SAFETY DATA SHEET

Magnesium nitrate

Complying with 1907/2006/EEC Regulation of 18 December 2006

Section 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

REACH Product name: Magnesium Nitrate
Trade names: Magnisal
Synonyms: Nitric acid, magnesium(II) salt; magnesium(II) nitrate hexahydrate; Magnesium nitrate, hexahydrate.
Chemical formula: Mg(NO₃)₂·6H₂O
Fertilizer formula: 11-0-0+16MgO
Product type: Solid (flakes)
Cas number: 13446-18-9

Use of the substance/preparation: Fertilizer and nutrigation and foliar feeding.

Company/undertaking identification
Supplier/Manufacturer: Haifa Chemicals Ltd.
P.O.B 10809, Haifa Bay 26120, Israel
Tel: +972-4-8469616
Fax: +972-4-8469953

E-mail address of person responsible for this SDS: specialty@haifachem.co.il

Emergency telephone number: +972-4-8469603/4
(with hours of operation)

Section 2. HAZARDS IDENTIFICATION

Classification: O, Xi: R08, R36/37/38

Most important hazards: Contact with combustible material may cause fire.
Irritating to eyes, respiratory system and skin.

See section 11 for more detailed information on health effects and symptoms.

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/preparation:

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>CAS number</th>
<th>%</th>
<th>EC number</th>
<th>Classification</th>
</tr>
</thead>
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<tr>
<td>Magnesium nitrate, hexahydrate</td>
<td>13446-18-9</td>
<td>100%</td>
<td>-</td>
<td>O, Xi: R08, R36/37/38</td>
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See section 16 for the full text of the R-phrases declared above

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.
SAFETY DATA SHEET

Magnesium nitrate

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Occupational exposure limits, if available, are listed in section 8.

Section 4. FIRST AID MEASURES

Eyes 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 if irritation develops or persists or if visual changes occur.

Skin contact: In case of contact, immediately wash with plenty of soap and water for at least 5 minutes. Cold water may be used. Get medical attention if irritation develops or persists. Remove contaminated clothing and shoes. Clean contaminated clothing and shoes before re-use.

Inhalation: If respiratory irritation or distress occurs, remove victim to fresh air. Get medical attention if respiratory irritation or distress continues.

Ingestion: If victim conscious and alert, give 2-3 glasses of water to drink DO NOT INDUCE VOMITING. Do not give anything by mouth to an unconscious person. Seek immediate medical attention. Do not leave victim unattended. To prevent aspiration of swallowed product, lay victim on side with head lower than waist. If vomiting occurs and the victim is conscious, give water to further dilute the chemical.

Notes to physician: No specific antidote, medical staff contacts Poisons Information Center. All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

See section 11 for more detailed information on health effects and symptoms.

Section 5: Fire-Fighting Measures

Extinguishing media
Suitable: Use any means suitable for extinguishing surrounding fire.

Not suitable: N/A

Special exposure hazards: Non-combustible.

Hazardous thermal decomposition products: Oxides of magnesium and oxides of nitrogen.

Special protective equipment for fire fighters: Fire Fighting should wear positive self-contained breathing apparatus (SCBA) and full turnout gear.

Remark: Move containers from fire area if possible to do so without risk.
Section 6: Accidental Release Measures


Environmental precautions: Do not let this chemical enter the environment.

Methods for cleaning up

Small spill: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust.

Large spill: As for small spill

Personal Protection in Case of Large Spill: Safety glasses. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product.

Section 7: Handling and Storage

Handling: Minimize dust generation and accumulation. Do not breathe dust. Avoid contact with skin and eyes. Wash thoroughly after handling. Do not permit eating/drinking/smoking near the material.

Storage: Keep containers tightly closed, in a dry, cool and well ventilated place. Protect from moisture and water. Do not store together with reducing agents, organic materials, alkalis and strong acids. Use original container. Protect against physical damage.

Specific use(s): N/A

Section 8: Exposure Control / Personal Protection

Exposure limit values: ACGIH-TLV 10 mg/m³ (TWA) *
ACGIH-TLV 3 mg/m³ (TWA) **
OSHA-PEL 15 mg/m³ (TWA) ***
OSHA-PEL 5 mg/m³ (TWA) **
* nuisance dust - inhalable particulate
** nuisance dust - respirable particulate
*** total dust

Exposure controls

Occupational exposure controls: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommend exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Respiratory protection: Disposable particulate mask. Be sure to use an approved/certified or equivalent. Wear appropriate respirator when ventilation is inadequate.
Hand protection: Wear disposable vinyl gloves to prevent skin exposure.

Eye protection: Wear protective safety glasses.

Skin protection: Wear appropriate long-sleeved clothing to minimize skin contact.

Hygiene measures: Keep away from foodstuffs and beverages. Do not eat, drink or smoke during work time. Remove soiled or soaked clothing immediately. Clean skin thoroughly after work; apply skin cream. During use, provide suitable ventilation.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Exposure Guidelines: Exposure limits represent regulated or recommended worker breathing zone concentrations measured by validated sampling and analytical methods, meeting the regulatory requirements.

Section 9: Physical and Chemical Properties

General information:
Physical state: Solid (flakes)
Colour: White or yellowish-greenish white.
Odour: Odourless
Odour threshold: Odourless
Molecular weight: 256.45
pH: 4-8 (Conc. (%w/w): >=1)
Boiling point/boiling range: Not applicable
Flash point: 330°C (626°F)
Flammability: Not flammable
Explosive properties: Not explosive
Oxidizing properties: Oxidizer
Vapor pressure: Not applicable
Relative Density: Not applicable
Water solubility: Soluble in cold water and hot water.
Octanol/Water partition coefficient: <1, the product is more soluble in water
Viscosity: Not viscous
Vapor density: Not volatile
Evaporation rate (butyl acetate=1): Not applicable
VOC: Not an organic compounds
Apparent (Bulk) Density: Not applicable
Decomposition range: 330°C (626°F)
Other information:
Miscibility: N/A
Fat solubility: N/A
Conductivity: N/A
Gas group: N/A
Auto-ignition temperature: N/A
Melting point/melting range: 89°C (192.2°F)
Specific gravity: 0.8 (Water = 1)

Section 10: Stability and Reactivity

Stability: The product is stable under normal handling and storage conditions described in Section 7.

Conditions to avoid: Extreme humidity, water, excess heat.

Materials to avoid: Reducing agents, organic materials, alkalis and strong acids.

Hazardous Decomposition products: Under fire- oxides of magnesium, oxides of nitrogen and irritant and toxic fumes.

Hazard polymerization: Will not occur.

Section 11: Toxicological Information

Potential acute health effects

Inhalation: Cause irritation to respiratory system. May cause burns to the respiratory system. Symptoms may include coughing and shortness of breath. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion: Large oral doses of nitrates may cause dizziness, abdominal pain, vomiting, bloody diarrhea, weakness, convulsions, and collapse. May interfere with blood's capability to carry oxygen (methemoglobinemia), as evidenced by bluish color to skin and lips.

Skin contact: Causes irritation and burns to the skin.

Eyes contact: Causes irritation. May be extremely irritating with possible burns to eye tissue and permanent eye damage may result.

Acute toxicity:

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test/Type</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesium nitrate, hexahydrate</td>
<td>LD50, oral</td>
<td>Rat</td>
<td>5440 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Potential Chronic Health Effects
Reproductive toxicity: Not applicable.
Magnesium nitrate

**Carcinogenicity:** This product does not contain any substances that are considered by IARC, NTP, OSHA, EU or ACGIH to be “probable” or “suspected” human carcinogens.

**Mutagenicity:** Not applicable.

**Teratogenicity:** Not applicable.

**Over exposure signs/symptoms:**
**Ingestion:** Repeated small oral doses of nitrates may cause weakness, depression, headache, and mental impairment. Chronic exposures may affect ability of blood to carry oxygen, causing the lips and skin to turn blue.

**Target organs:** No specific data.

**Special Remarks on Toxicity to animals:** Very low toxicity for humans or animals.

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**Section 12: Ecological Information**

**Ecotoxicity**

**Aquatic ecotoxicity:** N/A

**Mobility:** Soluble in cold and hot water.

**Persistence:** Not applicable, since inorganic substance.

**Degradability:** Not applicable.

**Bioaccumulative potential:** N/A

**Result of PBT assessment:** N/A

**Other adverse effects:**
Substances which have an unfavorable influence on the oxygen balance and can be measured using parameters such as BOD, COD, etc.: N/A

**Substances, which contribute to eutrophication:** Nitrates.

**Remarks:** N/A

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**Section 13: Disposal Considerations**

**Methods of disposal:** Waste must disposed of in accordance with federal, state and local environmental control regulations.

**Hazardous waste:** N/A
Section 14: Transport Information

International transport regulations

<table>
<thead>
<tr>
<th>Regulatory Information</th>
<th>UN number</th>
<th>Proper shipping name</th>
<th>classes</th>
<th>Packing group</th>
<th>Label</th>
<th>Additional information</th>
<th>Marine pollutant</th>
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<tbody>
<tr>
<td>ADR/RID Class</td>
<td>1474</td>
<td>MAGNESIUM NITRATE</td>
<td>5.1</td>
<td>III</td>
<td></td>
<td>EAC: 1Z</td>
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<tr>
<td>ADNR Class</td>
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<td>MAGNESIUM NITRATE</td>
<td>5.1</td>
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<tr>
<td>IATA class</td>
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<td>MAGNESIUM NITRATE</td>
<td>5.1</td>
<td>III</td>
<td></td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

National Fire Protection Association Hazard Ratings- NFPA (R):

2 Health Hazard Rating - Moderate
0 Flammability Rating - Minimal
0 Instability Rating - Minimal
OX Special hazard

Section 15: Regulatory Information

EC regulations
Classification and labeling have been determined according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use.

Labelling in accordance with EC directive: O; Oxidizing, Xi; Irritating

Risk phrases:
R08: Contact with combustible material may cause fire.
R36/37/38: Irritating to eyes, respiratory system and skin.

Safety phrases:
S08: Keep container dry.
S17: Keep away from combustible material.
S24/25: Avoid contact with skin and eyes.
S22: Avoid breathing dust.
S26: In case of contact with eyes, rise immediately with plenty of water and seek medical advice.
S36: Wear suitable protective clothing.

- Health Hazard Rating - Moderate: 2
- Flammability Rating - Minimal: 0
- Instability Rating - Minimal: 0

Section 16: Other Information

Full text of R-phrases referred to in sections 2 and 3:
- RO8: Contact with combustible material may cause fire.
- R36/37/38: Irritating to eyes, respiratory system and skin.

Full text of classifications referred to in sections 2 and 3:
- Oxidizing, Xi; Irritating

Training advice: N/A

Recommended restriction: N/A

Key Legend Information:
ACGIH- American Conference of Govermental Industrial Hygienists
OSHA- Occupational Safety and Health Administration
NTP- National Toxicology program
IARC- International Agency for Research on Cancer
ND- Not Determined
N/A- Not available
R-phrases- Risk phrases
S-phrases- Safety phrases

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