

## 1: Identification

### Product identifier

**Product name:** **Ethylmagnesium chloride, 1-2M in ether**

**Stock number:** 87976

**CAS Number:**

2386-64-3

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

**Identified use:** SU24 Scientific research and development

### Details of the supplier of the safety data sheet

#### Manufacturer/Supplier:

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

**Information Department:** Health, Safety and Environmental Department

#### Emergency telephone number:

During normal hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

## 2: Hazard(s) identification

### Classification of the substance or mixture

**Classification according to Regulation (EC) No 1272/2008**



GHS02 Flame

Flam. Liq. 1 H224 Extremely flammable liquid and vapour.

Water-react. 1 H260 In contact with water releases flammable gases which may ignite spontaneously.



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

STOT SE 3 H336 May cause drowsiness or dizziness.

### Classification according to Directive 67/548/EEC or Directive 1999/45/EC



C; Corrosive

R34: Causes burns.



Xn; Harmful

R22: Harmful if swallowed.



F+; Extremely flammable

R12: Extremely flammable.



F; Highly flammable

R14/15: Reacts violently with water, liberating extremely flammable gases.

R67: Vapours may cause drowsiness and dizziness.

**Information concerning particular hazards for human and environment:** Causes a narcotic effect.

**Hazards not otherwise classified** No information known.

### Label elements

**Labelling according to Regulation (EC) No 1272/2008** The substance is classified and labeled according to the CLP regulation.

### Hazard pictograms



GHS02 GHS05 GHS06

### Signal word Danger

### Hazard statements

H224 Extremely flammable liquid and vapour.

H260 In contact with water releases flammable gases which may ignite spontaneously.

H301 Toxic if swallowed.

H314 Causes severe skin burns and eye damage.

H336 May cause drowsiness or dizziness.

### Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

### WHMIS classification

B2 - Flammable liquid

**Product name:** Ethylmagnesium chloride, 1-2M in ether

B6 - Reactive flammable material  
D2B - Toxic material causing other toxic effects  
E - Corrosive material



**Classification system**  
**HMIS ratings (scale 0-4)**  
**(Hazardous Materials Identification System)**

|            |   |                            |
|------------|---|----------------------------|
| HEALTH     | 3 | Health (acute effects) = 3 |
| FIRE       | 4 | Flammability = 4           |
| REACTIVITY | 3 | Physical Hazard = 3        |

**Other hazards**  
**Results of PBT and vPvB assessment**  
**PBT:** Not applicable.  
**vPvB:** Not applicable.

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### 3: Composition/information on ingredients

**Chemical characterization: Substances**  
**CAS# Description:**  
2386-64-3 Ethylmagnesium chloride, 1-2M in ether

### 4: First-aid measures

**Description of first aid measures**  
**General information** Immediately remove any clothing soiled by the product.  
**After inhalation**  
Supply fresh air. If required, provide artificial respiration. Keep patient warm.  
Seek immediate medical advice.  
**After skin contact**  
Immediately wash with water and soap and rinse thoroughly.  
Seek immediate medical advice.  
**After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.  
**After swallowing** Seek medical treatment.  
**Information for doctor**  
**Most important symptoms and effects, both acute and delayed** No further relevant information available.  
**Indication of any immediate medical attention and special treatment needed** No further relevant information available.

### 5: Fire-fighting measures

**Extinguishing media**  
**Suitable extinguishing agents**  
Extinguishing powder. Do not use water.  
In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.  
**For safety reasons unsuitable extinguishing agents** Water  
**Special hazards arising from the substance or mixture**  
Reacts violently with water  
Contact with water releases flammable gases  
If this product is involved in a fire, the following can be released:  
Carbon monoxide and carbon dioxide  
Hydrogen chloride (HCl)  
**Advice for firefighters**  
**Protective equipment:**  
Wear self-contained respirator.  
Wear fully protective impervious suit.

### 6: Accidental release measures

**Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
Keep away from ignition sources  
**Environmental precautions:**  
Do not allow material to be released to the environment without proper governmental permits.  
Do not allow product to reach sewage system or any water course.  
Do not allow to penetrate the ground/soil.  
**Methods and material for containment and cleaning up:**  
Keep away from ignition sources.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Use neutralizing agent.  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
Do not flush with water or aqueous cleansing agents  
**Prevention of secondary hazards:** Keep away from ignition sources.  
**Reference to other sections**  
See Section 7 for information on safe handling  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### 7: Handling and storage

**Handling**  
**Precautions for safe handling**  
Keep container tightly sealed.  
Store in cool, dry place in tightly closed containers.  
Keep away from heat and direct sunlight.  
Ensure good ventilation at the workplace.  
Open and handle container with care.  
**Information about protection against explosions and fires:**  
Protect from humidity and water.  
Protect against electrostatic charges.  
Fumes can combine with air to form an explosive mixture.

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Product name: **Ethylmagnesium chloride, 1-2M in ether**

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Keep ignition sources away.

**Conditions for safe storage, including any incompatibilities**

**Storage**

**Requirements to be met by storerooms and receptacles:** Store in a cool location.

**Information about storage in one common storage facility:**

Store away from oxidizing agents.

Store away from alcohols.

Store away from water/moisture.

**Further information about storage conditions:**

Avoid contact with air/oxygen.

Protect from humidity and water.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Protect from heat and direct sunlight.

**Specific end use(s)** No further relevant information available.

**8: Exposure controls/personal protection**

**Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Control parameters**

**Components with limit values that require monitoring at the workplace:**

|                     |                      |
|---------------------|----------------------|
| Diethyl ether       |                      |
| ppm                 |                      |
| ACGIH TLV           | 400; 500-STEL        |
| Austria MAK         | 400                  |
| Belgium TWA         | 400; 500-STEL        |
| Denmark TWA         | 400                  |
| Finland TWA         | 400; 500-STEL        |
| France VME          | 400; 500-VLE         |
| Germany MAK         | 400                  |
| Hungary TWA         | 300; 600-STEL (skin) |
| Ireland TWA         | 400; 500-STEL        |
| Japan OEL           | 400                  |
| Korea TLV           | 400; 500-STEL        |
| Netherlands MAC-TGG | 400                  |
| Norway TWA          | 200                  |
| Poland TWA          | 300; 1500-STEL       |
| Russia TWA          | 400; 300-STEL        |
| Sweden TWA          | 400; 500-STEL        |
| Switzerland MAK-W   | 400; 800-KZG-W       |
| United Kingdom TWA  | 400; 500-STEL        |
| USA PEL             | 400                  |

**Additional information:** No data

**Exposure controls**

**Personal protective equipment**

**General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

**Breathing equipment:** Use suitable respirator when high concentrations are present.

**Protection of hands:**

Impervious gloves

Check protective gloves prior to each use for their proper condition.

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

**Eye protection:**

Tightly sealed goggles

Full face protection

**Body protection:** Protective work clothing.

**9: Physical and chemical properties**

**Information on basic physical and chemical properties**

**General Information**

|                    |                 |
|--------------------|-----------------|
| <b>Appearance:</b> |                 |
| Form:              | Liquid          |
| Color:             | Dark            |
| Odor:              | Not determined  |
| Odor threshold:    | Not determined. |

|                  |                 |
|------------------|-----------------|
| <b>pH-value:</b> | Not determined. |
|------------------|-----------------|

|                                  |                |
|----------------------------------|----------------|
| <b>Change in condition</b>       |                |
| Melting point/Melting range:     | Not determined |
| Boiling point/Boiling range:     | Not determined |
| Sublimation temperature / start: | Not determined |

|                               |                           |
|-------------------------------|---------------------------|
| Flash point:                  | -44 °C (-47 °F) ((ether)) |
| Flammability (solid, gaseous) | Not determined.           |
| Ignition temperature:         | 160 °C (320 °F) ((ether)) |
| Decomposition temperature:    | Not determined            |
| Auto igniting:                | Not determined.           |

|                             |   |
|-----------------------------|---|
| <b>Danger of explosion:</b> | Product is not explosive. However, formation of explosive air/vapor mixtures is possible. |
|-----------------------------|---|

|                          |                      |
|--------------------------|----------------------|
| <b>Explosion limits:</b> |                      |
| Lower:                   | 1.85 Vol % ((ether)) |
| Upper:                   | 36 Vol % ((ether))   |
| Vapor pressure:          | Not determined       |
| Density:                 | Not determined       |
| Relative density         | Not determined.      |
| Vapor density            | Not determined.      |

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USA

**Product name:** Ethylmagnesium chloride, 1-2M in ether

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**Evaporation rate** Not determined.  
**Solubility in / Miscibility with Water:** Reacts violently  
Contact with water releases flammable gases  
**Alcohols:** Reacts  
**Partition coefficient (n-octanol/water):** Not determined.  
**Viscosity:**  
**dynamic:** Not determined.  
**kinematic:** Not determined.  
**Other information** No further relevant information available.

## 10: Stability and reactivity

**Reactivity**  
Reacts violently with water.  
In contact with water releases flammable gases which may ignite spontaneously.  
**Chemical stability** Stable under recommended storage conditions.  
**Thermal decomposition / conditions to be avoided:** Decomposition will not occur if used and stored according to specifications.  
**Possibility of hazardous reactions**  
Contact with water releases flammable gases  
Reacts violently with water  
**Incompatible materials:**  
Air  
Oxidizing agents  
Water/moisture  
**Hazardous decomposition products:**  
Carbon monoxide and carbon dioxide  
Hydrogen chloride (HCl)  
Ethane

## 11: Toxicological information

**Information on toxicological effects**  
**Acute toxicity:**  
Harmful if swallowed.  
Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.  
**LD/LC50 values that are relevant for classification:** No data  
**Skin irritation or corrosion:** Causes severe skin burns.  
**Eye irritation or corrosion:** Causes serious eye damage.  
**Sensitization:** No sensitizing effects known.  
**Germ cell mutagenicity:** No effects known.  
**Carcinogenicity:** No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.  
**Reproductive toxicity:** No effects known.  
**Specific target organ system toxicity - repeated exposure:** No effects known.  
**Specific target organ system toxicity - single exposure:** May cause drowsiness or dizziness.  
**Aspiration hazard:** No effects known.  
**Subacute to chronic toxicity:**  
Diethyl ether is a depressant of the central nervous system and is capable of causing intoxication, drowsiness, stupor and unconsciousness. Severe exposure may cause respiratory failure and death. On contact it may irritate the eyes.  
Inhalation of magnesium compounds may cause metal fume fever. Metallic magnesium which perforates the skin may cause local lesions. Some magnesium salts have produced muscle weakness, cardiac arrhythmias, respiratory effects and changes in blood chemistry following ingestion.  
**Subacute to chronic toxicity:** No effects known.  
**Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

## 12: Ecological information

**Toxicity**  
**Aquatic toxicity:** No further relevant information available.  
**Persistence and degradability** No further relevant information available.  
**Bioaccumulative potential** No further relevant information available.  
**Mobility in soil** No further relevant information available.  
**Additional ecological information:**  
**General notes:**  
Do not allow material to be released to the environment without proper governmental permits.  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.  
Avoid transfer into the environment.  
**Results of PBT and vPvB assessment**  
**PBT:** Not applicable.  
**vPvB:** Not applicable.  
**Other adverse effects** No further relevant information available.

## 13: Disposal considerations

**Waste treatment methods**  
**Recommendation** Consult state, local or national regulations to ensure proper disposal.  
**Uncleaned packagings:**  
**Recommendation:** Disposal must be made according to official regulations.

## 14: Transport information

|  |   |
|--|---|
| <b>UN-Number</b><br><b>DOT, IMDG, IATA</b>   | UN3399  |
| <b>UN proper shipping name</b><br><b>DOT</b> | Organometallic substance, liquid, water-reactive, flammable (ethylmagnesium chloride/diethyl ether) |
| <b>IMDG, IATA</b>                            | ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE (ethylmagnesium chloride/diethyl ether) |

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USA

Product name: **Ethylmagnesium chloride, 1-2M in ether**

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Transport hazard class(es)

DOT



Class  
Label  
Class  
Label  
IMDG, IATA

4.3 Substances which, in contact with water, emit flammable gases.  
4.3+3  
4.3 (WF1) Substances which, in contact with water, emit flammable gases  
4.3+3



Class  
Label

4.3 Substances which, in contact with water, emit flammable gases.  
4.3+3

Packing group  
DOT, IMDG, IATA

I

Environmental hazards:

Not applicable.

Special precautions for user

Warning: Substances which, in contact with water, emit flammable gases

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

Transport/Additional information:

DOT

Marine Pollutant (DOT):

No

Item:

UN "Model Regulation":

UN3399, Organometallic substance, liquid, water-reactive, flammable

(ethylmagnesium chloride/diethyl ether), 4.3 (3), I

15: Regulatory information

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

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

SARA Section 313 (specific toxic chemical listings) Substance is not listed.

California Proposition 65

Prop 65 - Chemicals known to cause cancer Substance is not listed.

Prop 65 - Developmental toxicity Substance is not listed.

Prop 65 - Developmental toxicity, female Substance is not listed.

Prop 65 - Developmental toxicity, male Substance is not listed.

Information about limitation of use: For use only by technically qualified individuals.

Other regulations, limitations and prohibitive regulations

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.

REACH - Pre-registered substances Substance is listed.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Health, Safety and Environmental Department.

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

vPvB: very Persistent and very Bioaccumulative

ACGIH: American Conference of Governmental Industrial Hygienists (USA)

OSHA: Occupational Safety and Health Administration (USA)

NTP: National Toxicology Program (USA)

IARC: International Agency for Research on Cancer

EPA: Environmental Protection Agency (USA)