1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Phenylmagnesium bromide solution

Product Number : 257117
Brand : Aldrich
Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103 USA
Telephone : +18003255832
Fax : +18003255052
Emergency Phone # : (314) 776-6555

2. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : C₆H₅BrMg

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-58-3</td>
<td>202-867-2</td>
<td>-</td>
<td>59.62 %</td>
</tr>
<tr>
<td>60-29-7</td>
<td>200-467-2</td>
<td>603-022-00-4</td>
<td>40.38 %</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Flammable liquid, Water Reactive, Target Organ Effect, Harmful by ingestion., Corrosive

Target Organs
Central nervous system, Liver, Kidney, Gastrointestinal tract, Skeletal muscle.

HMIS Classification
Health hazard: 3
Chronic Health Hazard: *
Flammability: 3
Physical hazards: 2

NFPA Rating
Health hazard: 3
Fire: 3
Reactivity Hazard: 2
Special hazard: W
Potential Health Effects

**Inhalation** May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

**Skin** May be harmful if absorbed through skin. Causes skin burns.

**Eyes** Causes eye burns.

**Ingestion** Harmful if swallowed. Causes burns.

4. FIRST AID MEASURES

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

**In case of skin contact**
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**
Continue rinsing eyes during transport to hospital. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

**Flammable properties**
- **Flash point** -40 °C (-40 °F) - closed cup
- **Ignition temperature** no data available

**Suitable extinguishing media**
- Carbon dioxide (CO2) Dry powder

**Extinguishing media which shall not be used for safety reasons**
- Water

**Special protective equipment for fire-fighters**
Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods for cleaning up**
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Do not flush with water.

7. HANDLING AND STORAGE

**Handling**
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.
Storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place. Never allow product to get in contact with water during storage.

Light sensitive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diethyl ether</td>
<td>60-29-7</td>
<td>TWA</td>
<td>400 ppm</td>
<td>2007-01-01</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>500 ppm</td>
<td>2007-01-01</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Remarks
Central Nervous System impairment Upper Respiratory Tract irritation

| TWA            | 400 ppm  | 1,200 mg/m3 | 1989-01-19 | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 |
| STEL           | 500 ppm  | 1,500 mg/m3 | 1989-01-19 | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 |
| TWA            | 400 ppm  | 1,200 mg/m3 | 1997-08-04 | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |

The value in mg/m3 is approximate.

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves.

Eye protection
Tightly fitting safety goggles. Faceshield (8-inch minimum).

Skin and body protection
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form liquid

Safety data
pH no data available
Melting point no data available
Boiling point no data available
Flash point -40 °C (-40 °F) - closed cup
Ignition temperature no data available
Lower explosion limit no data available
Upper explosion limit no data available
Density 1.134 g/mL at 25 °C (77 °F)
Water solubility no data available

10. STABILITY AND REACTIVITY

Storage stability
Stable under recommended storage conditions.

Conditions to avoid
Heat, flames and sparks. Exposure to moisture.

Materials to avoid
Water, Oxidizing agents, Strong oxidizing agents, Strong acids, Alcohols, acids

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen bromide gas, Magnesium oxide

Hazardous reactions
Vapours may form explosive mixture with air.
Reacts violently with water.

11. TOXICOLOGICAL INFORMATION

Acute toxicity
no data available

Irritation and corrosion
no data available

Sensitisation
no data available

Chronic exposure
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as
a carcinogen or potential carcinogen by ACGIH.

**NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

### Signs and Symptoms of Exposure

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea

### Potential Health Effects

**Inhalation**
May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

**Skin**
May be harmful if absorbed through skin. Causes skin burns.

**Eyes**
Causes eye burns.

**Ingestion**
Harmful if swallowed. Causes burns.

**Target Organs**
Central nervous system, Liver, Kidney, Gastrointestinal tract, Skeletal muscle,

### 12. ECOLOGICAL INFORMATION

**Elimination information (persistence and degradability)**
no data available

**Ecotoxicity effects**
no data available

**Further information on ecology**
no data available

### 13. DISPOSAL CONSIDERATIONS

**Product**
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**
Dispose of as unused product.

### 14. TRANSPORT INFORMATION

**DOT (US)**
- **UN-Number**: 3399
- **Class**: 4.3 (3)
- **Packing group**: I
- **Proper shipping name**: Organometallic substance, liquid, water-reactive, flammable (Bromophenylmagnesium, Diethyl ether)
- **Reportable Quantity (RQ)**: 248 lbs
- **Marine pollutant**: No
- **Poison Inhalation Hazard**: No

**IMDG**
- **UN-Number**: 3399
- **Class**: 4.3 (3)
- **Packing group**: I
- **EMS-No**: F-G, S-N
- **Proper shipping name**: ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE (Diethyl ether, Bromophenylmagnesium)
- **Marine pollutant**: No
15. REGULATORY INFORMATION

**OSHA Hazards**
Flammable liquid, Water Reactive, Target Organ Effect, Harmful by ingestion., Corrosive

**DSL Status**
All components of this product are on the Canadian DSL list.

**SARA 302 Components**
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**
Fire Hazard, Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

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**Pennsylvania Right To Know Components**

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**New Jersey Right To Know Components**

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**California Prop. 65 Components**
This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

16. OTHER INFORMATION

**Further information**
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