

Safety Data Sheet

Material Name: Methanol

SDS ID: Methanol-VT

SECTION 1: Identification

Product identifier

Material Name

Methanol

Synonyms

Methyl alcohol, wood alcohol, methyl hydroxide

Chemical Family

Alcohols

Product Description

CAS #: 67-56-1. EC #: 200-659-6. UN #: 1230.

Product Use

Industrial use: Manufacture of substance. Distribution of substance. Formulation & (re)packing of substances and mixtures. Use as a fuel. Use in cleaning agents. Use as laboratory reagent. Water treatment chemicals, wastewater. Professional use: Use as a fuel. Use in cleaning agents. Use as laboratory reagent. Use in oil and gas field drilling and production operations. Consumer use: Consumer use of cleaning agents and de-icers: Spray, liquid products. Consumer use of fuels.

Restrictions on Use

None identified

Details of the supplier of the safety data sheet

Methanex Corporation
1800 Waterfront Centre,
200 Burrard Street, V6C 3M1 - Canada
Phone: +1 604 661 2600

Emergency phone number

CHEMTREC Vietnam (Hanoi): +(84)-444581771. NCEC: +44 (0) 1235 239 670 (24h/7d).

SECTION 2: Hazard identification

GHS Classification

Flammable Liquids - Category 2

Acute Toxicity - Oral - Category 3

Acute Toxicity - Dermal - Category 3

Acute Toxicity - Inhalation - Vapor - Category 3

Serious Eye Damage/Eye Irritation - Category 2A

Reproductive Toxicity - Category 1A

Specific Target Organ Toxicity - Single Exposure - Category 1 (central nervous system , retina , systemic toxicity , optic nerve)

Specific Target Organ Toxicity - Single Exposure - Category 3

Label elements

Hazard symbols



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Signal word

Danger

Hazard statements

Highly flammable liquid and vapor.

Toxic if swallowed.

Toxic in contact with skin.

Toxic if inhaled.

Causes serious eye irritation.

May damage fertility or the unborn child.

Causes damage to organs.

May cause respiratory irritation. May cause drowsiness or dizziness.

Precautionary statements

Prevention

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep container tightly closed.

Keep away from heat/sparks/open flame/hot surfaces - No smoking.

Ground/Bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Take precautionary measures against static discharge.

Use only non-sparking tools.

Use only outdoors or in a well-ventilated area.

Use Personal Protective equipment as required.

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

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Response

In case of fire: Use appropriate media for extinction.

If exposed: Call a POISON CENTER or doctor/physician.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

Wash contaminated clothing before reuse.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

Rinse mouth.

Call a POISON CENTER or doctor/physician.

Specific treatment (see label).

Storage

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

Keep cool.

Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Other Hazards Which Do Not Result in Classification

Poison. May be fatal if swallowed. If swallowed there is a risk of blindness.

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SECTION 3: Composition / information on ingredients

CAS	Component Name	Percent
67-56-1	Methanol	100

Impurities and stabilizing additives contributing to the GHS Classification

None

SECTION 4: First aid measures

Description of Necessary Measures

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Administer oxygen if breathing is difficult. Immediately call a POISON CENTER or doctor.

Skin contact

IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Wash with plenty of water. Immediately call a POISON CENTER or doctor. Wash contaminated clothing before reuse.

Eye contact

IF IN EYES: Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation develops and persists, get medical attention.

Ingestion

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention immediately.

Most Important Symptoms/Effects

Symptoms: Immediate

Poison. May be fatal if swallowed. If swallowed there is a risk of blindness. Toxic if swallowed, in contact with skin or if inhaled. Ingestion causes nausea, weakness and central nervous system effects, headache, vomiting, dizziness, symptoms of drunkenness. Coma and death due to respiratory failure may follow severe exposures: Medical treatment necessary. A latent period of several hours may occur between exposure and the onset of symptoms.

Symptoms: Delayed

May damage fertility or the unborn child.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically and supportively. The severity of outcome following methanol ingestion may be more related to the time between ingestion and treatment, rather than the amount ingested. Therefore, there is a need for rapid treatment of any ingestion exposure. Call a POISON CENTER. Antidote: Fomepizole enhances elimination of metabolic formic acid. Antidote should be administered by qualified medical personnel.

SECTION 5: Firefighting measures

Suitable extinguishing media

Carbon dioxide, regular dry powder, water spray, alcohol resistant foam, sand. Use water spray to cool fire fire-exposed containers. Water will not cool methanol below its flash point. Collect spillage.

Unsuitable Extinguishing Media

Do not use high-pressure water streams.

Specific hazards arising from the chemical

Highly flammable liquid and vapor. Mixtures >20% methanol with water are flammable. May form explosive mixture with air. Vapors are heavier than air and may travel along the ground to some distant source of ignition and



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flash back. Containers may rupture or explode if exposed to heat. Dangerous gases may accumulate in confined spaces. Toxic.

Protective Equipment and Precautions for Firefighters

Wear full protective firefighting gear including self-contained breathing apparatus (SCBA) for protection against possible exposure.

Fire Fighting Measures

Do not allow run-off from fire-fighting to enter drains or water courses. Keep unnecessary people away, isolate hazard area and deny entry.

Combustion

Releases toxic gases, vapors. Carbon monoxide, carbon dioxide, formaldehyde.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear appropriate personal protective equipment. Move container from fire area if it can be done without risk. Do not breathe gas/fume/vapor/spray. Avoid contact with eyes and skin.

Environmental precautions

Avoid release to the environment. Biodegradable at low concentrations. Soluble in water. When released, this product is expected to evaporate. Contact authorities in the event of pollution of soil and aquatic environment or discharge into drains. Dispose in accordance with all applicable federal, state/regional and local laws and regulations.

Methods for Containment

Wear suitable protective clothing and eye/face protection. Stop leak if this can be done without risk. Do not touch or walk through spilled material. Evacuate the area promptly and keep upwind of the spilled material. Ensure adequate ventilation. Avoid inhalation of mists or vapors. Avoid contact with eyes, skin and clothing. Remove all sources of ignition. Avoid friction, static electricity and sparks.

Cleanup Methods

Small spills: Absorb with sand or other non-combustible material. Use non-sparking tools and equipment. Collect spilled material in appropriate container for disposal. Clean contaminated surface thoroughly. Large spills: Contain the released material by diking the containment area with absorbent. A vapor suppressing foam may be used to reduce vapors. Collect spilled material in appropriate container for reuse or disposal.

SECTION 7: Handling and storage

Precautions for safe handling

Use in a well ventilated area. Wear personal protective clothing and equipment, see Section 8. Eliminate all sources of ignition. No smoking. Do not enter confined spaces unless adequately ventilated. Clean up contamination/spills as soon as they occur. Decontaminate personnel, spill area and all tools and equipment. Use explosion-proof equipment. Use good industrial hygiene practices in handling this material. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and leaving work. Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care. Do not breathe vapor.

Conditions for safe storage, including any incompatibilities

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

Keep cool.

Store locked up.

Keep/Store only in original container. Keep out of direct sunlight, and away from heat, water, and incompatible materials. Ground/Bond container and receiving equipment. Provide appropriate fire extinguishers and spill cleanup equipment in or near storage area. Store at room temperature. Store in a dry area. Store in fireproof room. Keep unauthorized personnel away.

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Incompatible Materials

Lead, Aluminum, zinc, oxidizing agents, strong acids, strong bases, polyethylene, PVC (Polyvinyl chloride), nitrile

SECTION 8: Exposure controls/personal protection

Exposure Guidelines

Component Exposure Limits

Methanol	67-56-1
ACGIH:	200 ppm TWA
	250 ppm STEL
	Skin - potential significant contribution to overall exposure by the cutaneous route
NIOSH:	200 ppm TWA ; 260 mg/m3 TWA
	250 ppm STEL ; 325 mg/m3 STEL
	Potential for dermal absorption
OSHA (US):	200 ppm TWA ; 260 mg/m3 TWA
OSHA (Vacated):	200 ppm TWA ; 260 mg/m3 TWA
	250 ppm STEL ; 325 mg/m3 STEL
	Prevent or reduce skin absorption
Vietnam:	50 mg/m3 TWA
	100 mg/m3 STEL

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

Methanol (67-56-1)

15 mg/l Medium: urine Time: end of shift Parameter: Methanol (background, nonspecific)

Appropriate engineering controls

Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits. Use explosion-proof electrical/ventilating/lighting equipment. Handle substance within a closed system. Ground/Bond container and receiving equipment. Maintain eye wash fountain and quick-drench shower in work area.

PERSONAL PROTECTIVE EQUIPMENT

Eye/face protection

Wear splash resistant safety goggles with a faceshield.

Protective Clothing

Wear chemical resistant clothing to prevent skin contact.

Glove Recommendations

Wear appropriate chemical resistant gloves.

Protective Materials

natural rubber, neoprene, butyl rubber

Respiratory Protection

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Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9: Physical and chemical properties

Appearance	clear	Physical State	liquid
Odor	alcohol odor	Color	colorless
Odor Threshold	4.2 - 5960 ppm	pH	Not applicable
Melting Point	-97.8 °C	Boiling Point	64.7 °C
Boiling Point Range	Not available	Freezing point	-97.6 °C
Evaporation Rate	4.1 (butyl acetate = 1)	Flammability (solid, gas)	Not applicable
Autoignition Temperature	464 °C	Flash Point	11 °C
Lower Explosive Limit	5.5 %	Decomposition temperature	Not available
Upper Explosive Limit	36.5 %	Vapor Pressure	12.8 kPa (@ 20 °C)
Vapor Density (air=1)	1.1 (@ 20 °C)	Specific Gravity (water=1)	792 kg/m ³
Water Solubility	Not available	Partition coefficient: n-octanol/water	-0.77 (log value)
Viscosity	0.8 cP (20 °C, dynamic)	Kinematic viscosity	Not available
Solubility (Other)	Not available	Density	0.791 - 0.793 at 20 °C
VOC	100 %	Molecular Weight	32.04 (g/mol)
Critical Temperature	239.4 °C	Oxidising properties	Not oxidising
Explosive properties	Vapors may form explosive mixtures with air		

Solvent Miscibility
Miscible
 Miscible with water.

SECTION 10: Stability and reactivity



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Reactivity

Containers may rupture or explode if exposed to heat.

Chemical stability

Stable under normal conditions of use. In use may form flammable/explosive vapor-air mixture. Product is hygroscopic.

Possibility of hazardous reactions

Will not polymerize.

Conditions to avoid

Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Avoid direct sunlight.

Materials to Avoid (Incompatibilities)

Lead, Aluminum, zinc, oxidizing agents, strong acids, strong bases, polyethylene, PVC (Polyvinyl chloride), nitrile

Hazardous decomposition products

Heat, carbon monoxide, carbon dioxide, flammable gases, formaldehyde

SECTION 11: Toxicological information

Acute and Chronic Toxicity

Poison. Toxic if swallowed, in contact with skin or if inhaled. If swallowed there is a risk of blindness.

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

Methanol (67-56-1)

Oral LD50 Rat 5600 mg/kg
Dermal LD50 Rabbit 15800 mg/kg
Inhalation LC50 Rat 64000 ppm 4 h

Acute Toxicity Estimate

Dermal	300 mg/kg
Inhalation - Vapor	3 mg/L
Oral	100 mg/kg

Immediate Effects

Poison. Toxic if swallowed, in contact with skin or if inhaled. May be fatal if swallowed. If swallowed there is a risk of blindness. Causes serious eye irritation. Causes damage to organs. Ingestion causes nausea, weakness and central nervous system effects, headache, vomiting, dizziness, symptoms of drunkenness, respiratory tract irritation. Coma and death due to respiratory failure may follow severe exposures: Medical treatment necessary. A latent period of several hours may occur between exposure and the onset of symptoms.

Delayed Effects

May damage fertility or the unborn child.

Irritation/Corrosivity Data

Causes serious eye irritation. May cause respiratory irritation.

Severe Damage/Irritation of Eyes

Causes serious eye irritation.

Respiratory Sensitization

No data available.

Dermal Sensitization

No data available.



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Carcinogenicity

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, DFG or OSHA.

Mutagenic Data

No data available.

Reproductive Effects Data

May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure

central nervous system, retina, systemic system, optic nerve

Specific Target Organ Toxicity - Repeated Exposure

No target organs identified.

Aspiration hazard

Not applicable

Medical Conditions Aggravated by Exposure

No data available.

SECTION 12: Ecological information

Ecotoxicity

Avoid release to the environment.

Component Analysis - Aquatic Toxicity

Methanol	67-56-1
Fish:	LC50 96 h Pimephales promelas 28200 mg/L [flow-through]; LC50 96 h Pimephales promelas >100 mg/L [static]; LC50 96 h Oncorhynchus mykiss 19500 - 20700 mg/L [flow-through]; LC50 96 h Oncorhynchus mykiss 18 - 20 mL/L [static]; LC50 96 h Lepomis macrochirus 13500 - 17600 mg/L [flow-through]
Algae:	EC50 72 hr Selenastrum capricornutum 22000 mg/l
Invertebrate:	EC50 48 hr Daphnia >10000 mg/l

Persistence

Rapidly degradable.

Bioaccumulative potential

Bioconcentration Factor (BCF): < 10

Mobility in Environmental Media

mobile

Other adverse effects

No additional information available.

SECTION 13: Disposal considerations

Disposal Methods

Dispose of contents/container in accordance with local/regional/national/international regulations. Do not pressurize, cut, heat or weld containers. Empty product containers may contain product residue. Do not reuse empty containers.

Recycle if possible.

Contaminated packaging disposal

Dispose in accordance with all applicable regulations.

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SECTION 14: Transport information

IATA Information:

Shipping Name: METHANOL
Hazard Class: 3
UN#: UN1230
Packing Group: II
Required Label(s): 3, 6.1

ICAO Information:

Shipping Name: METHANOL
Hazard Class: 3
UN#: UN1230
Packing Group: II
Required Label(s): 3, 6.1

IMDG Information:

Shipping Name: METHANOL
Hazard Class: 3
UN#: UN1230
Packing Group: II
Required Label(s): 3, 6.1

International Bulk Chemical Code

This material contains one or more of the following chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Methanol	67-56-1
IBC Code:	Category Y

Special precautions

None

SECTION 15: Technical Specifications and Legal Regulations to be Observed

Vietnam Regulations

Law on Chemicals - Annex I - Conditional Chemicals

This product contains no components identified on Vietnam's Law on Chemicals Annex I - Conditional Chemicals.

Law on Chemicals - Annex II - Restricted Chemicals

Methanol	67-56-1
	Present

Law on Chemicals - Annex III - Prohibited Chemicals

This product contains no components identified on Vietnam's Law on Chemicals Annex III - Prohibited Chemicals.

Law on Chemicals - Annex IV - Chemicals Subject to Developing an Incident Prevention and Response Plan

Methanol	67-56-1
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	500000 kg
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Law on Chemicals - Annex V - Chemicals Subject to Notification

Methanol	67-56-1
	29051100

Law on Chemicals - Annex VI - Toxic Chemicals

This product contains no components identified on Vietnam's Law on Chemicals - Annex VI - Toxic Chemicals.

Law on Chemicals - Annex VII - Hazardous Chemicals Subject to Elaborating Incident Prevention and Response Measures

This product contains no components identified on Vietnam's Law on Chemicals - Annex VII - Hazardous Chemicals Subject to Elaborating Incident Prevention and Response Measures.

Chemicals Banned for Import and Export

This product contains no components identified on Vietnam's Chemicals Banned for Import and Export.

Dangerous Industrial Goods Which Need an Emergency Response Plan

This product contains no components identified on Vietnam's Dangerous Industrial Goods Which Need an Emergency Response Plan.

Hazardous Chemicals Requiring Registration for the Use in the Industrial Field

This product contains no components identified on Vietnam's Hazardous Chemicals Requiring Registration for the Use in the Industrial Field.

Ozone Layer Depleting Substances Subject to Import Licensing and Import Quotas

This product contains no components identified on Vietnam's Ozone Layer Depleting Substances Subject to Import Licensing and Import Quotas.

Component Analysis - Inventory

Methanol (67-56-1)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN (Draft)
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes

SECTION 16: Other information

Preparation and Revision Date

New Safety Data Sheet: 3 July 2018

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC - European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing

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Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; F - Background (for Venezuela Biological Exposure Indices); IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX - Mexico; Ne- Non-specific; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; Nq - Non-quantitative; NSL - Non-Domestic Substance List (Canada); NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL- Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; Sc - Semi-quantitative; STEL - Short-term Exposure Limit; TCCA - Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW - Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN (Draft) - Vietnam (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada).

Other Information

Disclaimer:

The information above is believed to be accurate and represents the best information currently available to us. Users should make their own investigations to determine the suitability of the information for their particular purposes. This document is intended as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Methanex Corporation and its subsidiaries make no representations or warranties, either express or implied, including without limitation any warranties of merchantability, fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers. Accordingly, Methanex Corp. will not be responsible for damages resulting from use of or reliance upon this information.