1. Identification

Product Name: Magnesium, reference standard solution 1000 ppm
Cat No.: M51-100; M51-500
Synonyms: None.
Recommended Use: Laboratory chemicals.
Uses advised against: No Information available

2. Hazard(s) Identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Corrosive to metals</th>
<th>Category 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Corrosion/irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 3</td>
</tr>
<tr>
<td>Target Organs - Respiratory system.</td>
<td></td>
</tr>
</tbody>
</table>

Label Elements

Signal Word
Danger

Hazard Statements
May be corrosive to metals
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation
Magnesium, reference standard solution 1000 ppm

Precautionary Statements

Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Wear eye/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep only in original container

Response
IF exposed or concerned: Get medical attention/advice

Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse

Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention

Spills
Absorb spillage to prevent material damage

Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Store in corrosive resistant polypropylene container with a resistant inliner
Store in a dry place

Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
None identified

Other hazards
May cause pulmonary edema.

3. Composition / information on ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>96</td>
</tr>
<tr>
<td>Nitric acid</td>
<td>7697-37-2</td>
<td>&lt; 3</td>
</tr>
<tr>
<td>Magnesium nitrate hexahydrate</td>
<td>13446-18-9</td>
<td>1</td>
</tr>
</tbody>
</table>

4. First-aid measures

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation
Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.
Ingestion
Do not induce vomiting. Obtain medical attention.

Most important symptoms/effects
No information available.

Notes to Physician
Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media
No information available

Flash Point
Method -
No information available

Autoignition Temperature
No information available

Explosion Limits
Upper
No data available
Lower
No data available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

Hazardous Combustion Products
Nitrogen oxides (NOx) Magnesium oxides

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental release measures

Personal Precautions
Use personal protective equipment. Ensure adequate ventilation. Avoid contact with the skin and the eyes.

Environmental Precautions
See Section 12 for additional ecological information.

Methods for Containment and Clean Up
Soak up with inert absorbent material. Prevent product from entering drains. Sweep up and shovel into suitable containers for disposal.

7. Handling and storage

Handling
Wear personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Do not breathe vapors or spray mist.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store in metal containers. Corrosives area.

8. Exposure controls / personal protection

Exposure Guidelines
This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.
Magnesium, reference standard solution 1000 ppm

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>TWA: 2 ppm</td>
<td>(Vacated) TWA: 2 ppm</td>
<td>IDLH: 25 ppm</td>
</tr>
<tr>
<td></td>
<td>STEL: 4 ppm</td>
<td>(Vacated) STEL: 4 ppm</td>
<td>TWA: 2 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 2 ppm</td>
<td>TWA: 5 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL: 10 mg/m³</td>
<td>STEL: 4 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 5 mg/m³</td>
<td>STEL: 10 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Quebec</th>
<th>Mexico OEL (TWA)</th>
<th>Ontario TWA-EV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>TWA: 2 ppm</td>
<td>TWA: 2 ppm</td>
<td>TWA: 2 ppm</td>
</tr>
<tr>
<td></td>
<td>TWA: 5.2 mg/m³</td>
<td>TWA: 5 mg/m³</td>
<td>TWA: 5.2 mg/m³</td>
</tr>
<tr>
<td></td>
<td>STEL: 4 ppm</td>
<td>STEL: 4 ppm</td>
<td>STEL: 4 ppm</td>
</tr>
<tr>
<td></td>
<td>STEL: 10 mg/m³</td>
<td>STEL: 10 mg/m³</td>
<td>STEL: 10 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures
Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State  | Liquid
Appearance     | Colorless
Odor           | Odorless
Odor Threshold | No information available
pH              | Acidic
Melting Point/Range | < 0 °C
Boiling Point/Range  | > 100 °C
Flash Point     |
Evaporation Rate | > 1 (ether = 1)
Flammability (solid,gas) | No information available
Flammability or explosive limits
  Upper | No data available
  Lower | No data available
Vapor Pressure  | 14 mmHg @ 20 °C
Vapor Density   | 0.7
Relative Density | < 1.0
Solubility      | Soluble in water
Partition coefficient; n-octanol/water | No data available
Autoignition Temperature | No information available
Decomposition temperature | No information available
Viscosity       | No information available

10. Stability and reactivity

Reactive Hazard | None known, based on information available
Stability       | Stable under normal conditions.
Conditions to Avoid

Incompatible products. Heat.

Incompatible Materials

Strong bases, Oxidizing agents

Hazardous Decomposition Products

Nitrogen oxides (NOx), Magnesium oxides

Hazardous Polymerization

Hazardous polymerization does not occur.

Hazardous Reactions

None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

No acute toxicity information is available for this product

Component Information

No information available

Toxicologically Synergistic Products

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation

Severe eye irritant Irritating to respiratory system and skin

Sensitization

No information available

Carcinogenicity

Contains a known or suspected carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
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<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
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<td>Not listed</td>
<td>Not listed</td>
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<tr>
<td>Nitric acid</td>
<td>7697-37-2</td>
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<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Magnesium nitrate hexahydrate</td>
<td>13446-18-9</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Mutagenic Effects

No information available

Reproductive Effects

No information available.

Developmental Effects

May be a developmental hazard based on animal data.

Teratogenicity

No information available.

STOT - single exposure

Respiratory system

STOT - repeated exposure

None known

Aspiration hazard

No information available

Symptoms / effects, both acute and delayed

No information available

Endocrine Disruptor Information

No information available

Other Adverse Effects

The toxicological properties have not been fully investigated.

12. Ecological Information

Ecotoxicity

Do not empty into drains.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>Not listed</td>
<td>72 mg/L LC50 96 h</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Persistence and Degradability

No information available

Bioaccumulation/ Accumulation

No information available.
Mobility

No information available.

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>-2.3</td>
</tr>
</tbody>
</table>

### 13. Disposal considerations

**Waste Disposal Methods**

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

### 14. Transport information

**DOT**

<table>
<thead>
<tr>
<th>UN-No</th>
<th>UN3264</th>
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</thead>
<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>CORROSIVE LIQUID, ACIDIC, INORGANIC,N.O.S.</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>8</td>
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<tr>
<td>Packing Group</td>
<td>III</td>
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</table>

**TDG**

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<tr>
<th>UN-No</th>
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<tr>
<td>Proper Shipping Name</td>
<td>CORROSIVE LIQUID, ACIDIC, INORGANIC,N.O.S.</td>
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<tr>
<td>Hazard Class</td>
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<tr>
<td>Packing Group</td>
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**IATA**

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<tr>
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<tr>
<td>Proper Shipping Name</td>
<td>CORROSIVE LIQUID, ACIDIC, INORGANIC,N.O.S.</td>
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<tr>
<td>Hazard Class</td>
<td>8</td>
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<tr>
<td>Packing Group</td>
<td>III</td>
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</table>

**IMDG/IMO**

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<tr>
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<th>UN3264</th>
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<tbody>
<tr>
<td>Proper Shipping Name</td>
<td>CORROSIVE LIQUID, ACIDIC, INORGANIC,N.O.S.</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>8</td>
</tr>
<tr>
<td>Packing Group</td>
<td>III</td>
</tr>
</tbody>
</table>

### 15. Regulatory information

**International Inventories**

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>231-791-2</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
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<td>X</td>
<td></td>
</tr>
<tr>
<td>Nitric acid</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>231-714-2</td>
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<td>X</td>
<td>X</td>
<td>X</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Magnesium nitrate hexahydrate</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

*Legend:*

- X - Listed
- E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- P - Indicates a commenced PMN substance
- R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
- Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
- Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

**U.S. Federal Regulations**

**TSCA 12(b)**

Not applicable
SARA 313  Not applicable

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>7697-37-2</td>
<td>&lt; 3</td>
<td>1.0</td>
</tr>
<tr>
<td>Magnesium nitrate hexahydrate</td>
<td>13446-18-9</td>
<td>1</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazardous Categorization

- **Acute Health Hazard**: Yes
- **Chronic Health Hazard**: Yes
- **Fire Hazard**: No
- **Sudden Release of Pressure Hazard**: No
- **Reactive Hazard**: No

Clean Water Act  Not applicable

<table>
<thead>
<tr>
<th>Component</th>
<th>CWA - Hazardous Substances</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>X</td>
<td>1000 lb</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Clean Air Act  Not applicable

<table>
<thead>
<tr>
<th>Component</th>
<th>Specifically Regulated Chemicals</th>
<th>Highly Hazardous Chemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>-</td>
<td>TQ: 500 lb</td>
</tr>
</tbody>
</table>

CERCLA  Not applicable

<table>
<thead>
<tr>
<th>Component</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA EHS RQs</th>
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</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>1000 lb</td>
<td>1000 lb</td>
</tr>
</tbody>
</table>

California Proposition 65  This product does not contain any Proposition 65 chemicals

State Right-to-Know  Not applicable

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Magnesium nitrate hexahydrate</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>-</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation

- **Reportable Quantity (RQ)**: N
- **DOT Marine Pollutant**: N
- **DOT Severe Marine Pollutant**: N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

<table>
<thead>
<tr>
<th>Component</th>
<th>DHS Chemical Facility Anti-Terrorism Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitric acid</td>
<td>2000 lb STQ</td>
</tr>
</tbody>
</table>

Other International Regulations

- **Mexico - Grade**: No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.
Magnesium, reference standard solution 1000 ppm

WHMIS Hazard Class

E  Corrosive material
D2B  Toxic materials

---

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date
26-Sep-2009
Revision Date
17-Jul-2014
Print Date
17-Jul-2014
Revision Summary
This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS