

## Chemical Safety Data Sheet MSDS / SDS

## 2-Methoxyethanol

Revision Date:2025-02-01 Revision Number:1

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

## Product identifier

Product name : 2-Methoxyethanol  
CBnumber : CB4852791  
CAS : 109-86-4  
EINECS Number : 231-791-2  
Synonyms : h2o,2-methoxyethanol

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

## Company Identification

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

## SECTION 2: Hazards identification

## GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

## Precautionary statements

P405 Store locked up.

P370+P378 In case of fire: Use ... for extinction.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P201 Obtain special instructions before use.

## Hazard statements

H373 May cause damage to organs through prolonged or repeated exposure

H370 Causes damage to organs

H360 May damage fertility or the unborn child

H332 Harmful if inhaled

H312 Harmful in contact with skin

H302 Harmful if swallowed

H226 Flammable liquid and vapour

#### **Disposal**

WARNING.Cancer - <https://oehha.ca.gov/proposition-65/chemicals/ethylene-glycol-monomethyl-ether>

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## SECTION 3: Composition/information on ingredients

### **Substance**

Product name	: 2-Methoxyethanol
Synonyms	: h2o,2-methoxyethanol
CAS	: 109-86-4
EC number	: 231-791-2
MF	: C3H8O2
MW	: 76.09

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## SECTION 4: First aid measures

### **Description of first aid measures**

#### **General advice**

Show this material safety data sheet to the doctor in attendance.

#### **If inhaled**

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

#### **In case of skin contact**

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

#### **In case of eye contact**

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

#### **If swallowed**

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

### **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

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

No data available

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## SECTION 5: Firefighting measures

## Extinguishing media

### Suitable extinguishing media

Carbon dioxide (CO<sub>2</sub>) Foam Dry powder

### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

## Special hazards arising from the substance or mixture

Carbon oxides Combustible.

Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air at elevated temperatures.

Development of hazardous combustion gases or vapours possible in the event of fire.

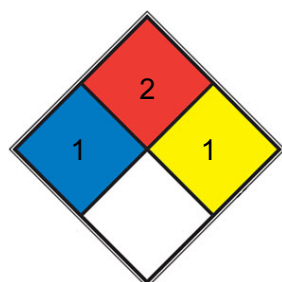
## Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

## Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

## NFPA 704



**HEALTH** 1 Exposure would cause irritation with only minor residual injury (e.g. [acetone](#), sodium bromate, potassium chloride)

Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur and multiple finely

**FIRE** 2 divided suspended solids that do not require heating before ignition can occur. Flash point between 37.8 and 93.3 °C (100 and 200 °F). (e.g. diesel fuel, [sulfur](#))

**REACT** 1 Normally stable, but can become unstable at elevated temperatures and pressures (e.g. [propene](#))

SPEC.

HAZ.

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.

Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

### Environmental precautions

Do not let product enter drains. Risk of explosion.

### **Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g.

Chemisorb?). Dispose of properly. Clean up affected area.

### **Reference to other sections**

For disposal see section 13.

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

### **Precautions for safe handling**

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### **Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### **Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

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

#### **Storage conditions**

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

#### **Specific end use(s)**

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

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## **SECTION 8: Exposure controls/personal protection**

### **control parameter**

#### **Hazard composition and occupational exposure limits**

Does not contain substances with occupational exposure limits.

#### **Exposure controls**

##### **Personal protective equipment**

###### **Eye/face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety

glasses

#### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: butyl-rubber

Minimum layer thickness: 0,7 mm Break through time: 480 min Material tested: Butoject? (KCL 898)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact Material: Viton?

Minimum layer thickness: 0,7 mm Break through time: 120 min

Material tested: Vitoject? (KCL 890 / Aldrich Z677698, Size M)

#### Body Protection

Flame retardant antistatic protective clothing.

#### Respiratory protection

Recommended Filter type: Filter A-(P2)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

#### Control of environmental exposure

Do not let product enter drains. Risk of explosion.

#### Exposure limits

TLV-TWA skin 5 ppm (15.5 mg/m<sup>3</sup>) (ACGIH), 25 ppm (77.5 mg/m<sup>3</sup>) (OSHA).

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Appearance	colorless clear, liquid
Odour	ether-like
Odour Threshold	2,3 ppm d) pH 5,0 - 7,0 at 25 °C Melting point/freezing point Initial boiling point and boiling range Melting point/range: -85 °C - lit. 124 - 125 °C - lit. Flash point 40 °C - closed cup Evaporation rate No data available Flammability (solid, gas) Upper/lower flammability or explosive limits No data available Upper explosion limit: 24,5 %(V) Lower explosion limit: 2,5 %(V) Vapour pressure 10 hPa at 20 °C Vapour density 2,63 - (Air = 1.0) Density 0,965 g/cm <sup>3</sup> at 25 °C - lit. Relative density No data available Water solubility at 20 °C soluble Partition coefficient: n-octanol/water Autoignition temperature Decomposition temperature log Pow: -0,77 at 28 °C - Bioaccumulation is not expected., (Lit.) No data available 204 - 232 °C - Viscosity Viscosity, kinematic: 1,6 mm <sup>2</sup> /s at 20 °C Viscosity, dynamic: 1,7 mPa.s at 20 °C Explosive properties No data available Oxidizing properties No data available
Melting point/freezing point	Melting point/range: -85 °C - lit.

Initial boiling point and boiling range	124 - 125 °C - lit.
Flash point	40 °C - closed cup
Evaporation rate	115 °F
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Upper explosion limit: 24,5 %(V) Lower explosion limit: 2,5 %(V)
Vapour pressure	10 hPa at 20 °C
Vapour density	2,63 - (Air = 1.0)
Relative density	2.62 (vs air)
Water solubility	at 20 °C soluble
Partition coefficient: n-octanol/water	log Pow: -0,77 at 28 °C - Bioaccumulation is not expected., (Lit.)
Autoignition temperature	No data available
Decomposition temperature	204 - 232 °C -
Viscosity	Viscosity, kinematic: 1,6 mm <sup>2</sup> /s at 20 °C Viscosity, dynamic: 1,7 mPa.s at 20 °C
Explosive properties	No data available
Oxidizing properties	No data available
Henry's Law Constant	( $\times 10^{-2}$ atm <sup>2</sup> m <sup>3</sup> /mol): 4.41, 3.63, 11.6, 3.09, and 3.813 at 10, 15, 20, 25, and 30 °C, respectively (EPICS, Ashworth et al., 1988)
$\lambda_{max}$	$\lambda$ : 213 nm A <sub>max</sub> : 1.00 $\lambda$ : 240 nm A <sub>max</sub> : 0.20 $\lambda$ : 260 nm A <sub>max</sub> : 0.05 $\lambda$ : 300-400 nm A <sub>max</sub> : 0.01

### Other safety information

Surface tension ca.72 mN/m at 25 °C

Relative vapor density

2,63 - (Air = 1.0)

## SECTION 10: Stability and reactivity

### Reactivity

Vapors may form explosive mixture with air. Vapor/air-mixtures are explosive at intense warming.

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

Generates dangerous gases or fumes in contact with:

Aluminum magnesium bases

Zinc

Risk of explosion with:

Oxidizing agents Air

Possible formation of:

Peroxides

### Conditions to avoid

Heat. 45°C Heating.

### Incompatible materials

Aluminum, various plastics

### Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rabbit - 890 mg/kg

Remarks: Behavioral:General anesthetic. Blood:Other hemolysis with or without anemia. (RTECS)

Symptoms: Risk of aspiration upon vomiting., Aspiration may cause pulmonary edema and pneumonitis.

Acute toxicity estimate Inhalation - Expert judgment - 4 h - 11 mg/l LD50 Dermal - Rabbit - 1.280 mg/kg

Remarks: (RTECS)

#### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h (Directive 67/548/EEC, Annex V, B.4.)

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: slight irritation

(OECD Test Guideline 405)

#### Respiratory or skin sensitization

(OECD Test Guideline 406)

#### Germ cell mutagenicity

Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476

Result: negative

Test Type: Chromosome aberration test Species: Mouse

Application Route: Oral

Method: OECD Test Guideline 475 Result: negative

#### Carcinogenicity

No data available

#### Reproductive toxicity

May damage the unborn child. May damage fertility.

#### Specific target organ toxicity - single exposure

Causes damage to organs. - Immune system

#### **Specific target organ toxicity - repeated exposure**

May cause damage to organs through prolonged or repeated exposure. - thymus

#### **Aspiration hazard**

No data available

#### **Toxicity**

LD50 in rats, guinea pigs (mg/kg): 2460, 950 orally (Smyth); LC50 (7 hr in air) in mice: 4.6 mg/l (Werner)

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## SECTION 12: Ecological information

### **Toxicity**

#### **Toxicity to fish**

static test LC50 - *Lepomis macrochirus* (Bluegill sunfish) - > 10.000 mg/l - 96 h  
(OECD Test Guideline 203)

#### **Toxicity to daphnia and other aquatic invertebrates**

semi-static test EC50 - *Daphnia magna* (Water flea) - 27.000 mg/l - 48 h  
(ISO 6341)

#### **Toxicity to algae**

static test ErC50 - *Pseudokirchneriella subcapitata* (green algae) -  
25.500 mg/l - 72 h (ISO 8692)

#### **Toxicity to bacteria**

static test EC50 - activated sludge - > 1.000 mg/l - 3 h (OECD Test Guideline 209)

### **Persistence and degradability**

Biodegradability aerobic - Exposure time 20 d

Result: 88 % - Readily biodegradable. Remarks: (ECHA)

### **Bioaccumulative potential**

No bioaccumulation is to be expected ( $\log Pow \leq 4$ ).

### **Mobility in soil**

No data available

### **Results of PBT and vPvB assessment**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### **Toxics Screening Level**

The initial threshold screening level for 2-methoxyethanol (CAS # 109-86-4) is 20  $\mu\text{g}/\text{m}^3$  with an annual averaging time.

### **Other adverse effects**

No data available

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## SECTION 13: Disposal considerations

### Waste treatment methods

#### Product

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

#### Incompatibilities

Vapors may form explosive mixture with air. Heat or oxidizers may cause the formation of unstable peroxides. Attacks many metals. Strong oxidizers may cause fire and explosions. Strong bases cause decomposition and the formation of toxic gas. Attacks some plastics, rubber and coatings. May accumulate static electrical charges, and may cause ignition of its vapors.

#### Waste Disposal

Concentrated waste containing no peroxides: discharge liquid at a controlled rate near a pilot flame. Concentrated waste containing peroxides: perforation of a container of the waste from a safe distance followed by open burning.

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## SECTION 14: Transport information

### UN number

ADR/RID: 1188 IMDG: 1188 IATA: 1188

### UN proper shipping name

ADR/RID: ETHYLENE GLYCOL MONOMETHYL ETHER IMDG: ETHYLENE GLYCOL  
MONOMETHYL ETHER

IATA: Ethylene glycol monomethyl  
ether

14.3	Transport hazard class(es) ADR/RID: 3 IMDG: 3	IATA: 3
14.4	Packaging group ADR/RID: III IMDG: III	IATA: III
14.5	Environmental hazards ADR/RID: yes IMDG Marine pollutant: yes	IATA: no
14.6	Special precautions for user No data available	

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## SECTION 15: Regulatory information

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

#### Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015: Listed. website: <https://www.mem.gov.cn/>

#### Measures for Environmental Management of New Chemical Substances

Chemical Book

EC Inventory:Listed.

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: <https://emb.gov.ph/>

Korea Existing Chemicals List (KECL):Listed. website: <http://ncis.nier.go.kr>

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

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## SECTION 16: Other information

### Abbreviations and acronyms

CAS: Chemical Abstracts Service

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

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

### References

【1】 CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

【2】 ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

【3】 ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:

[http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)

【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

【9】 IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

### Other Information

Depending on the degree of exposure, periodic medical examination is indicated. The odour warning when the exposure limit value is exceeded is insufficient. Check for peroxides prior to distillation; eliminate if found.

#### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability

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