

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

**1.1 Product identifier**

Trade name **Methylmagnesium bromide, 3M in ether**

Stock number: 87324

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

Identified use: SU24 Scientific research and development

**1.3 Details of the supplier of the safety data sheet**

**Manufacturer/Supplier:**

Thermo Fisher (Kandel) GmbH  
Zeppelinstr. 7b  
76185 Karlsruhe / Germany  
Tel: +49 (0) 721 84007 280  
Fax: +49 (0) 721 84007 300  
Email: tech@alfa.com  
www.alfa.com

Informing department: Product safety Tel + +049 (0) 7275 988687-0


**1.4 Emergency telephone number:**

Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)  
Poison Information Center Mainz  
www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

**SECTION 2: Hazards identification**


**2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008

 GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.

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

 GHS05 corrosion

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

Eye Dam. 1 H318 Causes serious eye damage.

 GHS07

Acute Tox. 4 H302 Harmful if swallowed.

STOT SE 3 H336 May cause drowsiness or dizziness.

Other hazards that do not result in classification No information known.

**2.2 Label elements**

Labelling according to Regulation (EC) No 1272/2008 The product is classified and labelled according to the CLP regulation.

**Hazard pictograms**

GHS02 GHS05 GHS07

Signal word Danger

**Hazard-determining components of labelling:**

Diethyl ether

Methylmagnesium bromide

**Hazard statements**

H225 Highly flammable liquid and vapour.

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

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H336 May cause drowsiness or dizziness.

**Precautionary statements**

P223 Do not allow contact with water.

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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.

**Additional information:**

EUH014 Reacts violently with water.

EUH066 Repeated exposure may cause skin dryness or cracking.

**2.3 Other hazards**

**Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

**SECTION 3: Composition/information on ingredients**

**3.2 Mixtures**

**Dangerous components:**

CAS: 60-29-7 EINECS: 200-467-2 Index number: 603-022-00-4	Diethyl ether	 Flam. Liq. 1, H224;  Acute Tox. 4, H302; STOT SE 3, H336	65,0%
CAS: 75-16-1 EINECS: 200-844-1	Methylmagnesium bromide	 Water-react. 1, H260;  Skin Corr. 1B, H314	35,0%

Additional information None known.

**SECTION 4: First aid measures**

**4.1 Description of first aid measures**

General information Instantly remove any clothing soiled by the product.

Trade name **Methylmagnesium bromide, 3M in ether**

(Contd. of page 1)

**After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.  
Seek immediate medical advice.

**After skin contact**

Instantly 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 doctor.

**After swallowing** Seek medical treatment.

**4.2 Most important symptoms and effects, both acute and delayed**

Causes severe skin burns.  
Harmful if swallowed.  
Causes serious eye damage.  
Repeated exposure may cause skin dryness or cracking.  
May cause drowsiness or dizziness.

**4.3 Indication of any immediate medical attention and special treatment needed** No further relevant information available.

**SECTION 5: Firefighting measures**

**5.1 Extinguishing media**

**Suitable extinguishing agents** In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.

**For safety reasons unsuitable extinguishing agents** Water.

**5.2 Special hazards arising from the substance or mixture**

Reacts violently with water  
If this product is involved in a fire, the following can be released:

Carbon monoxide and carbon dioxide  
Hydrogen bromide (HBr)  
Magnesium oxide

**5.3 Advice for firefighters**

**Protective equipment:**

Wear self-contained breathing apparatus.  
Wear full protective suit.

**SECTION 6: Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Keep away from ignition sources

**6.2 Environmental precautions:** Do not allow product to reach sewage system or water bodies.

**6.3 Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Use neutralising agent.

Dispose of contaminated material as waste according to section 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents

**Prevention of secondary hazards:** Keep away from ignition sources.

**6.4 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 information on disposal.

**SECTION 7: Handling and storage**

**7.1 Precautions for safe handling**

Handle under dry protective gas.  
Keep containers tightly sealed.  
Store in cool, dry place in tightly closed containers.  
Keep away from heat and direct sunlight.  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle container with care.

**Information about protection against explosions and fires:**

Protect against electrostatic charges.  
Fumes can combine with air to form an explosive mixture.  
Keep ignition sources away - Do not smoke.

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

**Storage**

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

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

Store away from air.  
Store away from water.  
Store away from strong bases.  
Store away from oxidising agents.  
Store away from reducing agents.

**Further information about storage conditions:**

Store under dry inert gas.  
This product is moisture sensitive.  
This product is air sensitive.  
Protect from humidity and keep away from water.  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
Protect from heat and direct sunlight.  
Store in a locked cabinet or with access restricted to technical experts or their assistants.

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

**SECTION 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.

**8.1 Control parameters**

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

**60-29-7 Diethyl ether (65,0%)**

AGW (Germany) Long-term value: 1200 mg/m<sup>3</sup>, 400 ppm  
1(l);DFG, EU

PEL (USA) Long-term value: 1200 mg/m<sup>3</sup>, 400 ppm

TLV (USA) Short-term value: 1520 mg/m<sup>3</sup>, 500 ppm  
Long-term value: 1210 mg/m<sup>3</sup>, 400 ppm

**Additional information:** No data

(Contd. on page 3)

Trade name **Methylmagnesium bromide, 3M in ether**

(Contd. of page 2)

**8.2 Exposure controls**

**Personal protective equipment**

**General protective and hygienic measures**

The usual precautionary measures should be adhered to in handling the chemicals.

Keep away from foodstuffs, beverages and food.

Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

**Breathing equipment:** Use breathing protection with high concentrations.

**Recommended filter device for short term use:**

Use a respirator with multi-purpose combination (US) or type ABEK (EN 14387) as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN (EU).

**Protection of hands:**

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

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Material of gloves** Fluorocarbon rubber (Viton)

**Eye protection:**

Tightly sealed safety glasses.

Full face protection

Safety glasses with side shields / NIOSH (US) or EN 166(EU)

**Body protection:** Protective work clothing.

**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

**General Information**

**Appearance:**

**Form:** Liquid

**Odour:** Not determined

**Odour threshold:** Not determined.

**pH-value:** Not determined.

**Change in condition**

**Melting point/freezing point:** Not determined

**Initial boiling point and boiling range:** Not determined

**Sublimation temperature / start:** Not determined

**Flash point:** -40 °C

**Inflammability (solid, gaseous)** Not determined.

**Ignition temperature:** 170 °C

**Decomposition temperature:** Not determined

**Self-inflammability:** Product is not selfigniting.

**Explosive properties:**

Product is not explosive. However, formation of explosive air/steam mixtures is possible.

**Critical values for explosion:**

**Lower:** 1,7 Vol %

**Upper:** 36,0 Vol %

**Steam pressure at 20 °C:** 586,3 hPa

**Density at 20 °C** 1,035 g/cm<sup>3</sup>

**Relative density** Not determined.

**Vapour density** Not determined.

**Evaporation rate** Not determined.

**Solubility in / Miscibility with**

**Water:** Reacts violently

Contact with water releases flammable gases

**Partition coefficient: n-octanol/water:** Not determined.

**Viscosity:**

**dynamic:** Not determined.

**kinematic:** Not determined.

**Solvent content:**

**Organic solvents:** 65,0 %

**Solids content:** 35,0 %

**9.2 Other information** No further relevant information available.

**SECTION 10: Stability and reactivity**

**10.1 Reactivity**

Reacts violently with water.

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

**10.2 Chemical stability** Stable under recommended storage conditions.

**Thermal decomposition / conditions to be avoided:** No decomposition if used and stored according to specifications.

**10.3 Possibility of hazardous reactions**

Reacts with strong oxidising agents

Contact with water releases flammable gases

Reacts violently with water

**10.4 Conditions to avoid** No further relevant information available.

**10.5 Incompatible materials:**

Air

Bases

Oxidising agents

Reducing agents

Water/moisture

**10.6 Hazardous decomposition products:**

Carbon monoxide and carbon dioxide

Hydrogen bromide

Magnesium oxide

**SECTION 11: Toxicological information**

**11.1 Information on toxicological effects**

**Acute toxicity**

Harmful if swallowed.

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.

Harmful if swallowed.

(Contd. on page 4)  
DE

Trade name **Methylmagnesium bromide, 3M in ether**

(Contd. of page 3)

**LD/LC50 values that are relevant for classification:**

**60-29-7 Diethyl ether**

Oral	LD50	1211 mg/kg (rat)
Dermal	LD50	>20 mL/kg (rabbit)

**Skin irritation or corrosion:**

Causes severe skin burns.  
Repeated exposure may cause skin dryness or cracking.  
Causes severe skin burns and eye damage.

**Eye irritation or corrosion:**

Causes serious eye damage.  
Causes serious eye damage.

**Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

**Germ cell mutagenicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for components in this product.

**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:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.

**Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

**SECTION 12: Ecological information**

**12.1 Toxicity**

**Aquatic toxicity:** No further relevant information available.

**12.2 Persistence and degradability** No further relevant information available.

**12.3 Bioaccumulative potential** No further relevant information available.

**12.4 Mobility in soil** No further relevant information available.

**Additional ecological information:**

**General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water.  
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.  
Avoid transfer into the environment.

**12.5 Results of PBT and vPvB assessment**

**PBT:** Not applicable.

**vPvB:** Not applicable.

**12.6 Other adverse effects** No further relevant information available.

**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**

**Recommendation**

Hand over to disposers of hazardous waste.  
Must be specially treated under adherence to official regulations.  
Consult state, local or national regulations for proper disposal.

**Uncleaned packagings:**

**Recommendation:** Disposal must be made according to official regulations.

**SECTION 14: Transport information**

**UN-Number**

ADR, IMDG, IATA

UN1928

**14.2 UN proper shipping name**

ADR

1928 METHYL MAGNESIUM BROMIDE IN ETHYL ETHER

IMDG, IATA

METHYL MAGNESIUM BROMIDE IN ETHYL ETHER

**14.3 Transport hazard class(es)**

ADR



Class  
Label  
IMDG

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



Class  
Label  
IATA

4.3 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**

ADR, IMDG, IATA

I

**14.5 Environmental hazards:**

Not applicable.

**14.6 Special precautions for user**

**Kemler Number:**

Warning: Substances which, in contact with water, emit flammable gases.  
X323

**EMS Number:**

F-G,S-L

**Stowage Category**

D

**Handling Code**

H1 Keep as dry as reasonably practicable

**Segregation Code**

SG26 In addition: from goods of classes 2.1 and 3 when stowed on deck of a containership a minimum distance of two container spaces athwartship shall be maintained, when stowed on ro-ro ships a distance of 6 m athwartship shall be maintained.

**14.7 Transport in bulk according to Annex II of Marpol and the IBC Code** Not applicable.

(Contd. on page 5)  
DE

Trade name **Methylmagnesium bromide, 3M in ether**

(Contd. of page 4)

**Transport/Additional information:**

**ADR**  
**Limited quantities (LQ)** 0  
**Excepted quantities (EQ)** Code: E0  
Not permitted as Excepted Quantity  
**Transport category** 0  
**Tunnel restriction code** B/E  
**UN "Model Regulation":** UN 1928 METHYL MAGNESIUM BROMIDE IN ETHYL ETHER, 4.3 (3), I

**SECTION 15: Regulatory information**

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

**Australian Inventory of Chemical Substances**

60-29-7 Diethyl ether

**Standard for the Uniform Scheduling of Medicines and Poisons**

60-29-7 Diethyl ether

S2, S4, S5, S6

**Directive 2012/18/EU**

**Named dangerous substances - ANNEX I** None of the ingredients is listed.

**Seveso category**

O1 Substances or mixtures with hazard statement EUH014

P5c FLAMMABLE LIQUIDS

**Qualifying quantity (tonnes) for the application of lower-tier requirements** 100 t

**Qualifying quantity (tonnes) for the application of upper-tier requirements** 500 t

**REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 40

**National regulations**

**Information about limitation of use:**

Employment restrictions concerning young persons must be observed.

For use only by technically qualified individuals.

**Classification according to VbF:** A I

**Technical instructions (air):**

Class	Share in %
NK	65,0

**Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

**Other regulations, limitations and prohibitive regulations**

**ELINCS (European List of Notified Chemical Substances)**

None of the ingredients is listed.

**Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.**

None of the ingredients are listed.

**The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.**

None of the ingredients is listed.

**Annex XIV of the REACH Regulations (requiring Authorisation for use)**

None of the ingredients is listed.

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

**SECTION 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 Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Relevant phrases**

H224 Extremely flammable liquid and vapour.

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

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H336 May cause drowsiness or dizziness.

**Department issuing SDS:** Global Marketing 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

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

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

VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety and Health Administration (USA)

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

BEI: Biological Exposure Limit

Flam. Liq. 1: Flammable liquids – Category 1

Flam. Liq. 2: Flammable liquids – Category 2

Water-react. 1: Substances and mixtures which in contact with water emit flammable gases – Category 1

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3