

# SAFETY DATA SHEET

## 1. PRODUCT

### 1.1 Product identifiers

Name: 1,2-Dimethoxyethane

CAS-No.: 110-71-4

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

Identified uses : Laboratory chemicals, Processing aid, Solvent, Intermediate, For industrial use only.

Uses advised against : This product is not intended for consumer use.

## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

#### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)


Flammable liquids (Category 2), H225

Skin irritation (Category 2), H315

Reproductive toxicity (Category 1B), H360

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 GHS Label elements, including precautionary statements

Pictogram	
Signal word	Danger
Hazard statement(s)	H225 Highly flammable liquid and vapour. H315 Causes skin irritation. H360 May damage fertility or the unborn child.
Precautionary statement(s)	P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking. P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge. P264 Wash skin thoroughly after handling. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P308 + P313 IF exposed or concerned: Get medical advice/ attention. P332 + P313 If skin irritation occurs: Get medical advice/ attention. P362 Take off contaminated clothing and wash before reuse. P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. P403 + P235 Store in a well-ventilated place. Keep cool. P405 Store locked up. P501 Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form explosive peroxides.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Synonyms:	Monoglyme Dimethylglycol mono-Glyme Ethylene glycol dimethyl ether
Formula:	C <sub>4</sub> H <sub>10</sub> O <sub>2</sub>
Molecular weight:	90.12 g/mol
CAS-No.:	110-71-4
EC-No.:	203-794-9

## Hazardous components

Component	Classification	Concentration
<b>Ethylene glycol dimethyl ether Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)</b>		
	Flam. Liq. 2; Skin Irrit. 2; Repr. 1B; H225, H315, H360	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

<b>General advice</b>
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
<b>If inhaled</b>
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
<b>In case of skin contact</b>
Wash off with soap and plenty of water. Consult a physician.
<b>In case of eye contact</b>
Flush eyes with water as a precaution.
<b>If swallowed</b>
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### 4.2 Indication of any immediate medical attention and special treatment needed

No data available

## 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

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

No data available

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

Use water spray to cool unopened containers.

## 6. ACCIDENTAL RELEASE MEASURES

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

Use personal protective equipment. Avoid breathing vapours, 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.

For personal protection see section 8.

## 6.2 Environmental precautions

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

## 6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

## 6.4 Reference to other sections

For disposal see section 13.

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## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

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

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.

Storage class (TRGS 510): Flammable liquids

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Ethylene glycol dimethyl ether	110-71-4	PEL	1 ppm 3.7 mg/m <sup>3</sup>	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
	Remarks	Skin		
		STEL	5 ppm 18 mg/m <sup>3</sup>	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

#### Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Inhalation	Long-term systemic effects	3.1 mg/m <sup>3</sup>
Workers	Skin contact	Long-term systemic effects	1.1mg/kg BW/d
Consumers	Inhalation	Long-term systemic effects	1.5 mg/m <sup>3</sup>
Consumers	Skin contact	Long-term systemic effects	0.23mg/kg BW/d
Consumers	Ingestion	Long-term systemic effects	0.23mg/kg BW/d

#### Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	1.39 mg/kg
Marine water	0.64 mg/l
Fresh water	6.4 mg/l
Marine sediment	2.57 mg/kg
Fresh water sediment	25.7 mg/kg
Onsite sewage treatment plant	20 mg/l

## 8.2 Exposure controls

### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### Personal protective equipment

Eye/face protection	Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Splash contact Material: butyl-rubber Minimum layer thickness: 0.3 mm Break through time: 30 min Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
Body Protection	Impervious clothing, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
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).
Control of environmental exposure	Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance	Form: liquid, clear Colour: colourless
Odour	ether-like
Odour Threshold	No data available
pH	ca.7
Melting point/freezing point	Melting point/range: -58 °C (-72 °F) - lit.
Initial boiling point and boiling range	85 °C (185 °F) - lit.
Flash point	-2 °C (28 °F) - closed cup
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	67 hPa (50 mmHg) at 20 °C (68 °F)
Vapour density	3.11 - (Air = 1.0)
Relative density	0.867 g/cm <sup>3</sup> at 25 °C (77 °F)
Water solubility	soluble
Partition coefficient: n-octanol/water	log Pow: -0.21 - The preceding data, or interpretation of data, was determined using Quantitative Structure Activity Relationship (QSAR) modeling.
Auto-ignition temperature	No data available
Decomposition temperature	No data available

Viscosity	0.5 mm <sup>2</sup> /s at 20 °C (68 °F) -
Explosive properties	No data available
Oxidizing properties	No data available

## 9.2 Other safety information

Relative vapour density: 3.11 - (Air = 1.0)

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

Vapours may form explosive mixture with air. Vapours may form explosive mixture with air.

### 10.4 Conditions to avoid

Heat, flames and sparks.

### 10.5 Incompatible materials

Oxidizing agents, Strong acids

### 10.6 Hazardous decomposition products

Other decomposition products - No data available

Hazardous decomposition products formed under fire conditions. - Carbon oxides

In the event of fire: see section 5

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

<b>Acute toxicity</b>
LD50 Oral - Rat - 5,370 mg/kg LC50 Inhalation - Rat - 6 h - > 20 - < 63 mg/l LD50 Dermal - Rat - > 5,000 mg/kg No data available
<b>Skin corrosion/irritation</b>
Skin - Rabbit Result: Irritating to skin.
<b>Serious eye damage/eye irritation</b>
Eyes - Rabbit Result: No eye irritation
<b>Respiratory or skin sensitisation</b>
in vivo assay - Mouse Does not cause skin sensitisation. (OECD Test Guideline 429) Remarks: Information given is based on data obtained from similar substances.
<b>Germ cell mutagenicity</b>
Not mutagenic in Ames Test Did not show mutagenic effects in animal experiments.
<b>Carcinogenicity</b>
<b>Reproductive toxicity</b>
Presumed human reproductive toxicant May cause reproductive disorders.

<b>Specific target organ toxicity -single exposure</b>
No data available
<b>Specific target organ toxicity -repeated exposure</b>
No data available
<b>Aspiration hazard</b>
No aspiration toxicity classification
<b>Additional Information</b>
RTECS: KI1451000

## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Toxicity to fish	LC50 - Brachydanio rerio (zebrafish) - > 5,000 mg/l - 96 h Remarks: The data is estimated based on the component aquatic toxicity classification.
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 4,000 mg/l - 48 h (OECD Test Guideline 202) semi-static test NOEC - Daphnia magna (Water flea) - 320 mg/l - 21 d (OECD Test Guideline 202) Remarks: Information given is based on data on the components and the ecotoxicology of similar products.
Toxicity to algae	No data available
Toxicity to bacteria	No data available

### 12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 48 d Result: 16 % - According to the results of tests of biodegradability this product is not readily biodegradable. (OECD Test Guideline 302B)
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### 12.3 Bioaccumulative potential

Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

No data available

## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

<b>Product</b>
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
<b>Contaminated packaging</b>
Dispose of as unused product.

## 14. TRANSPORT INFORMATION

### DOT (US)

UN number: 2252 Class: 3 Packing group: II

Proper shipping name: 1,2-Dimethoxyethane

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

### IMDG

UN number: 2252 Class: 3 Packing group: II EMS-No: F-E, S-D

Proper shipping name: 1,2-DIMETHOXYETHANE

### IATA

UN number: 2252 Class: 3 Packing group: II

Proper shipping name: 1,2-Dimethoxyethane

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## 15. REGULATORY INFORMATION

### SARA 302 Components

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

### SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

Component	CAS-No.	Revision Date
Ethylene glycol dimethyl ether	110-71-4	1993-04-24

### SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

### Massachusetts Right To Know Components

Component	CAS-No.	Revision Date
Ethylene glycol dimethyl ether	110-71-4	1993-04-24

### Pennsylvania Right To Know Components

Component	CAS-No.	Revision Date
Ethylene glycol dimethyl ether	110-71-4	1993-04-24

### New Jersey Right To Know Components

Component	CAS-No.	Revision Date
Ethylene glycol dimethyl ether	110-71-4	1993-04-24

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## 16. OTHER INFORMATION

### Full text of H-Statements referred to under sections 2 and 3.

Flam. Liq. Flammable liquids

H225 Highly flammable liquid and vapour.

H315 Causes skin irritation.

H360 May damage fertility or the unborn child.

Repr. Reproductive toxicity

Skin Irrit. Skin irritation

### HMIS Rating

Health hazard: 2

Chronic Health Hazard: \*

Flammability: 3

Physical Hazard 0

### NFPA Rating

Health hazard: 2

Fire Hazard: 3

Reactivity Hazard: 0

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