



# MAGNESIUM ETHOXIDE

Safety Data Sheet AKM500

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Version: 2.0

## SECTION 1: Identification

### 1.1. Identification

Product name : MAGNESIUM ETHOXIDE  
 Product code : AKM500  
 Product form : Substance  
 Physical state : Solid  
 Formula : C4H10MgO2  
 Synonyms : MAGNESIUM DIETHOXIDE; MAGNESIUM ETHYLATE  
 Chemical family : METAL COMPOUND

### 1.2. Recommended use and restrictions on use

Recommended use : Chemical intermediate

### 1.3. Supplier

#### GELEST, INC.

11 East Steel Road  
 Morrisville, PA 19067

#### USA

T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST

[info@gelest.com](mailto:info@gelest.com) - [www.gelest.com](http://www.gelest.com)

### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

## SECTION 2: Hazard(s) identification

### 2.1. Classification of the substance or mixture

#### GHS US classification

Flammable solids Category 2	H228	Flammable solid
Skin corrosion/irritation Category 2	H315	Causes skin irritation
Serious eye damage/eye irritation Category 2A	H319	Causes serious eye irritation

Full text of H statements : see section 16

### 2.2. GHS Label elements, including precautionary statements

#### GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) : Warning

Hazard statements (GHS US) : H228 - Flammable solid  
 H315 - Causes skin irritation  
 H319 - Causes serious eye irritation

Precautionary statements (GHS US) : P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
 P210 - Keep away from heat, open flames, sparks. - No smoking.  
 P240 - Ground/Bond container and receiving equipment.  
 P241 - Use explosion-proof electrical equipment.  
 P264 - Wash hands thoroughly after handling.  
 P302+P352 - If on skin: Wash with plenty of water.

# MAGNESIUM ETHOXIDE

## Safety Data Sheet

P332+P313 - If skin irritation occurs: Get medical advice/attention.  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P337+P313 - If eye irritation persists: Get medical advice/attention.  
P362 - Take off contaminated clothing and wash before reuse.  
P370+P378 - In case of fire: Use foam, carbon dioxide, dry chemical to extinguish.

### 2.3. Hazards not otherwise classified (HNOC)

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Substance type : Mono-constituent  
Name : MAGNESIUM ETHOXIDE  
CAS-No. : 2414-98-4

Name	Product identifier	%	GHS US classification
Magnesium ethoxide	CAS-No.: 2414-98-4	95 – 100	Flam. Sol. 2, H228 Skin Irrit. 2, H315 Eye Irrit. 2A, H319

Full text of hazard classes and H-statements : see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general : Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.  
First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.  
First-aid measures after skin contact : Wash with plenty of soap and water. Get medical advice/attention.  
First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.  
First-aid measures after ingestion : Never give anything by mouth to an unconscious person. Get medical advice/attention.

### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation : May cause irritation to the respiratory tract.  
Symptoms/effects after skin contact : Causes skin irritation.  
Symptoms/effects after eye contact : Causes serious eye irritation.  
Symptoms/effects after ingestion : May be harmful if swallowed.

### 4.3. Immediate medical attention and special treatment, if necessary

No additional information available

# MAGNESIUM ETHOXIDE

## Safety Data Sheet

### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Carbon dioxide. Dry chemical.  
Unsuitable extinguishing media : Water.

#### 5.2. Specific hazards arising from the chemical

Fire hazard : Flammable solid. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.  
Explosion hazard : Reacts vigorously with water, releasing ethanol.

#### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Exercise caution when fighting any chemical fire.  
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

### SECTION 6: Accidental release measures

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

General measures : Remove ignition sources. Use special care to avoid static electric charges.

##### 6.1.1. For non-emergency personnel

Protective equipment : Wear protective equipment as described in Section 8.  
Emergency procedures : Evacuate unnecessary personnel.

##### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

#### 6.2. Environmental precautions

Prevent entry to sewers and public waters.

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

Methods for cleaning up : Sweep or shovel spills into appropriate container for disposal. Use only non-sparking tools.

#### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Additional hazards when processed : Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
Precautions for safe handling : Avoid contact with skin and eyes. Do not breathe dust. Provide local exhaust or general room ventilation to minimize exposure to dust. Ground/bond container and receiving equipment. Use only non-sparking tools.  
Hygiene measures : Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

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

Storage conditions : Keep container tightly closed.  
Incompatible materials : Carbon dioxide. Water.  
Storage area : Store in a well-ventilated place. Store away from heat.

# MAGNESIUM ETHOXIDE

## Safety Data Sheet

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

No additional information available

#### 8.2. Appropriate engineering controls

Appropriate engineering controls : Provide local exhaust or general room ventilation.

#### 8.3. Individual protection measures/Personal protective equipment

##### Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

##### Hand protection:

Neoprene or nitrile rubber gloves

##### Eye protection:

Chemical goggles. Contact lenses should not be worn

##### Skin and body protection:

Wear suitable protective clothing

##### Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified dust and mist (orange cartridge) respirator.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Powder.
Molecular mass	: 114.44 g/mol
Color	: White. Gray.
Odor	: Alcohol.
Odor threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: > 270 °C decomposes
Freezing point	: No data available
Boiling point	: No data available
Flash point	: > 43 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable solid.
Vapor pressure	: No data available
Relative vapor density at 20°C	: No data available
Relative density	: 1.01
Solubility	: Insoluble in water. Reacts with water. Ethanol: 0.9 g/l Organic solvent:31 g/l methanol
Partition coefficient n-octanol/water (Log Pow)	: No data available
Partition coefficient n-octanol/water (Log Kow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion limits	: No data available

# MAGNESIUM ETHOXIDE

## Safety Data Sheet

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Stable.

### 10.3. Possibility of hazardous reactions

Material decomposes slowly in contact with air by reaction with water and carbon dioxide.

### 10.4. Conditions to avoid

No additional information available

### 10.5. Incompatible materials

Carbon dioxide. Water.

### 10.6. Hazardous decomposition products

Ethanol. Magnesium oxide fumes. Organic acid vapors.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified  
Acute toxicity (dermal) : Not classified  
Acute toxicity (inhalation) : Not classified

#### Magnesium ethoxide (2414-98-4)

LC50 Inhalation - Rat	> 2.1 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity), Guideline: EU Method B.2 (Acute Toxicity (Inhalation)), Guideline: EPA OPPTS 870.1300 (Acute inhalation toxicity)
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Skin corrosion/irritation : Causes skin irritation.  
Serious eye damage/irritation : Causes serious eye irritation.  
Respiratory or skin sensitization : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified  
None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.  
Reproductive toxicity : Not classified  
STOT-single exposure : Not classified  
STOT-repeated exposure : Not classified

#### Magnesium ethoxide (2414-98-4)

NOAEL (oral,rat,90 days)	≥ 1000 mg/kg body weight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test), Guideline: other:, Guideline: other:, Guideline: OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity Study in Rodents), Guideline: other:
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Aspiration hazard : Not classified  
Symptoms/effects after inhalation : May cause irritation to the respiratory tract.  
Symptoms/effects after skin contact : Causes skin irritation.

# MAGNESIUM ETHOXIDE

## Safety Data Sheet

Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: May be harmful if swallowed.
Reason for classification	: Expert judgment

### SECTION 12: Ecological information

#### 12.1. Toxicity

##### Magnesium ethoxide (2414-98-4)

EC50 - Crustacea [1]	33 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 100 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
LOEC (chronic)	19.8 mg/l Test organisms (species): other aquatic mollusc: Duration: '8 wk'

#### 12.2. Persistence and degradability

No additional information available

#### 12.3. Bioaccumulative potential

No additional information available

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Other adverse effects

Effect on the ozone layer : No additional information available

### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

Sewage disposal recommendations	: Do not dispose of waste into sewer.
Product/Packaging disposal recommendations	: Dispose of solid materials or residues at a licensed site. Dispose in a safe manner in accordance with local/national regulations.
Ecological information	: Avoid release to the environment.




### SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

DOT	TDG	IMDG	IATA
<b>14.1. UN number</b>			
3181	Not applicable	3181	3181
<b>14.2. Proper Shipping Name</b>			
Metal salts of organic compounds, flammable, n.o.s. ((MAGNESIUM ETHOXIDE))	Not applicable	METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S. (MAGNESIUM ETHOXIDE)	Metal salts of organic compounds, flammable, n.o.s. (MAGNESIUM ETHOXIDE)
<b>Transport document description</b>			
UN3181 Metal salts of organic compounds, flammable, n.o.s. (MAGNESIUM ETHOXIDE), 4.1, II	Not applicable	UN 3181 METAL SALTS OF ORGANIC COMPOUNDS, FLAMMABLE, N.O.S. (MAGNESIUM ETHOXIDE), 4.1, II	UN 3181 Metal salts of organic compounds, flammable, n.o.s. (MAGNESIUM ETHOXIDE), 4.1, II

# MAGNESIUM ETHOXIDE

## Safety Data Sheet

DOT	TDG	IMDG	IATA
<b>14.3. Transport hazard class(es)</b>			
4.1	Not applicable	4.1	4.1
	Not applicable		
<b>14.4. Packing group</b>			
II	Not applicable	II	II
<b>14.5. Environmental hazards</b>			
Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No
No supplementary information available			

### 14.6. Special precautions for user

#### DOT

UN-No.(DOT)

: UN3181

DOT Special Provisions (49 CFR 172.102)

: A1 - Single packaging are not permitted on passenger aircraft.

IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).

IP2 - When IBCs other than metal or rigid plastics IBCs are used, they must be offered for transportation in a closed freight container or a closed transport vehicle.

IP4 - Flexible, fiberboard or wooden IBCs must be sift-proof and water-resistant or be fitted with a sift-proof and water-resistant liner.

T3 - 2.65 178.274(d)(2) Normal..... 178.275(d)(2)

TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : 151

DOT Packaging Non Bulk (49 CFR 173.xxx) : 212

DOT Packaging Bulk (49 CFR 173.xxx) : 240

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 15 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 50 kg

DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"

# MAGNESIUM ETHOXIDE

## Safety Data Sheet

### TDG

Emergency Response Guide (ERG) Number : 133

### IMDG

Special provision (IMDG) : 274  
Limited quantities (IMDG) : 1 kg  
Excepted quantities (IMDG) : E2  
Packing instructions (IMDG) : P002  
Packing provisions (IMDG) : PP31  
IBC packing instructions (IMDG) : IBC08  
IBC special provisions (IMDG) : B2, B4  
Tank instructions (IMDG) : T3  
Tank special provisions (IMDG) : TP33  
EmS-No. (Fire) : F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE  
EmS-No. (Spillage) : S-I - SPILLAGE SCHEDULE India - FLAMMABLE SOLIDS (REPACKING POSSIBLE)  
Stowage category (IMDG) : B  
Stowage and handling (IMDG) : SW2  
Properties and observations (IMDG) : Decomposes in water. Liable to spontaneous heating. Irritating to skin and mucous membranes.

### IATA

PCA Excepted quantities (IATA) : E2  
PCA Limited quantities (IATA) : Y441  
PCA limited quantity max net quantity (IATA) : 5kg  
PCA packing instructions (IATA) : 445  
PCA max net quantity (IATA) : 15kg  
CAO packing instructions (IATA) : 448  
CAO max net quantity (IATA) : 50kg  
Special provision (IATA) : A3  
ERG code (IATA) : 3L

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
Magnesium ethoxide	2414-98-4	Present	Active	

### 15.2. International regulations

#### CANADA

##### Magnesium ethoxide (2414-98-4)

Listed on the Canadian NDSL (Non-Domestic Substances List)

#### EU-Regulations

##### Magnesium ethoxide (2414-98-4)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)



# MAGNESIUM ETHOXIDE

## Safety Data Sheet

### National regulations

#### Magnesium ethoxide (2414-98-4)

Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on KECL/KECI (Korean Existing Chemicals Inventory)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the TCSI (Taiwan Chemical Substance Inventory)  
Listed on the NCI (Vietnam - National Chemical Inventory)

### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

## SECTION 16: Other information

Full text of H-phrases::

H228	Flammable solid
H315	Causes skin irritation
H319	Causes serious eye irritation

Abbreviations and acronyms

: Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor.

Hazard Rating

Health

Flammability

: 2 Moderate Hazard - Temporary or minor injury may occur  
: 3 Serious Hazard - Materials capable of ignition under almost all normal temperature conditions. Includes flammable liquids with flash points below 73 F and boiling points above 100 F. as well as liquids with flash points between 73 F and 100 F. (Classes IB IC)

Physical

: 2 Moderate Hazard - Materials that are unstable and may undergo violent chemical changes at normal temperature and pressure with low risk for explosion. Materials may react violently with water or form peroxides upon exposure to air.

Prepared by safety and environmental affairs.

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SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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