

## SAFETY DATA SHEET

# 4-Methoxyphenylmagnesium Bromide, 1M Solution In THF

According to Regulation (EC) No 1907/2006, Annex II, as amended. Commission Regulation (EU) No 2015/830 of 28 May 2015.

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

1.1. Product identifier

Product name 4-Methoxyphenylmagnesium Bromide, 1M Solution In THF

Product number 90027245

**CAS number** 13139-86-1

**EC number** 603-481-0

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

**Identified uses** For research purposes only.

Uses advised against No specific uses advised against are identified.

1.3. Details of the supplier of the safety data sheet

Supplier Molekula Ltd.

Lingfield Way,
Darlington,
DL1 4XX,
United Kingdom
+44 (0) 3302000333
info@molekula.com

## 1.4. Emergency telephone number

+44 (0) 1380 725952

# SECTION 2: Hazards identification

# 2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards Flam. Liq. 2 - H225

**Health hazards** Skin Corr. 1B - H314 Eye Dam. 1 - H318 Carc. 2 - H351 STOT SE 3 - H336

Environmental hazards Not Classified

2.2. Label elements

**EC number** 603-481-0

Hazard pictograms









Signal word

Danger

# 4-Methoxyphenylmagnesium Bromide, 1M Solution In THF

Hazard statements H225 Highly flammable liquid and vapour.

H314 Causes severe skin burns and eye damage.

H351 Suspected of causing cancer. H336 May cause drowsiness or dizziness.

Precautionary statements P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

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

P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof electrical equipment.

P242 Use non-sparking tools.

P243 Take action to prevent static discharges.

P260 Do not breathe vapour/ spray. P261 Avoid breathing vapour/ spray.

P264 Wash contaminated skin thoroughly after handling. P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water or shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove

contact lenses, if present and easy to do. Continue rinsing.

P308+P313 IF exposed or concerned: Get medical advice/ attention.

P310 Immediately call a POISON CENTER/ doctor. P312 Call a POISON CENTRE/doctor if you feel unwell.

P363 Wash contaminated clothing before reuse.

P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P403+P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

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

Supplemental label

information

EUH019 May form explosive peroxides.

EUH014 Reacts violently with water.

**Contains** tetrahydrofuran, 4-Methoxyphenylmagnesium bromide

#### 2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

## SECTION 3: Composition/information on ingredients

## 3.2. Mixtures

tetrahydrofuran 75-90%

CAS number: 109-99-9 EC number: 203-726-8

# Classification

Flam. Liq. 2 - H225 Eye Irrit. 2 - H319 Carc. 2 - H351 STOT SE 3 - H335

# 4-Methoxyphenylmagnesium Bromide, 1M Solution In THF

#### 4-Methoxyphenylmagnesium bromide

10-25%

CAS number: 13139-86-1

Classification

Skin Corr. 1B - H314 Eye Dam. 1 - H318

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

#### **SECTION 4: First aid measures**

#### 4.1. Description of first aid measures

General information Get medical attention if any discomfort continues. Show this Safety Data Sheet to the medical

personnel. Chemical burns must be treated by a physician.

**Inhalation** Move affected person to fresh air and keep warm and at rest in a position comfortable for

breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Get medical attention. Place unconscious person on their side in the recovery

position and ensure breathing can take place.

Ingestion Rinse mouth thoroughly with water. Give a few small glasses of water or milk to drink. Stop if

the affected person feels sick as vomiting may be dangerous. Never give anything by mouth to an unconscious person. Place unconscious person on their side in the recovery position and ensure breathing can take place. Keep affected person under observation. Get medical

attention if symptoms are severe or persist.

Skin contact It is important to remove the substance from the skin immediately. Rinse immediately with

plenty of water. Continue to rinse for at least 15 minutes and get medical attention. Chemical

burns must be treated by a physician.

**Eye contact** Rinse immediately with plenty of water. Do not rub eye. Remove any contact lenses and open

eyelids wide apart. Continue to rinse for at least 15 minutes and get medical attention.

#### 4.2. Most important symptoms and effects, both acute and delayed

General information The severity of the symptoms described will vary dependent on the concentration and the

length of exposure.

**Inhalation** A single exposure may cause the following adverse effects: Severe irritation of nose and

throat. Symptoms following overexposure may include the following: Corrosive to the respiratory tract. Prolonged or repeated exposure may cause the following adverse effects:

Suspected of causing cancer.

Ingestion May cause chemical burns in mouth, oesophagus and stomach. Symptoms following

overexposure may include the following: Severe stomach pain. Nausea, vomiting. Prolonged or repeated exposure may cause the following adverse effects: Suspected of causing cancer.

**Skin contact** Causes severe burns. Symptoms following overexposure may include the following: Pain or

irritation. Redness. Blistering may occur. Prolonged or repeated exposure may cause the

following adverse effects: Suspected of causing cancer.

**Eye contact** Causes serious eye damage. Symptoms following overexposure may include the following:

Pain. Profuse watering of the eyes. Redness.

#### 4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor Treat symptomatically.

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# **SECTION 5: Firefighting measures**

#### 5.1. Extinguishing media

Suitable extinguishing media The product is flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder

or water fog. Use fire-extinguishing media suitable for the surrounding fire.

Unsuitable extinguishing

media

Do not use water jet as an extinguisher, as this will spread the fire.

#### 5.2. Special hazards arising from the substance or mixture

Specific hazards Containers can burst violently or explode when heated, due to excessive pressure build-up.

Flammable liquid and vapour. Vapours may be ignited by a spark, a hot surface or an ember. Vapours may form explosive mixtures with air. Fire-water run-off in sewers may create fire or explosion hazard. Severe corrosive hazard. Water used for fire extinguishing, which has been

in contact with the product, may be corrosive.

Hazardous combustion products

Thermal decomposition or combustion products may include the following substances:

Very toxic or corrosive gases or vapours.

Carbon monoxide (CO). Carbon dioxide (CO2). Hydrogen bromide (HBr).

Oxides of the following substances:

Magnesium.

#### 5.3. Advice for firefighters

Protective actions during firefighting

Avoid breathing fire gases or vapours. Evacuate area. Keep upwind to avoid inhalation of gases, vapours, fumes and smoke. Ventilate closed spaces before entering them. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. If a leak or spill has not ignited, use water spray to disperse vapours and protect men stopping the leak. Avoid discharge to the aquatic environment. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.

Special protective equipment for firefighters

Regular protection may not be safe. Wear chemical protective suit. Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Firefighter's clothing conforming to European standard EN469 (including helmets, protective boots and gloves) will provide a basic level of protection for chemical incidents.

#### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this sa

Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Do not touch or walk into spilled material. Evacuate area. Provide adequate ventilation. No smoking, sparks, flames or other sources of ignition near spillage. Promptly remove any clothing that becomes contaminated. Avoid inhalation of vapours and spray/mists. Use suitable respiratory protection if ventilation is inadequate. Avoid contact with skin and eyes.

#### 6.2. Environmental precautions

**Environmental precautions** Avoid discharge into drains or watercourses or onto the ground. Avoid discharge to the

aquatic environment.

#### 6.3. Methods and material for containment and cleaning up

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#### Methods for cleaning up

Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. Eliminate all ignition sources if safe to do so. No smoking, sparks, flames or other sources of ignition near spillage. Do not allow material to enter confined spaces, due to the risk of explosion. This product is corrosive. Absorb small quantities with paper towels and evaporate in a safe place. Once evaporation is complete, place paper in a suitable waste disposal container and seal securely. Large Spillages: If the product is soluble in water, dilute the spillage with water and mop it up. Alternatively, or if it is not water-soluble, absorb the spillage with an inert, dry material and place it in a suitable waste disposal container. The contaminated absorbent may pose the same hazard as the spilled material. Label the containers containing waste and contaminated materials and remove from the area as soon as possible. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. For waste disposal, see Section 13.

## 6.4. Reference to other sections

#### Reference to other sections

For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.

## **SECTION 7: Handling and storage**

#### 7.1. Precautions for safe handling

#### Usage precautions

Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Handle all packages and containers carefully to minimise spills. Keep container tightly sealed when not in use. Avoid the formation of mists. The product is flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. This product is corrosive. Immediate first aid is imperative. Suspected of causing cancer. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.

# Advice on general occupational hygiene

Wash promptly if skin becomes contaminated. Take off contaminated clothing. Wash contaminated clothing before reuse.

#### 7.2. Conditions for safe storage, including any incompatibilities

## Storage precautions

Store away from incompatible materials (see Section 10). Store locked up. Keep away from oxidising materials, heat and flames. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage.

Air sensitive. Store under inert gas.

Protect from moisture.

**Storage class** Flammable liquid storage.

# 7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

# SECTION 8: Exposure controls/Personal protection

#### 8.1. Control parameters

# Occupational exposure limits

# tetrahydrofuran

Long-term exposure limit (8-hour TWA): WEL 50 ppm 150 mg/m³ Short-term exposure limit (15-minute): WEL 100 ppm 300 mg/m³ Sk

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WEL = Workplace Exposure Limit. Sk = Can be absorbed through the skin.

STEL

**TWA** 

#### 8.2. Exposure controls

# Protective equipment













Appropriate engineering controls

Provide adequate general and local exhaust ventilation. Ensure the ventilation system is regularly maintained and tested. Good general ventilation should be adequate to control worker exposure to airborne contaminants. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection

Wear tight-fitting, chemical splash goggles or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Hand protection

Wear protective gloves. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. To protect hands from chemicals, gloves should comply with European Standard EN374. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected. Frequent changes are recommended.

Other skin and body protection

Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene measures

Wash after use and before eating, smoking and using the toilet. Do not eat, drink or smoke when using this product.

Respiratory protection

Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked. Check that the respirator fits tightly and the filter is changed regularly. Gas and combination filter cartridges should comply with European Standard EN14387. Full face mask respirators with replaceable filter cartridges should comply with European Standard EN136. Half mask and quarter mask respirators with replaceable filter cartridges should comply with European Standard EN140.

Environmental exposure controls

Keep container tightly sealed when not in use. 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.

## SECTION 9: Physical and chemical properties

## 9.1. Information on basic physical and chemical properties

Appearance Turbid Liquid

Colour Yellow. Grey. Brown.

Odour Not known.

Odour threshold

PH

No information available.

# 4-Methoxyphenylmagnesium Bromide, 1M Solution In THF

Flash point -11°C/12.2°F

Evaporation rate

No information available.

Flammability (solid, gas)

No information available.

Upper/lower flammability or

explosive limits

No information available.

Vapour pressure <1100 hPa @ 50°C/122°F

Vapour density No information available.

Relative density 1.02

Solubility(ies)

No information available.

Partition coefficient

No information available.

Auto-ignition temperature

No information available.

Decomposition Temperature

No information available.

9.2. Other information

Molecular weight 211.34

## **SECTION 10: Stability and reactivity**

#### 10.1. Reactivity

**Reactivity** See the other subsections of this section for further details.

10.2. Chemical stability

Stable at normal ambient temperatures and when used as recommended. Stable under the

prescribed storage conditions.

# 10.3. Possibility of hazardous reactions

Possibility of hazardous

The following materials may react strongly with the product:

reactions

Oxidising agents.

Violent reactions possible with:

Water

# 10.4. Conditions to avoid

Conditions to avoid Avoid heat, flames and other sources of ignition. Containers can burst violently or explode

when heated, due to excessive pressure build-up. Static electricity and formation of sparks

must be prevented.

## 10.5. Incompatible materials

Materials to avoid Oxidising materials.

Acids - oxidising.

Water Alcohols. Oxygen.

## 10.6. Hazardous decomposition products

# 4-Methoxyphenylmagnesium Bromide, 1M Solution In THF

Hazardous decomposition

Does not decompose when used and stored as recommended.

products

Thermal decomposition or combustion products may include the following substances:

Corrosive gases or vapours. Carbon dioxide (CO2). Carbon monoxide (CO). Hydrogen bromide (HBr).

Oxides of: Magnesium.

## SECTION 11: Toxicological information

## 11.1. Information on toxicological effects

Acute toxicity - oral

**Summary** Based on available data the classification criteria are not met.

Acute toxicity - dermal

**Summary** Based on available data the classification criteria are not met.

Acute toxicity - inhalation

**Summary** Based on available data the classification criteria are not met.

Skin corrosion/irritation

Summary Causes severe skin burns and eye damage.

Serious eye damage/irritation

**Summary** Causes serious eye damage.

Respiratory sensitisation

**Summary** Based on available data the classification criteria are not met.

Skin sensitisation

**Summary** Based on available data the classification criteria are not met.

Germ cell mutagenicity

**Summary** Based on available data the classification criteria are not met.

Carcinogenicity

**Summary** Suspected of causing cancer.

IARC carcinogenicity

Contains a substance which may be potentially carcinogenic. IARC Group 2B Possibly

carcinogenic to humans.

Reproductive toxicity

**Summary** Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

**Summary** May cause respiratory irritation.

Target organs Respiratory system, lungs

Specific target organ toxicity - repeated exposure

**Summary** Based on available data the classification criteria are not met.

Aspiration hazard

**Summary** Based on available data the classification criteria are not met.

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General information May cause cancer after repeated exposure. Risk of cancer depends on duration and level of

exposure. The severity of the symptoms described will vary dependent on the concentration

and the length of exposure.

Inhalation Corrosive to the respiratory tract. Symptoms following overexposure may include the

following: Severe irritation of nose and throat.

Ingestion May cause chemical burns in mouth, oesophagus and stomach. Symptoms following

overexposure may include the following: Severe stomach pain. Nausea, vomiting.

Skin contact Causes severe burns. Symptoms following overexposure may include the following: Pain or

irritation. Redness. Blistering may occur.

**Eye contact** Causes serious eye damage. Symptoms following overexposure may include the following:

Pain. Profuse watering of the eyes. Redness.

Route of exposure Ingestion Inhalation Skin and/or eye contact

Target organs Respiratory system, lungs Central nervous system

#### SECTION 12: Ecological information

**Ecotoxicity** Not regarded as dangerous for the environment. However, large or frequent spills may have

hazardous effects on the environment.

12.1. Toxicity

Acute aquatic toxicity

**Summary** Based on available data the classification criteria are not met.

**Chronic aquatic toxicity** 

**Summary** Based on available data the classification criteria are not met.

#### 12.2. Persistence and degradability

Persistence and degradability The degradability of the product is not known.

# 12.3. Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

Partition coefficient No information available.

12.4. Mobility in soil

Mobility No data available.

## 12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects

Other adverse effects None known.

# SECTION 13: Disposal considerations

## 13.1. Waste treatment methods

General information The generation of waste should be minimised or avoided wherever possible. Reuse or recycle

products wherever possible. This material and its container must be disposed of in a safe way. When handling waste, the safety precautions applying to handling of the product should be considered. Care should be taken when handling emptied containers that have not been thoroughly cleaned or rinsed out. Empty containers or liners may retain some product

residues and hence be potentially hazardous.

# 4-Methoxyphenylmagnesium Bromide, 1M Solution In THF

#### Disposal methods

Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labelled with their contents. Incineration or landfill should only be considered when recycling is not feasible.

# **SECTION 14: Transport information**

#### 14.1. UN number

UN No. (ADR/RID) 2924 UN No. (IMDG) 2924 UN No. (ICAO) 2924 UN No. (ADN) 2924

## 14.2. UN proper shipping name

Proper shipping name (ADR/RID)

Methoxyphenylmagnesium bromide)

Proper shipping name (IMDG) FLAMMABLE LIQUID, CORROSIVE, N.O.S. (CONTAINS TETRAHYDROFURAN, 4-

Methoxyphenylmagnesium bromide)

Proper shipping name (ICAO) FLAMMABLE LIQUID, CORROSIVE, N.O.S. (CONTAINS TETRAHYDROFURAN, 4-

Methoxyphenylmagnesium bromide)

Proper shipping name (ADN) FLAMMABLE LIQUID, CORROSIVE, N.O.S. (CONTAINS TETRAHYDROFURAN, 4-

Methoxyphenylmagnesium bromide)

#### 14.3. Transport hazard class(es)

ADR/RID class 3

ADR/RID subsidiary risk 8

ADR/RID classification code FC

ADR/RID label 3

IMDG class 3

IMDG subsidiary risk 8

ICAO class/division 3

ICAO subsidiary risk 8

ADN class 3

ADN subsidiary risk 8

## Transport labels





# 14.4. Packing group

ADR/RID packing group II

IMDG packing group II

ICAO packing group III

# 4-Methoxyphenylmagnesium Bromide, 1M Solution In THF

ADN packing group II

#### 14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

## 14.6. Special precautions for user

EmS F-E, S-C

ADR transport category 2

Emergency Action Code •3WE

**Hazard Identification Number** 

338

(ADR/RID)

Tunnel restriction code (D/E)

## 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

**Transport in bulk according to** Not applicable.

Annex II of MARPOL 73/78

and the IBC Code

## SECTION 15: Regulatory information

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

National regulations Health and Safety at Work etc. Act 1974 (as amended).

The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment

Regulations 2009 (SI 2009 No. 1348) (as amended) ["CDG 2009"].

EH40/2005 Workplace exposure limits.

**EU legislation** Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18

December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of

Chemicals (REACH) (as amended).

Commission Regulation (EU) No 2015/830 of 28 May 2015.

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as

amended).

#### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

#### Inventories

#### **EU - EINECS/ELINCS**

None of the ingredients are listed or exempt.

## **SECTION 16: Other information**

# 4-Methoxyphenylmagnesium Bromide, 1M Solution In THF

Abbreviations and acronyms used in the safety data sheet

ADR: European Agreement concerning the International Carriage of Dangerous Goods by

Road.

ADN: European Agreement concerning the International Carriage of Dangerous Goods by

Inland Waterways.

RID: European Agreement concerning the International Carriage of Dangerous Goods by

Rail.

IATA: International Air Transport Association.

ICAO: Technical Instructions for the Safe Transport of Dangerous Goods by Air.

IMDG: International Maritime Dangerous Goods.

CAS: Chemical Abstracts Service. ATE: Acute Toxicity Estimate.

LC₅o: Lethal Concentration to 50 % of a test population.

LD₅o: Lethal Dose to 50% of a test population (Median Lethal Dose).

EC<sub>50</sub>: 50% of maximal Effective Concentration.

PBT: Persistent, Bioaccumulative and Toxic substance. vPvB: Very Persistent and Very Bioaccumulative.

Classification abbreviations

and acronyms

Flam. Liq. = Flammable liquid

Carc. = Carcinogenicity

Eye Dam. = Serious eye damage Skin Corr. = Skin corrosion

STOT SE = Specific target organ toxicity-single exposure

Classification procedures according to Regulation (EC)

1272/2008

Eye Dam. 1 - H318: Skin Corr. 1B - H314: STOT SE 3 - H335: STOT SE 3 - H336: Carc. 2 -

H351: : Calculation method. Flam. Liq. 2 - H225: : Expert judgement.

**Training advice** Only trained personnel should use this material.

Revision date 22/12/2021

Revision 1

SDS number 578

Hazard statements in full H225 Highly flammable liquid and vapour.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage. H319 Causes serious eye irritation. H335 May cause respiratory irritation. H336 May cause drowsiness or dizziness.

H351 Suspected of causing cancer.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.