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

1.1. Product identifier

Product form: Substance
Substance name: Magnesium Sulfate
EC-No.: 231-298-2
CAS-No.: 7487-88-9
Formula: MgSO₄ • xH₂O

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

1.2.1. Relevant identified uses

Use of the substance/mixture: Pharmaceuticals

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Manufacturer: Jost Chemical Co.
8150 Lackland Rd.
63114 Saint Louis, Missouri
T 314-428-4300 - F 314-428-4366
sds@jostchemical.com - www.jostchemical.com

Distributor: JOST CHEMICAL EUROPE SPRL
rue du Bois Portal n° 30/1-3
B - 5300 Andenne - BELGIQUE
T +32 85-552655 - F +32 85-552654
info@jostchemical.com

1.4. Emergency telephone number

Emergency number: For Hazardous Materials [or Dangerous Goods] Incident Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night
United States and Canada: 1-800-424-9300 / +1 703-527-3887
Global: +1 703-741-5970

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Not classified

Adverse physicochemical, human health and environmental effects
No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]
No labelling applicable

2.3. Other hazards

Other hazards not contributing to the classification: None, to our knowledge.
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type: Mono-constituent

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesium Sulfate</td>
<td>(CAS-No.) 7487-88-9 (EC-No.) 231-298-2</td>
<td>100</td>
</tr>
</tbody>
</table>

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: If you feel unwell, seek medical advice.
First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing. Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact: Rinse with water. Soap may be used. Take victim to a doctor if irritation persists. Wash skin with plenty of water.
Magnesium Sulfate
Safety Data Sheet
according to Regulation (EC) No. 453/2010

First-aid measures after eye contact: Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists. Rinse eyes with water as a precaution.


4.2. Most important symptoms and effects, both acute and delayed
Symptoms/effects after inhalation: AFTER INHALATION OF DUST: Coughing. Slight irritation.
Symptoms/effects after skin contact: No effects known.
Symptoms/effects after eye contact: No effects known.
Chronic symptoms: No effects known.

4.3. Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

SECTION 5: Firefighting measures
5.1. Extinguishing media

5.2. Special hazards arising from the substance or mixture
Fire hazard: DIRECT FIRE HAZARD: Non combustible.
Explosion hazard: Not applicable.
Hazardous decomposition products in case of fire: On burning: release of toxic and corrosive gases/vapours (sulphur oxides).

5.3. Advice for firefighters
Precautionary measures fire: Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions: Dilute toxic gases with water spray. Take account of toxic/corrosive precipitation water.

SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For non-emergency personnel
Emergency procedures: Ventilate spillage area. Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes.
Measures in case of dust release: In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
For containment: Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray.
Methods for cleaning up: Mechanically recover the product. Prevent dust cloud formation. Scoop solid spill into closing containers. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.
Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage
7.1. Precautions for safe handling
Precautions for safe handling: Ensure good ventilation of the work station. Wear personal protective equipment. Avoid raising dust. Keep away from naked flames/heat. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Thoroughly clean/dry the installation before use.
Hygiene measures: Observe normal hygiene standards. Keep container tightly closed. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems.

Storage conditions: Store in a clean, dry warehouse in the original unopened containers. Store in a well-ventilated place. Keep cool.


Heat and ignition sources: KEEP SUBSTANCE AWAY FROM: heat sources.

Information on mixed storage: KEEP SUBSTANCE AWAY FROM: oxidizing agents. water/moisture.

Storage area: Store in a dry area. Keep container in a well-ventilated place. May be stored under inert gas. Meet the legal requirements. Keep out of direct sunlight.

Special rules on packaging: SPECIAL REQUIREMENTS: hermetical. watertight. dry. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials: SUITABLE MATERIAL: synthetic material.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Magnesium Sulfate (7487-88-9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNEL/DMEL (Workers)</td>
</tr>
<tr>
<td>Long-term - systemic effects, dermal</td>
</tr>
<tr>
<td>Long-term - systemic effects, inhalation</td>
</tr>
<tr>
<td>DNEL/DMEL (General population)</td>
</tr>
<tr>
<td>Long-term - systemic effects, oral</td>
</tr>
<tr>
<td>Long-term - systemic effects, inhalation</td>
</tr>
<tr>
<td>Long-term - systemic effects, dermal</td>
</tr>
<tr>
<td>PNEC (Water)</td>
</tr>
<tr>
<td>PNEC aqua (freshwater)</td>
</tr>
<tr>
<td>PNEC aqua (marine water)</td>
</tr>
<tr>
<td>PNEC aqua (intermittent, freshwater)</td>
</tr>
<tr>
<td>PNEC (STP)</td>
</tr>
<tr>
<td>PNEC sewage treatment plant</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls:
Ensure good ventilation of the work station.

Personal protective equipment:

<table>
<thead>
<tr>
<th>Materials for protective clothing:</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIVE GOOD RESISTANCE: butyl rubber. neoprene. nitrile rubber</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hand protection:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gloves</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eye protection:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety glasses. In case of dust production: protective goggles. Safety glasses</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skin and body protection:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protective clothing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Respiratory protection:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dust production: dust mask with filter type P1</td>
</tr>
</tbody>
</table>
Magnesium Sulfate
Safety Data Sheet
according to Regulation (EC) No. 453/2010

Personal protective equipment symbol(s):

Environmental exposure controls:
Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>White granules.</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>120.39 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>Colourless-white.</td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>7 (5 %)</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>1127 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>1124 °C</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative density</td>
<td>2.7</td>
</tr>
<tr>
<td>Density</td>
<td>2660 kg/m³</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water. Soluble in glycerol.</td>
</tr>
<tr>
<td></td>
<td>Water: 26 g/100ml (0 °C)</td>
</tr>
<tr>
<td></td>
<td>Ether: 1.2 g/100ml</td>
</tr>
<tr>
<td>Log Pow</td>
<td>Not applicable (inorganic substance)</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not oxidising</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

9.2. Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC content</td>
<td>0 %</td>
</tr>
<tr>
<td>Other properties</td>
<td>Hygroscopic. Substance has neutral reaction.</td>
</tr>
</tbody>
</table>

SECTION 10: Stability and reactivity

10.1. Reactivity
The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability
Hygroscopic.

10.3. Possibility of hazardous reactions
None under normal conditions.

10.4. Conditions to avoid
None to our knowledge.

10.5. Incompatible materials

10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.
### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (oral)</td>
<td>Not classified (Based on available data, the classification criteria are not met)</td>
</tr>
<tr>
<td>Acute toxicity (dermal)</td>
<td>Not classified (Based on available data, the classification criteria are not met)</td>
</tr>
<tr>
<td>Acute toxicity (inhalation)</td>
<td>Not classified (Based on available data, the classification criteria are not met)</td>
</tr>
</tbody>
</table>

#### Magnesium Sulfate (7487-88-9)

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>&gt; 2000 mg/kg bodyweight (OECD 425: Acute Oral Toxicity: Up-and-Down Procedure, Rat, Male/female, Experimental value)</td>
</tr>
<tr>
<td>LD50 dermal rat</td>
<td>&gt; 2000 mg/kg (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male/female, Experimental value)</td>
</tr>
</tbody>
</table>

Causes serious eye damage. :

- **Serious eye damage/irritation**: Not classified (Based on available data, the classification criteria are not met)
  - pH: 7 (5 %)

- **Respiratory or skin sensitisation**: Not classified (Based on available data, the classification criteria are not met)

- **Additional information**: (OECD 429 method)
  - (Published data)

- **Germ cell mutagenicity**: Not classified (Based on available data, the classification criteria are not met)
  - (OECD 476 method)
  - (results obtained on : magnesium sulfate dried)
  - (OECD 471 method)
  - (OECD 473 method)
  - (results obtained by read-across)
  - (Published data)

- **Carcinogenicity**: Not classified (Lack of data)

- **Reproductive toxicity**: Not classified (Based on available data, the classification criteria are not met)
  - NOAEL (oral, rat) : ≥ 1500 mg/kg/d
  - (OECD 422 method)
  - (results obtained by read-across)
  - (Published data)

- **STOT-single exposure**: Not classified (Lack of data)

- **STOT-repeated exposure**: Not classified (Based on available data, the classification criteria are not met)

#### Magnesium Sulfate (7487-88-9)

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL (subacute, oral, animal/male, 28 days)</td>
<td>&gt;= 1500 mg/kg bodyweight (OECD 422 method) (results obtained by read-across) (Published data)</td>
</tr>
<tr>
<td>NOAEL (subacute, oral, animal/female, 28 days)</td>
<td>&gt;= 1500 mg/kg bodyweight (OECD 422 method) (results obtained by read-across) (Published data)</td>
</tr>
</tbody>
</table>

- **Aspiration hazard**: Not classified (Not applicable)

- **Potential adverse human health effects and symptoms**: Practically non-toxic if swallowed (LD50 oral, rat > 2000 mg/kg). Practically non-toxic in contact with skin (LD50 skin > 2000 mg/kg). Not irritant to skin. Not irritant to eyes.

### SECTION 12: Ecological information

#### 12.1. Toxicity

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecology - general</td>
<td>Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.</td>
</tr>
<tr>
<td>Ecology - air</td>
<td>Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).</td>
</tr>
</tbody>
</table>

#### Magnesium Sulfate (7487-88-9)

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>15500 mg/l (96 h, Gambusia affinis, Static system)</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>1700 mg/l (24 h, Daphnia magna)</td>
</tr>
<tr>
<td>EC50 72h algae (1)</td>
<td>2700 mg/l (Scenedesmus subspicatus)</td>
</tr>
<tr>
<td>ErC50 (algae)</td>
<td>2700 mg/l Chlorella vulgaris, 18 days (results obtained by read-across) (Published data)</td>
</tr>
</tbody>
</table>
### 12.2. Persistence and degradability

**Magnesium Sulfate (7487-88-9)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
<td>Biodegradability: not applicable.</td>
</tr>
<tr>
<td>Biochemical oxygen demand (BOD)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Chemical oxygen demand (COD)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>ThOD</td>
<td>Not applicable</td>
</tr>
<tr>
<td>BOD (% of ThOD)</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

### 12.3. Bioaccumulative potential

**Magnesium Sulfate (7487-88-9)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
<td>Not applicable (inorganic substance)</td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>No bioaccumulation data available.</td>
</tr>
</tbody>
</table>

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

**Magnesium Sulfate (7487-88-9)**

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

### 12.6. Other adverse effects

No additional information available

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Regional legislation (waste): LWCA (the Netherlands): KGA category 05.

Waste treatment methods: Dispose of contents/container in accordance with licensed collector’s sorting instructions.

Product/Packaging disposal recommendations: Remove to an authorized dump (Class I). Precipitate/make insoluble. Obtain the consent of pollution control authorities before discharging to wastewater treatment plants.


### SECTION 14: Transport information

In accordance with ADR / IMDG / IATA

#### 14.1. UN number

- UN-No. (ADR): Not applicable
- UN-No. (IMDG): Not applicable
- UN-No. (IATA): Not applicable

#### 14.2. UN proper shipping name

- Proper Shipping Name (ADR): Not regulated for transport
- Proper Shipping Name (IMDG): Not regulated for transport
- Proper Shipping Name (IATA): Not regulated for transport

#### 14.3. Transport hazard class(es)

- **ADR**
  - Transport hazard class(es) (ADR): Not applicable
- **IMDG**
  - Transport hazard class(es) (IMDG): Not applicable
- **IATA**
  - Transport hazard class(es) (IATA): Not applicable

#### 14.4. Packing group

- Packing group (ADR): Not applicable
- Packing group (IMDG): Not applicable
- Packing group (IATA): Not applicable

#### 14.5. Environmental hazards

- Dangerous for the environment: No
- Marine pollutant: No
- Other information: No supplementary information available
### Magnesium Sulfate

**Safety Data Sheet according to Regulation (EC) No. 453/2010**

10/29/2014 (Version: 1.0) EN (English) 7/7

#### 14.6. Special precautions for user

**Overland transport**

Transport regulations (ADR) : Not subject

**Transport by sea**

Transport regulations (IMDG) : Not subject

**Air transport**

Transport regulations (IATA) : Not subject

#### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

### SECTION 15: Regulatory information

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU-Regulations

No REACH Annex XVII restrictions

Magnesium Sulfate is not on the REACH Candidate List

Magnesium Sulfate is not on the REACH Annex XIV List

VOC content : 0 %

Directive 2012/18/EU (SEVESO III)

#### 15.1.2. National regulations

- Listed on the AICS (Australian Inventory of Chemical Substances)
- Listed on the Canadian DSL (Domestic Substances List)
- Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
- Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
- Not listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
- Not listed on the Korean ECL (Existing Chemicals List)
- Listed on INSG (Mexican National Inventory of Chemical Substances)
- Listed on NZIoC (New Zealand Inventory of Chemicals)
- Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
- Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

### SECTION 16: Other information

**Indication of changes:**

This sheet was updated (refer to the date at the top of this page).

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*