>
<tr>
<td>Solubility</td>
<td>See solubility in water, methanol.</td>
</tr>
<tr>
<td>Dispersion Properties</td>
<td>Easily soluble in cold water, hot water, methanol. Insoluble in diethyl ether, n-octanol.</td>
</tr>
</tbody>
</table>
**Section 10. Stability and Reactivity**

- **Stability and Reactivity**
  - The product is stable.

- **Conditions to avoid**
  - Not available.

- **Materials to avoid**
  - Reactive with oxidizing agents, moisture.

- **Hazardous Decomposition Products**
  - Not applicable.

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**Section 11. Toxicological Information**

- **Toxicity to Animals**
  - Acute oral toxicity (LD50): 2800 mg/kg [Rat.].

- **Chronic Effects on Humans**
  - Causes damage to the following organs: kidneys, the nervous system, mucous membranes, gastrointestinal tract, upper respiratory tract, skin, eyes.

- **Other Toxic Effects on Humans**
  - Hazardous in case of inhalation (lung irritant).
  - Slightly hazardous in case of eye contact (irritant), of ingestion, .

- **Special Remarks on Toxicity to Animals**
  - Not available.

- **Special Remarks on Chronic Effects on Humans**
  - Not available.

- **Special Remarks on Other Toxic Effects on Humans**
  - Material is irritating to mucous membranes and upper respiratory tract.

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**Section 12. Ecological Information**

- **Mobility**
  - Not available.

- **Persistence/degradability**
  - Not available.

- **Bioaccumulative potential**
  - Not available.

- **Ecotoxicity**
  - Not available.

- **Germany water class**
  - VCI WGK: No products were found.

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**Section 13. Disposal Considerations**

- **Waste Information**
  - Waste must be disposed of in accordance with federal, state and local environmental control regulations.

- **Waste Stream**
  - Not available.

  Consult your local or regional authorities.

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**Section 14. Transport Information**

- Contact the supplier for all information regarding the proper transportation method for this material.

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**Section 15. Regulatory Information**

- **Label Requirements**

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Continued on Next Page
Magnesium chloride hexahydrate

(Europe)

R36/37/38- Irritating to eyes, respiratory system and skin.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Irritant

HCS Classification
Irritating substance.

U.S. Federal Regulations
TSCA: No products were found.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/312 hazardous chemicals: No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.
SARA 313 toxic chemical notification and release reporting: No products were found.
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean air act (CAA) 112 accidental release prevention: No products were found.
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: No products were found.

WHMIS (Canada)
Not controlled under WHMIS (Canada).

No products were found.

International Regulations
EINECS Not available.
DSCL (EEC) R36/37/38- Irritating to eyes, respiratory system and skin.

International Lists
Australia (NICNAS): Magnesium chloride hexahydrate
Germany water class: Magnesium chloride hexahydrate
Philippines (RA6969): Magnesium chloride hexahydrate

State Regulations
No products were found.
California prop. 65: No products were found.

Section 16. Other Information

Hazardous Material Information System (U.S.A.)
Health 1
Fire Hazard 0
Reactivity 0
Personal Protection 0

National Fire Protection Association (U.S.A.)
Health 1
Fire Hazard
Reactivity 0
Specific Hazard

References
The Sigma-Aldrich Library of Chemical Safety Data, Edition II.

History of Document Changes
Any information changes since last document version are marked with a triangle symbol.

Continued on Next Page
Magnesium chloride hexahydrate

Irritating to eyes, respiratory system and skin.

Intended Use
Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific applications.

Notice to Reader
To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.