

SAFETY DATA SHEET

Version 6.0
Revision Date 07.02.2019
Print Date 07.02.2019**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
CAS-No. : 67-56-1

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

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : SIGMA-ALDRICH CANADA CO.
2149 WINSTON PARK DRIVE
OAKVILLE ON L6H 6J8
CANADA

Telephone : +1 905 8299-500
Fax : +1 905 8299-292

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****GHS Classification in accordance with Hazardous Products Regulations (HPR) (SOR/2015-17)**

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 GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)	
H225	Highly flammable liquid and vapour.
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.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
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.
P308 + P311	IF exposed or concerned: Call a POISON CENTER/doctor.
P361 + P364	Take off immediately all contaminated clothing and wash it before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
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 - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	: Methyl alcohol
Formula	: CH ₄ O
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		
	Flam. Liq. 2; Acute Tox. 3; STOT SE 1; H225, H301,	<= 100 %

	H331, H311, H370	
* Weight percent		

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

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. Take victim immediately to hospital. 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

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Dry powder Dry sand

Unsuitable extinguishing media

Do NOT use water jet.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

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.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

Wear respiratory protection. 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 non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

For disposal see section 13.

SECTION 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): 3: Flammable liquids

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****Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Basis
Methanol	67-56-1	TWA	200 ppm 262 mg/m ³	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Remarks	Substance may be readily absorbed through intact skin			
		STEL	250 ppm 328 mg/m ³	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Substance may be readily absorbed through intact skin			

		TWA	200 ppm	Canada. British Columbia OEL
Contributes significantly to the overall exposure by the skin route.				
		STEL	250 ppm	Canada. British Columbia OEL
Contributes significantly to the overall exposure by the skin route.				
		TWAEV	200 ppm 262 mg/m ³	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
Skin (percutaneous)				
		STEV	250 ppm 328 mg/m ³	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
Skin (percutaneous)				
		TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
		STEL	250 ppm	USA. ACGIH Threshold Limit Values (TLV)

Derived No Effect Level (DNEL)

Application Area	Exposure routes	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
Marine 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

Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

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.

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.4 mm

Break through time: 31 min

Material tested:Camatril® (KCL 730 / Aldrich Z677442, 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

Complete suit protecting against chemicals, 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 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 further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	Form: liquid Colour: colourless
b) Odour	characteristic
c) Odour Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	Melting point/range: -98 °C (-144 °F)
f) Initial boiling point and boiling range	64.7 °C 148.5 °F
g) Flash point	9.7 °C (49.5 °F) - closed cup - Regulation (EC) No. 440/2008, Annex, A.9
h) Evaporation rate	6.3 - Diethylether 1.9 - n-butyl acetate
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	Upper explosion limit: 36.5 %(V) Lower explosion limit: 5.5 %(V)
k) Vapour pressure	169.27 hPa at 25.0 °C (77.0 °F)
l) Vapour density	1.11
m) Relative density	0.791 g/mL at 25 °C (77 °F)
n) Water solubility	1,000 g/l at 20 °C (68 °F) - soluble
o) Partition coefficient: n-octanol/water	log Pow: -0.77 at 25 °C (77 °F) - (Lit.), Bioaccumulation is not expected.
p) Auto-ignition temperature	455.0 °C (851.0 °F) at 1,013 hPa - DIN 51794
q) Decomposition temperature	Distillable in an undecomposed state at normal pressure.
r) Viscosity	0.54 - 0.59 mm ² /s at 20 °C (68 °F) -
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 vapour density	1.11

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Heat, flames and sparks.

10.5 Incompatible materials

Magnesium, zinc alloys, various plastics Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - > 1,187 - 2,769 mg/kg

Remarks: (ECHA) (Regulation (EC) No 1272/2008, Annex VI)

LDLO Oral - Human - 143 mg/kg

Remarks: Lungs, Thorax, or Respiration: Dyspnea. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

LC50 Inhalation - Rat - male and female - 4 h - 131.25 mg/l

Remarks: (ECHA) (Regulation (EC) No 1272/2008, Annex VI)

LD50 Dermal - Rabbit - 17,100 mg/kg

Remarks: (External MSDS) (Regulation (EC) No 1272/2008, Annex VI)

No data available

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) Irritation of mucous membranes

Respiratory or skin sensitisation

Maximisation Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Germ cell mutagenicity

Based on available data the classification criteria are not met.

Carcinogenicity

Did not show carcinogenic effects in animal experiments.

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.

Reproductive toxicity

Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

Causes damage to organs. - Eyes

Acute inhalation toxicity - Irritation symptoms in the respiratory tract.

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No aspiration toxicity classification

Additional Information

RTECS: PC1400000

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.

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Lepomis macrochirus (Bluegill) - 15,400.0 mg/l - 96 h (US-EPA)
Toxicity to daphnia and other aquatic invertebrates	semi-static test EC50 - Daphnia magna (Water flea) - 18,260 mg/l - 96 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (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	aerobic - Exposure time 5 d Result: 82.7 % - Readily biodegradable. 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 Cyprinus carpio (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

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

12.6 Other adverse effects

Additional ecological information Avoid release to the environment.
Stability in water at 19 °C83 - 91 % - 72 h
Remarks: Hydrolyses on contact with water.Hydrolyses readily.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Contact a licensed professional waste disposal service to dispose of this material. Offer surplus and non-recyclable solutions to a licensed disposal company. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

DOT (US)

UN number: 1230 Class: 3 Packing group: II
Proper shipping name: Methanol
Reportable Quantity (RQ): 5000 lbs
Poison Inhalation Hazard: No

IMDG

UN number: 1230 Class: 3 (6.1) Packing group: II EMS-No: F-E, S-D
Proper shipping name: METHANOL

IATA

UN number: 1230 Class: 3 (6.1) Packing group: II
Proper shipping name: Methanol

SECTION 15: Regulatory information

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

SECTION 16: Other information**Further information**

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