

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 8.0

Revision Date 22.02.2021

Print Date 16.06.2022

GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

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

1.1 Product identifiers

Product name : Methanol

Product Number : 322415

Brand : Sigma-Aldrich

Index-No. : 603-001-00-X

REACH No. : 01-2119433307-44-XXXX

CAS-No. : 67-56-1

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

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Pte Ltd
(Co. Registration No. 199403788W)
2 Science Park Drive
#05-01/12 Ascent Building
SINGAPORE 118222
SINGAPORE

Telephone : +65 6890 6633

Fax : +65 6890 6639

E-mail address : TechnicalService@merckgroup.com

1.4 Emergency telephone

Emergency Phone # : 1-800-262-8200

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flammable liquids (Category 2), H225

Acute toxicity, Oral (Category 3), H301

Acute toxicity, Inhalation (Category 3), H331

Acute toxicity, Dermal (Category 3), H311

Specific target organ toxicity - single exposure (Category 1), Eyes, H370

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

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008



Pictogram



Signal word

Danger

Hazard statement(s)

H225

Highly flammable liquid and vapor.

H301 + H311 + H331

Toxic if swallowed, in contact with skin or if inhaled.

H370

Causes damage to organs (Eyes).

Precautionary statement(s)

P210

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233

Keep container tightly closed.

P280

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

P301 + P310

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P303 + P361 + P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P304 + P340 + P311

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.

Supplemental Hazard Statements

none

Reduced Labeling (<= 125 ml)

Pictogram



Signal word

Danger

Hazard statement(s)

H370

Causes damage to organs.

H301 + H311 + H331

Toxic if swallowed, in contact with skin or if inhaled.

Precautionary statement(s)

P301 + P310

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P304 + P340 + P311

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.

Supplemental Hazard Statements

none

2.3 Other hazards

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.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Methyl alcohol

Formula : CH₄O

Molecular weight : 32.04 g/mol

CAS-No. : 67-56-1

EC-No. : 200-659-6

Index-No. : 603-001-00-X



Component	Classification	Concentration
Methanol		
CAS-No.	67-56-1	Flam. Liq. 2; Acute Tox. 3; STOT SE 1; H225, H301, H331, H311, H370 Concentration limits: >= 10 %: STOT SE 1, H370; 3 - < 10 %: STOT SE 2, H371;
EC-No.	200-659-6	
Index-No.	603-001-00-X	
		<= 100 %

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

SECTION 4: First aid measures

4.1 Description of first-aid measures

Notes to physician

Dizziness Drowsiness metabolic acidosis Blurred vision Seizures. Coma Blindness death

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

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Foam Carbon dioxide (CO₂) Dry powder Water

Unsuitable extinguishing media

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

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Combustible.

5.3 Advice for firefighters

No data available

5.4 Further information

No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For personal protection see section 8.

6.2 Environmental precautions

No data available

6.3 Methods and materials for containment and cleaning up

No data available



6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

No data available

7.3 Specific end use(s)

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

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Derived No Effect Level (DNEL)

Application Area	Routes of exposure	Health effect	Value
Workers	Skin contact	Long-term systemic effects	40mg/kg BW/d
Consumers	Skin contact	Long-term systemic effects	8mg/kg BW/d
Consumers	Ingestion	Long-term systemic effects	8mg/kg BW/d
Workers	Skin contact	Acute systemic effects	40mg/kg BW/d
Consumers	Skin contact	Acute systemic effects	8mg/kg BW/d
Consumers	Ingestion	Acute systemic effects	8mg/kg BW/d
Workers	Inhalation	Acute systemic effects	260 mg/m ³
Workers	Inhalation	Acute local effects	260 mg/m ³
Workers	Inhalation	Long-term systemic effects	260 mg/m ³
Workers	Inhalation	Long-term local effects	260 mg/m ³
Consumers	Inhalation	Acute systemic effects	50 mg/m ³
Consumers	Inhalation	Acute local effects	50 mg/m ³
Consumers	Inhalation	Long-term systemic effects	50 mg/m ³
Consumers	Inhalation	Long-term local effects	50 mg/m ³

Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	23.5 mg/kg
Sea water	15.4 mg/l
Fresh water	154 mg/l
Fresh water sediment	570.4 mg/kg
Onsite sewage treatment plant	100 mg/kg

8.2 Exposure controls

Personal protective equipment

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)

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (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 product from entering drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- | | |
|---|---|
| a) Appearance | Form: liquid
Color: colorless |
| b) Odor | characteristic |
| c) Odor Threshold | 10 ppm |
| d) pH | No data available |
| e) Melting point/freezing point | Melting point/range: -98 °C |
| f) Initial boiling point and boiling range | 64.7 °C |
| g) Flash point | 9.7 °C - closed cup - Regulation (EC) No. 440/2008, Annex, A.9 |
| h) Evaporation rate | 6.3 - Diethyl ether 1.9 - n-butyl acetate |
| i) Flammability (solid, gas) | No data available |
| j) Upper/lower flammability or explosive limits | Upper explosion limit: 44 %(V)
Lower explosion limit: 5.5 %(V) |
| k) Vapor pressure | 169.27 hPa at 25 °C |



- | | |
|---|--|
| l) Vapor density | 1.11 |
| m) Relative density | 0.79 - 0.8 at 20 °C |
| n) Water solubility | 1,000 g/l at 20 °C - completely miscible at 20 °C soluble |
| o) Partition coefficient: n-octanol/water | log Pow: -0.77 - (Lit.), Bioaccumulation is not expected. |
| p) Autoignition temperature | 455.0 °C
at 1,013 hPa - DIN 51794 |
| q) Decomposition temperature | Distillable in an undecomposed state at normal pressure. |
| r) Viscosity | Viscosity, kinematic: 0.54 - 0.59 mm ² /s at 20 °C

Viscosity, dynamic: > 0.544 - < 0.59 mPa.s at 25 °C |
| s) Explosive properties | No data available |
| t) Oxidizing properties | No data available |

9.2 Other safety information

Minimum ignition energy	0.14 mJ
Conductivity	< 1 µS/cm
Relative vapor density	1.11

SECTION 10: Stability and reactivity

10.1 Reactivity

Vapors may form explosive mixture with air.

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Risk of explosion with:

Oxidizing agents
 Halogens
 sodium hypochlorite
 sulfuric acid
 nitrogen oxides
 chlorates
 chromium(VI) oxide
 chromosulfuric acid
 halogen oxides
 hydrides
 salts of oxyhalogenic acids
 perchlorates
 perchloric acid
 permanganic acid
 hydrogen peroxide
 zinc diethyl
 nonmetallic oxides
 powdered magnesium
 Nitric acid



Exothermic reaction with:

Acids

Chloroform

Acid anhydrides

Reducing agents

Bromine

Chlorine

tetrachloromethane

acid halides

magnesium

Risk of ignition or formation of inflammable gases or vapours with:

Fluorine

Oxides of phosphorus

Raney-nickel

Generates dangerous gases or fumes in contact with:

Alkali metals

Alkaline earth metals

10.4 Conditions to avoid

Warming.

10.5 Incompatible materials

various plastics, magnesium, zinc alloys

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute toxicity estimate Oral - 100.1 mg/kg

(Expert judgment)

Symptoms: Nausea, Vomiting

Acute toxicity estimate Inhalation - 4 h - 3.1 mg/l

(Expert judgment)

Symptoms: Irritation symptoms in the respiratory tract.

Acute toxicity estimate Dermal - 300.1 mg/kg

(Expert judgment)

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation

Remarks:

(ECHA)

Drying-out effect resulting in rough and chapped skin.

Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation

Remarks:

(ECHA)

Respiratory or skin sensitization

Sensitisation test: - Guinea pig



Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity

Based on available data the classification criteria are not met.

Ames test

Salmonella typhimurium

Result: negative

In vitro mammalian cell gene mutation test

Chinese hamster lung cells

Result: negative

OECD Test Guideline 474

Mouse - male and female - Bone marrow

Result: negative

Carcinogenicity

Did not show carcinogenic effects in animal experiments.

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

Reproductive toxicity

Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

Causes damage to organs. - Eyes, Central nervous system

Remarks:

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Acute oral toxicity - Nausea, Vomiting

Acute inhalation toxicity - Irritation symptoms in the respiratory tract.

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

RTECS: PC1400000

Acute effects:, Headache, Dizziness, Drowsiness, narcosis, Blindness, Impairment of vision, irritant effects, Nausea, Vomiting, agitation, spasms, inebriation, Coma
Drying-out effect resulting in rough and chapped skin.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

acidosis

drop in blood pressure

agitation, spasms

inebriation

Dizziness

Drowsiness

Headache

Impairment of vision

Blindness

narcosis



Coma

Symptoms may be delayed.

Damage to:

Liver

Kidney

Cardiac

Irreversible damage of the optical nerve.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - <i>Lepomis macrochirus</i> (Bluegill) - 15,400.0 mg/l - 96 h (US-EPA)
Toxicity to daphnia and other aquatic invertebrates	semi-static test EC50 - <i>Daphnia magna</i> (Water flea) - 18,260 mg/l - 96 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - <i>Pseudokirchneriella subcapitata</i> (green algae) - ca. 22,000.0 mg/l - 96 h (OECD Test Guideline 201)
Toxicity to bacteria	static test IC50 - activated sludge - > 1,000 mg/l - 3 h (OECD Test Guideline 209)

12.2 Persistence and degradability

Biodegradability	Result: 99 % - Readily biodegradable. (OECD Test Guideline 301D)
Biochemical Oxygen Demand (BOD)	600 - 1,120 mg/g Remarks: (IUCLID)
Chemical Oxygen Demand (COD)	1,420 mg/g Remarks: (IUCLID)
Theoretical oxygen demand	1,500 mg/g Remarks: (Lit.)
Ratio BOD/ThBOD	76 % Remarks: Closed Bottle test(IUCLID)

12.3 Bioaccumulative potential

Bioaccumulation	<i>Cyprinus carpio</i> (Carp) - 72 d at 20 °C - 5 mg/l(Methanol)
	Bioconcentration factor (BCF): 1.0



12.4 Mobility in soil

Will not adsorb on soil.

12.5 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.

12.6 Other adverse effects

Additional ecological information Avoid release to the environment.

Stability in water at 19 °C 83 - 91 % - 72 h
Remarks: Hydrolyzes on contact with water. Hydrolyzes readily.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

No data available

SECTION 14: Transport information

14.1 UN number

ADR/RID: 1230 IMDG: 1230 IATA: 1230

14.2 UN proper shipping name

ADR/RID: METHANOL
IMDG: METHANOL
IATA: Methanol

14.3 Transport hazard class(es)

ADR/RID: 3 (6.1) IMDG: 3 (6.1) IATA: 3 (6.1)

14.4 Packaging group

ADR/RID: II IMDG: II IATA: II

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

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

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Methanol



National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

: ACUTE TOXIC

: FLAMMABLE LIQUIDS

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

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

H225	Highly flammable liquid and vapor.
H301	Toxic if swallowed.
H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H370	Causes damage to organs (/\$/*_ORGAN_SINGLE\$/).
H371	May cause damage to organs.

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