

Safety Data Sheet

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

SECTION 1: Identification

Product identifier

Trade name/designation:	Methanol
Product No.:	9830
Synonyms:	none

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

Recommended use	For Laboratory, Research or Manufacturing Use.
Uses advised against	Not determined.

Details of the supplier of the safety data sheet

Supplier

Avantor Performance Materials, LLC.

Street	100 Matsonford Rd, Suite 200
Postal code/City	Radnor, PA 19087, United States
Telephone	+1-855-282-6867
Telefax	+1-610-573-2610

Emergency phone number

Telephone	+1-800-424-9300 (Chemtrec, 24 hrs/day, 7 days/week, USA and Canada)
-----------	---

Preparation Information

Product Information Compliance

E-mail	SDS@avantorsciences.com
--------	-------------------------

SECTION 2: Hazard identification

Classification of the substance or mixture

Label elements

Physical hazards

Flammable liquid, category 2

Health hazards

Acute toxicity, category 3, oral, dermal and inhalation

Specific target organ toxicity (single exposure), category 1

Hazard pictograms



Signal word: Danger

Hazard statements

H225 - Highly flammable liquid and vapor.

H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled.

H370 - Damages eyes and central nervous system.

Precautionary statements

Prevention:

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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

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

Response:

P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P308+P310 - IF exposed or concerned: Immediately call a POISON CENTER/doctor.

Storage:

P403+P233 - Store in a well-ventilated place. Keep container tightly closed.

Hazard(s) not otherwise classified (HNOC)

none

SECTION 3: Composition/information on ingredients

Substances

Substance name:	Methanol
Molecular formula:	H ₃ COH
Molecular weight:	32.04 g/mol
CAS No.:	67-56-1

SECTION 4: First aid measures

General information

Do not leave affected person unattended. If unconscious but breathing normally, place in recovery position and seek medical advice. Take off immediately all contaminated clothing. Highly flammable liquid and vapor. Wash contaminated clothing before reuse. When in doubt or if symptoms are observed, get medical advice.

In case of inhalation

Remove casualty to fresh air and keep warm and at rest. In case of respiratory tract irritation, consult a physician. When in doubt or if symptoms are observed, get medical advice.

In case of skin contact

Remove contaminated, saturated clothing immediately. Wash off any skin contamination immediately.

After eye contact:

Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. Consult an ophthalmologist. Call a POISON CENTER or doctor/physician.

In case of ingestion

Rinse mouth thoroughly with water. Immediately call a POISON CENTER/doctor. Never give anything by mouth to an unconscious person or a person with cramps.

Most important symptoms/effects, acute and delayed

Headache. Dizziness. Nausea. Respiratory disorders. Coma. Acidosis. Risk of blindness.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Following ingestion: Administer 50 mL of pure ethanol in a drinkable concentration. Methanol is metabolized to the highly toxic compounds formaldehyde and formic acid that are responsible for the acidosis and blindness characteristic of methanol poisoning. The onset of symptoms may be delayed for 18 to 72 hours after ingestion. Toxicity is related to the degree of acidosis produced.

SECTION 5: Fire fighting measures

Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Water spray.

ABC-powder

Carbon dioxide (CO₂).

Nitrogen

Extinguishing media which must not be used for safety reasons

Full water jet

Specific hazards arising from the chemical

In case of fire may be liberated:

Carbon monoxide

Carbon dioxide (CO₂).

Advice for firefighters

Combustible toxic substances (liquid)

In case of fire and/or explosion do not breathe fumes.

In case of insufficient ventilation and/or through use, explosive/highly flammable mixtures may develop.

Vapors are heavier than air, spread along floors and form explosive mixtures with air.

Protective equipment and precautions for firefighters:

Wear a self-contained breathing apparatus and chemical protective clothing.

Use water spray jet to protect personnel and to cool endangered containers.

DO NOT fight fire when fire reaches explosives.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Wear personal protection equipment (refer to section 8). Do not breathe gas/fume/vapor/spray. Avoid contact with skin, eyes and clothes. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Provide adequate ventilation.

Environmental precautions

Discharge into the environment must be avoided. Do not allow to enter into surface water or drains.
Explosion risk.

Methods and material for containment and cleaning up

Spilled product must never be returned to the original container for recycling. Cover drains. Absorb spillage to prevent material damage. Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Dispose according to legislation.

Additional information

Personal protection equipment (PPE): see section 8 SECTION 13. Information regarding the disposal of the products

SECTION 7: Handling and storage

Precautions for safe handling

Advices on safe handling

Wear personal protection equipment (refer to section 8).

Avoid contact with eyes and skin.

Avoid inhalation of the product.

Use extractor hood (laboratory).

Provide adequate ventilation.

Measures to prevent fire, aerosol and dust generation

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

Take precautionary measures against static discharges.

Measures required to protect the environment

Due to danger of explosion, prevent leakage of vapors into cellars, flues and ditches.

Wash hands before breaks and after work. Avoid contact with eyes and skin. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

Conditions for safe storage, including any incompatibilities

Recommended storage temperature: Ambient temperature

Storage: Keep container tightly closed and in a well-ventilated place. Keep/Store away from combustible materials. Protect from sunlight. Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Suitable container/equipment material: Glass Steel Stainless steel Unsuitable container/equipment material: Aluminium Polyethylene PVC (polyvinyl chloride)

SECTION 8: Exposure controls/personal protection
Control parameters

Ingredient (Designation)	Source	Country	parameter	Limit value
Methanol	NIOSH	US	LTV	260 mg/m ³ - 200 ppm
Methanol	NIOSH	US	STV	325 mg/m ³ (1) - 250 ppm (1)
Methanol	OSHA	US	LTV	260 mg/m ³ - 200 ppm

Engineering controls
Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment. If handled uncovered, arrangements with local exhaust ventilation have to be used.

Personal protection equipment (PPE)

Wear suitable protective clothing. When handling with chemical substances, protective clothing must be worn.

Eye/face protection

Eye glasses with side protection

Skin protection

Wear suitable gloves. When handling with chemical substances, protective gloves must be worn. In the case of wanting to use the gloves again, clean them before taking off and air them well. Check leak tightness/impermeability prior to use.

By short-term hand contact

Suitable material: NBR (Nitrile rubber)
 Thickness of the glove material: 0,38 mm
 Breakthrough time: -

By long-term hand contact

Suitable material: Butyl caoutchouc (butyl rubber)
 Thickness of the glove material: 0,30 mm
 Breakthrough time: > 480 min

Respiratory protection

Respiratory protection necessary at: aerosol or mist formation If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

Additional information

Wash hands before breaks and after work. Avoid contact with eyes and skin. When using do not eat, drink or smoke. Provide eye shower and label its location conspicuously.

Environmental exposure controls

no data available

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

- | | |
|---------------------|-------------------|
| (a) Appearance | |
| Physical state: | liquid |
| Color: | colorless |
| (b) Odor: | characteristic |
| (c) Odor threshold: | no data available |

Safety relevant basic data

- | | |
|--|------------------------------------|
| (d) pH: | 7 (20 °C) |
| (e) Melting point/freezing point: | -98 °C |
| (f) Initial boiling point and boiling range: | 64.6 °C (1013 hPa) |
| (g) Flash point: | 11 °C (closed cup) |
| (h) Evaporation rate: | no data available |
| (i) Flammability (solid, gas): | Highly flammable liquid and vapor. |
| (j) Flammability or explosive limits | |
| Lower explosion limit: | 5.5 % (v/v) |
| Upper explosion limit: | 36.5 % (v/v) |
| (k) Vapor pressure: | 128 hPa (20 °C) |
| (l) Vapor density: | 1.11 (20 °C) |
| (m) Density: | 0.7918 g/cm ³ (20 °C) |
| (n) Solubility(ies) | |
| Water solubility: | soluble (20 °C) |
| Soluble (g/L) in Ethanol: | no data available |
| (o) Partition coefficient: n-octanol/water: | -0.77 (20 °C) |
| (p) Auto-ignition temperature: | 455 °C (DIN 51794) |
| (q) Decomposition temperature: | not applicable |
| (r) Viscosity | |
| Kinematic viscosity: | no data available |
| Dynamic viscosity: | 0.614 mPa*s (20 °C) |
| (s) Explosive properties: | not applicable |
| (t) Oxidising properties: | not applicable |

Other information

- | | |
|------------------------|-------------------------|
| Bulk density: | no data available |
| Refraction index: | 1.33066 (589 nm; 20 °C) |
| Dissociation constant: | no data available |
| Surface tension: | no data available |
| Henry's Law Constant: | no data available |

SECTION 10: Stability and reactivity

Reactivity

This material is non-reactive under normal conditions.

Chemical stability

Vapor may form explosive mixtures with air.

Chemical stability

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

Possibility of hazardous reactions

Formation of explosive mixtures with:

Oxidising agent.

Nitrogen oxides (NO_x)

Chlorates

Nitric acid

Sulfuric acid.

Exothermic reaction with:

Reducing agent.

Acid

Acid halides

Alkali (lye), concentrated

Violent reaction with:

Alkali metals

Alkaline earth metal

Formation of:

Hydrogen

Conditions to avoid

UV-radiation/sunlight

Heat

Sparks.

Flame

Incompatible materials:

Acids

Alkali metals

Oxidising agent.

Hazardous decomposition products

Formaldehyde

SECTION 11: Toxicological information**Information on toxicological effects****Acute effects**

Acute oral toxicity:

LDLo: > 143 mg/kg - Human - (RTECS)

LD50: 1187 - 2769 mg/kg - Rat - (OECD 401)

Acute dermal toxicity:

LD50: 17100 mg/kg - Rabbit - (ECHA)

Acute inhalation toxicity:

TCLo: > 160 ppm (4 h) - Human

LD50: 43700 mg/m³ (6 h) - Cat - (J Appl Toxicol 14(4): 309-313)

Irritant and corrosive effects:

Primary irritation to the skin:

not applicable

Irritation to eyes:

not applicable

Irritation to respiratory tract:

not applicable

Respiratory or skin sensitization

In case of skin contact: not sensitizing

In case of inhalation: not sensitizing

STOT-single exposure

Damages eyes and central nervous system.

STOT-repeated exposure

not applicable

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**Carcinogenicity**

No indication of human carcinogenicity.

Germ cell mutagenicity

No indications of human germ cell mutagenicity exist.

Reproductive toxicity

No indications of human reproductive toxicity exist.

Aspiration hazard

not applicable

Other adverse effects

no data available

SECTION 12: Ecological information

Ecotoxicity**Fish toxicity:**

LC50: 15000 - 29400 mg/l (96 h) - Poirier, S.H., M.L. Knuth, C.D. Anderson-Buchou, L.T. Brooke, A.R. Lima, and P.J. Shubat 1986. Comparative Toxicity of Methanol and N,N-Dimethylformamide to Freshwater Fish and Invertebrates. Bull.Environ.Contam.Toxicol. 37(4):615-621

Daphnia toxicity:

LC50: 2500 - 4810 mg/l (48 h) - Guilhermino, L., T. Diamantino, M.C. Silva, and A.M.V.M. Soares 2000. Acute Toxicity Test with Daphnia magna: An Alternative to Mammals in the Prescreening of Chemical Toxicity?. Ecotoxicol.Environ.Saf. 46(3):357-362

EC50: 22200 - 46800 mg/l (48 h) - Randall, T.L., and P.V. Knopp 1980. Detoxification of Specific Organic Substances by Wet Oxidation. J.Water Pollut.Control Fed. 52(8):2117-2130

Algae toxicity:

EC50: 22 000 mg/l (96 h) - Pseudokirchneriella subcapitata - IUCLID

Bacteria toxicity:

no data available

Persistence and degradability

Biodegradable.

Bioaccumulative potential

Partition coefficient: n-octanol/water: -0.77 (20 °C)

Mobility in soil:

no data available

Other adverse effects

no data available

SECTION 13: Disposal considerations**Waste treatment methods****Appropriate disposal / Product**

Dispose according to legislation. Consult the appropriate local waste disposal expert about waste disposal.

Appropriate disposal / Package

Dispose according to legislation. Handle contaminated packages in the same way as the substance itself. This material and its container must be disposed of as hazardous waste. Do not open container by force. Warning: Do not refill! Do not pierce or burn, even after use.

SECTION 14: Transport information**Land transport (DOT)**

UN-No.:	UN1230
Proper Shipping Name:	METHANOL
Class(es):	3
Hazard label(s):	3
Packing group:	II
Environmental hazards:	No
Marine pollutant:	No
Special precautions for user:	

Sea transport (IMDG)

UN-No.:	1230
Proper Shipping Name:	METHANOL
Class(es):	3 (6.1)
Hazard label(s):	3+6.1
Packing group:	II
Environmental hazards:	No
Marine pollutant:	No
Special precautions for user:	
Segregation group:	-
EmS-No.	F-E S-D
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	not relevant

Air transport (ICAO-TI / IATA-DGR)

UN-No.:	1230
Proper Shipping Name:	METHANOL
Class(es):	3 (6.1)
Classification code:	
Hazard label(s):	3+6.1
Packing group:	II
Special precautions for user:	

SECTION 15: Regulatory information**Safety, health and environmental regulations/legislation specific for the substance or mixture****National regulations****Toxic Substances Control Act (TSCA)**

Listed

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

SARA 313 Components

Listed

US State Regulations**Massachusetts Right To Know Components**

Listed

Pennsylvania Right To Know Components

Listed

New Jersey Right To Know Components

Listed

California Prop. 65 Components**WARNING:**

This product can expose you to chemicals including Methanol which is known to the State of California to cause birth defects or other reproductive harm.

For more information go to www.P65Warnings.ca.gov.

SECTION 16: Other information

Abbreviations and acronyms

ACGIH - American Conference of Governmental Industrial Hygienists
DOT - Department of Transportation
IARC - International Agency for Research on Cancer
IATA-DGR - International Air Transport Association-Dangerous Goods Regulations
ICAO-TI - International Civil Aviation Organization-Technical Instructions
IMDG - International Maritime Code for Dangerous Goods
LTV - Long Term Value
NIOSH - National Institute for Occupational Safety and Health
NTP - National Toxicology Program
OSHA - Occupational Safety & Health Administration
PBT - Persistent, Bioaccumulative and Toxic
PEL - Permissible Exposure Limit
STV - Short Term Value
SVHC - Substances of Very High Concern
TDG - Transport of Dangerous Goods
TLV - Threshold Limit Value
vPvB - very Persistent, very Bioaccumulative

Key literature references and sources for data

This Safety Data Sheet has been prepared based on information available for public as TOXNET information, European Chemicals Agency (ECHA) substance dossier, papers from international cancer research institutes (IARC Monographs), U.S. National Toxicology Program data, U.S. Agency for Toxic Substances and Disease Control (ATSDR), PubChem websites and SDS from our raw material manufacturers.

Revision date	Version	Print date
09.01.2024	1.12	2024-01-09

Additional information

Indication of changes:

general update

If you need an explanation of the change, contact the supplier (SDS@avantorsciences.com).

Disclaimer

The information provided in this Safety Data Sheet (SDS) was prepared based on data believed to be accurate as of the date of this SDS. TO THE GREATEST EXTENT PERMITTED BY LAW, AVANTOR PERFORMANCE MATERIALS ("AVANTOR") EXPRESSLY DISCLAIMS ANY AND ALL REPRESENTATIONS AND WARRANTIES REGARDING THE INFORMATION CONTAINED HEREIN INCLUDING, WITHOUT LIMITATION, AS TO ACCURACY, COMPLETENESS, FITNESS FOR PURPOSE OR USE, MERCHANTABILITY, NON-INFRINGEMENT, PERFORMANCE, SAFETY, SUITABILITY AND STABILITY. This SDS is intended as a guide to the appropriate use, handling, storage and disposal of the product to which it relates by properly trained personnel, and is not intended to be comprehensive. Users of Avantor's products are advised to perform their own tests and to exercise their own judgment to determine the safety, suitability and appropriate use, handling, storage and disposal of each product and product combination for their own purposes and uses. TO THE GREATEST EXTENT PERMITTED BY LAW, AVANTOR DISCLAIMS LIABILITY FOR, AND BY USING AVANTOR'S PRODUCTS PURCHASER AGREES THAT UNDER NO CIRCUMSTANCES SHALL AVANTOR BE LIABLE FOR, SPECIAL, INDIRECT, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES OF ANY TYPE OR KIND, INCLUDING WITHOUT LIMITATION, FOR LOSS OF PROFITS, REPUTATIONAL DAMAGE, PRODUCT RECALL OR BUSINESS INTERRUPTION.

