

## SAFETY DATA SHEET

Version 4.10  
Revision Date 07/14/2014  
Print Date 12/17/2014

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### 1.1 Product identifiers

Product name : 1,2-Dimethoxyethane

Product Number : E27408  
Brand : Sigma-Aldrich  
Index-No. : 603-031-00-3

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.

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

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832  
Fax : +1 800-325-5052

#### 1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

### 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): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P321	Specific treatment (see supplemental first aid instructions on this label).
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 for extinction.
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.  
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  
Index-No. : 603-031-00-3  
Registration number : 01-2119485981-24-XXXX

#### Hazardous components

Component	Classification	Concentration
<b>Ethylene glycol dimethyl ether</b> Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Flam. Liq. 2; Skin Irrit. 2; Repr. 1B; H225, H315, H360	90 - 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

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Flush eyes with water as a precaution.

**If swallowed**

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

**4.3 Indication of any immediate medical attention and special treatment needed**

no data available

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**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 fire fighting if necessary.

**5.4 Further information**

Use water spray to cool unopened containers.

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**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.

**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**

Contains no substances with occupational exposure limit values.

### 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.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

- |   |  |
|---|--|
| a) Appearance                                   | Form: liquid, clear<br>Colour: colourless  |
| b) Odour  | ether-like   |
| c) Odour Threshold                              | no data available  |
| d) pH   | ca.7   |
| e) Melting point/freezing point                 | Melting point/range: -58 °C (-72 °F) - lit.  |
| f) Initial boiling point and boiling range      | 85 °C (185 °F) - lit.  |
| g) Flash point                                  | -2 °C (28 °F) - closed cup   |
| h) Evaporation rate                             | no data available  |
| i) Flammability (solid, gas)                    | no data available  |
| j) Upper/lower flammability or explosive limits | no data available  |
| k) Vapour pressure                              | 67 hPa (50 mmHg) at 20 °C (68 °F)  |
| l) Vapour density                               | 3.11 - (Air = 1.0)   |
| m) Relative density                             | 0.867 g/cm <sup>3</sup> at 25 °C (77 °F)   |
| n) Water solubility                             | soluble  |
| o) 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. |
| p) Auto-ignition temperature                    | no data available  |
| q) Decomposition temperature                    | no data available  |
| r) Viscosity                                    | 0.5 mm <sup>2</sup> /s at 20 °C (68 °F) -  |
| s) Explosive properties                         | no data available  |
| t) Oxidizing properties                         | no data available  |

### 9.2 Other safety information

- |                         |                    |
|-------------------------|--------------------|
| Relative vapour density | 3.11 - (Air = 1.0) |
|-------------------------|--------------------|

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## 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.

### 10.3 Possibility of hazardous reactions

Vapours may form explosive mixture with air.

### 10.4 Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

### 10.5 Incompatible materials

Oxidizing agents, Strong acids

## 10.6 Hazardous decomposition products

Other decomposition products - no data available  
In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

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

#### Skin corrosion/irritation

Skin - rabbit

Result: Irritating to skin.

#### Serious eye damage/eye irritation

Eyes - rabbit

Result: No eye irritation

#### Respiratory or skin sensitisation

in vivo assay - mouse

Does not cause skin sensitisation.

(OECD Test Guideline 429)

Remarks: Information given is based on data obtained from similar substances.

#### Germ cell mutagenicity

Not mutagenic in Ames Test. Did not show mutagenic effects in animal experiments.

#### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

#### Reproductive toxicity

Presumed human reproductive toxicant

May cause reproductive disorders.

#### Specific target organ toxicity - single exposure

no data available

#### Specific target organ toxicity - repeated exposure

no data available

#### Aspiration hazard

No aspiration toxicity classification

#### Additional Information

RTECS: K11451000

Liver - Irregularities - Based on Human Evidence

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## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Toxicity to fish

LC50 - Brachydanio rerio - > 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.

## 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)

## 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

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## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### Product

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.

#### Contaminated packaging

Dispose of as unused product.

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## 14. TRANSPORT INFORMATION

### DOT (US)

UN number: 2252      Class: 3      Packing group: II

Proper shipping name: 1,2-Dimethoxyethane

Reportable Quantity (RQ):

Marine pollutant: No

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

Marine pollutant: No

### 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

SARA 302: 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:

	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**

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

#### **Pennsylvania Right To Know Components**

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

#### **New Jersey Right To Know Components**

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

#### **California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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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

### **Further information**

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### **Preparation Information**

Sigma-Aldrich Corporation  
Product Safety – Americas Region  
1-800-521-8956

Version: 4.10

Revision Date: 07/14/2014

Print Date: 12/17/2014