ChemicalBook

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

P201 Obtain special instructions before use.

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

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

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

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.

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

P405 Store locked up.

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

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

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO2) 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.

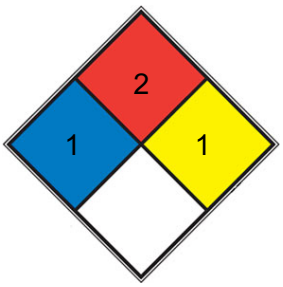
Advice for firefighters

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)
■	FIRE	2	Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur and multiple finely 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.		

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

Reference to other sections

For disposal see section 13.

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).

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).

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 entrepeneur 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^3) (ACGIH), 25 ppm (77.5 mg/m^3) (OSHA).

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/cm3 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 mm2/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 mm2/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	(x 10^{-2} atm?m^3/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)
λmax	λ: 213 nm Amax: 1.00 λ: 240 nm Amax: 0.20 λ: 260 nm Amax: 0.05 λ: 300-400 nm Amax: 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

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 withot 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)

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 <= 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 µg/m3 with an annual averaging time.

Other adverse effects

No data available

SECTION 13: Disposal considerations

Waste treatment methods

Product

See 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.

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	

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

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

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

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/

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

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

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

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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

【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.

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