



SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
Industrial Safety and Health Act (ISHA), amended January 15, 2019

Issuing Date 17-Dec-2020

Revision Date 17-Dec-2020

Revision Number 11

1. Identification

A Product identifier

Product Name Methanol
Synonyms Methyl alcohol, wood alcohol, methyl hydroxide
CAS No 67-56-1

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

Recommended use Industrial use
Professional use
Consumer use
Solvent
Fuels
Raw material
Cleaning agent
Laboratory reagent
Consumer use of cleaning agents and de-icers

Uses advised against None

C Supplier's details

Manufacturer

Methanex Korea Co., Ltd
6th floor, Gangnam Finance Center
152 Teheran-ro
Gangnam-gu, Seoul
(02)598-2051

For further information, please contact

E-mail address No information available

Emergency telephone number CHEMTREC Emergency Phone Number (Toll-free): 00-308-13-2549
119 Fire and Disaster Prevention Administration and local fire department

2. Hazard(s) identification

A Classification of the substance or mixture

Acute toxicity - Oral	Category 3
Acute toxicity - Dermal	Category 3
Acute toxicity - Inhalation (Vapors)	Category 3
Serious eye damage/eye irritation	Category 2
Carcinogenicity	Category 2
Reproductive toxicity	Category 1B

Specific target organ toxicity (single exposure)	Category 1
Specific target organ toxicity (repeated exposure)	Category 1
Flammable liquids	Category 2

B GHS Label elements, including precautionary statements

Hazard symbols



Signal word

Danger

Hazard statements

H301 - Toxic if swallowed
 H311 - Toxic in contact with skin
 H319 - Causes serious eye irritation
 H331 - Toxic if inhaled
 H351 - Suspected of causing cancer
 H360 - May damage fertility or the unborn child
 H370 - Causes damage to organs
 H372 - Causes damage to organs through prolonged or repeated exposure
 H225 - Highly flammable liquid and vapor

Precautionary Statements - Prevention

P201 - Obtain special instructions before use
 P202 - Do not handle until all safety precautions have been read and understood
 P280 - Wear protective gloves/protective clothing/eye protection/face protection
 P264 - Wash face, hands and any exposed 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
 P260 - Do not breathe dust/fume/gas/mist/vapors/spray
 P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
 P233 - Keep container tightly closed
 P241 - Use explosion-proof electrical/ ventilating / lighting/ .? / equipment
 P240 - Ground/bond container and receiving equipment
 P242 - Use only non-sparking tools
 P243 - Take precautionary measures against static discharge
 P235 - Keep cool

Precautionary Statements - Response

P321 - Specific treatment (see supplemental first aid instructions on this label)
 P308 + P311 - IF exposed or concerned: Call a POISON CENTER or doctor
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 P337 + P313 - If eye irritation persists: Get medical advice/attention

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
 P362 - Take off contaminated clothing and wash before reuse
 P312 - Call a POISON CENTER or doctor if you feel unwell

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
 P311 - Call a POISON CENTER or doctor

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor
 P330 - Rinse mouth

P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

Precautionary Statements - Storage

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

Precautionary Statements - Disposal

P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

C Other hazards which do not result in classification

Poison. Risk of blindness after swallowing the product. May be harmful if swallowed.

3. Composition/information on ingredients

Substance

Synonyms

Methyl alcohol, wood alcohol, methyl hydroxide

Chemical name	Common name and synonyms	CAS No	Weight-%	Other identifier number
Methanol	Methyl alcohol	67-56-1	100	KE-23193

4. First-aid measures

A In case of eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

B In case of skin contact

IF ON SKIN: Wash with plenty of soap and water. Remove and isolate contaminated clothing and shoes. Wash contaminated clothing before reuse. Immediate medical attention is required.

C In case of inhalation

Remove to fresh air. IF exposed or concerned: Get medical advice/attention. Immediate medical attention is required. If breathing is difficult, (trained personnel should) give oxygen.

D In case of ingestion

Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

E Indication of immediate medical attention and special treatment needed, if necessary

General advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required. IF exposed or concerned: Get medical advice/attention.

Note to physicians

Poison. May be fatal if swallowed. 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.

Symptoms

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. May cause redness and tearing of the eyes. Burning sensation. Coughing and/ or wheezing. Difficulty in breathing.

Self-protection of the first aider

Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Do not breathe vapor or mist.

5. Fire-fighting measures

A Suitable (and unsuitable) extinguishing media**Suitable Extinguishing Media**

Dry chemical. Carbon dioxide (CO₂). Water spray. Alcohol resistant foam. Use water spray to cool fire-exposed containers. Water will not cool methanol below its flash point.

Unsuitable extinguishing media

Do not scatter spilled material with high pressure water streams.

B Specific hazards arising from the chemical

Vapors are heavier than air and may spread along floors. Mixtures >20% methanol with water: flammable. Risk of ignition. Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Do not allow run-off from fire-fighting to enter drains or water courses. Sealed containers may rupture when heated. May burn with an almost invisible flame in bright light.

Hazardous combustion products

Toxic gases or vapors. Carbon monoxide. Carbon dioxide (CO₂). Formaldehyde.

C Special Protective Equipment for Firefighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

A Personal precautions, protective equipment and emergency procedures**Personal precautions**

Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Do not breathe vapor or mist. Wash thoroughly after handling.

Other information

Ventilate the area. Refer to protective measures listed in Sections 7 and 8.

For emergency responders

Use personal protection recommended in Section 8.

B Environmental precautions

Avoid release to the environment. Dispose of contents/containers in accordance with local regulations. 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. Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

C. Methods and material for containment and cleaning up

Methods for containment	Stop leak if you can do it without risk. Do not touch or walk through spilled material. A vapor suppressing foam may be used to reduce vapors. Dike far ahead of spill to collect runoff water. Keep out of drains, sewers, ditches and waterways. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
Methods for cleaning up	Take precautionary measures against static discharges. Use clean non-sparking tools to collect absorbed material. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.

7. Handling and storage

A Precautions for safe handling

Advice on safe handling	Use personal protection equipment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use grounding and bonding connection when transferring this material to prevent static discharge, fire or explosion. Use spark-proof tools and explosion-proof equipment. Keep in an area equipped with sprinklers. Use according to package label instructions. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Take off contaminated clothing and wash before reuse. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. Do not breathe vapor or mist. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation.
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B Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labeled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store in accordance with the particular national regulations. Store in accordance with local regulations. Keep out of the reach of children. Store locked up.
General hygiene considerations	Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Do not breathe vapor or mist.

8. Exposure controls/personal protection

A Control Parameters

Occupational exposure limits

Chemical name	OEL	ACGIH TLV
Methanol	TWA: 200 ppm STEL: 250 ppm Skin*	STEL: 250 ppm TWA: 200 ppm S*

B Appropriate engineering controls

Engineering controls	Provide local exhaust ventilation. Handle product only in closed system or provide appropriate exhaust ventilation. Ensure that eyewash stations and safety showers are close to the workstation location. Use spark-proof tools and explosion-proof equipment. All
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equipment used when handling the product must be grounded.

Environmental exposure controls No information available.

C Personal protective equipment

Respiratory protection Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode. Use a properly fitted, air-purifying or supplied air respirator complying with an approved standard if a risk assessment indicates this is necessary. 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.

Eye protection Tight sealing safety goggles. Face protection shield.

Hand protection Wear suitable gloves. Impervious gloves. Nitrile rubber. Neoprene gloves. Butyl rubber.

Body protection Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron. Antistatic boots.

9. Physical and chemical properties

Information on basic physical and chemical properties

A Appearance Clear liquid
Physical State Liquid
Color Clear
B Odor Alcohol
C Odor threshold 4.2 -5960 ppm

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
D pH	No information available	None known
E Melting point / freezing point	-97.8 °C / -144 °F	None known
F Initial boiling point and boiling range	64.7 °C / 148.5 °F	None known
G Flash point	11 °C / 51.8 °F	None known
H Evaporation rate	4.1	Butyl acetate = 1
I Flammability	No information available	None known
J Upper/lower flammability or explosive limits		
Upper flammability or explosive limits		36.5%
Lower flammability or explosive limits		5.5%
K Vapor pressure	12.8 kPa	@ 20 °C
L Solubility(ies)		
Water solubility	Miscible in water	None known
Solubility in other solvents	No information available	None known
M Vapor density	1.1	@ 20 °C (air = 1)
N Specific Gravity	0.791 - 0.793	@20°C
O Partition coefficient: n-octanol/water	-0.77	log Pow
P Autoignition Point	464 °C / 867.2 °F	None known
Q Decomposition temperature	No information available	None known
R Viscosity		
Kinematic viscosity	No information available	None known
Dynamic viscosity	0.8 cP	@ 20 °C
S Molecular weight	32.04	

Other information

Explosive properties Vapors may form explosive mixtures with air.

Oxidizing properties	None known.
Softening point	No information available
VOC Content (%)	100%
Liquid Density	No information available

10. Stability and reactivity

A Chemical stability and possibility of hazardous reactions

Stability	Stable under normal conditions. May form flammable/explosive vapor-air mixture.
Possibility of hazardous reactions	Heating causes rise in pressure with risk of bursting.
Hazardous polymerization	Hazardous polymerization does not occur.
Explosion data	
Sensitivity to mechanical impact	None.
Sensitivity to static discharge	Yes.

B Conditions to avoid

Heat, flames and sparks. Excessive heat. Protect from direct sunlight. Containers may rupture or explode if exposed to heat.

C Incompatible materials

Lead. Aluminum. Zinc. Oxidizing agent. Strong acids. Strong bases. Polyethylene. Polyvinyl chloride (PVC). Nitriles.

D Hazardous decomposition products

Carbon monoxide. Carbon dioxide (CO₂). May release flammable gases. Formaldehyde.

11. Toxicological information

A Information on the likely routes of exposure

Product Information

Inhalation	Toxic if inhaled. Vapors may be irritating. May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination.
Ingestion	Poison. Toxic if swallowed. MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED. May be fatal if swallowed.
Eye contact	Causes serious eye irritation. May cause redness, itching, and pain.
Skin contact	Toxic in contact with skin. May cause irritation. Prolonged contact may cause redness and irritation.
Symptoms	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. May cause redness and tearing of the eyes. Coughing and/ or wheezing. Difficulty in breathing.

B Health hazards information

Acute toxicity

Numerical measures of toxicity

ATE values provided as a reflection of the hazard classification

The following values are calculated based on chapter 3.1 of the GHS document:

ATEmix (oral)	100 mg/kg
ATEmix (dermal)	300 mg/kg
ATEmix (inhalation-vapor)	3 mg/l

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Methanol	= 6200 mg/kg (Rat)	= 15840 mg/kg (Rabbit)	= 22500 ppm (Rat) 8 h

Skin corrosion/irritation	May cause skin irritation.
Serious eye damage/irritation	Causes serious eye irritation.
Respiratory or skin sensitization	OECD Test No. 406: Skin Sensitization: No sensitization responses were observed.
Germ cell mutagenicity	OECD Test No. 471: Bacterial Reverse Mutation Test: Not classified.
Carcinogenicity	Suspected of causing cancer. EU CLP: Category 2 (Applies to CLP according to Article 5 of Notification 2018-24).
Reproductive toxicity	May damage fertility or the unborn child.
Specific target organ toxicity (STOT) – single exposure	Causes damage to organs.
Specific target organ toxicity (STOT) – repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Target organ effects	Eyes: Optic nerve. Central nervous system.
Aspiration hazard	No information available.

12. Ecological information

A Ecotoxicity

Avoid release to the environment.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Methanol	-	LC50: 13500 - 17600mg/L (96h, Lepomis macrochirus) LC50: 18 - 20mL/L (96h, Oncorhynchus mykiss) LC50: 19500 - 20700mg/L (96h, Oncorhynchus mykiss) LC50: =28200mg/L (96h, Pimephales promelas) LC50: >100mg/L (96h, Pimephales promelas)	-	-

B Persistence and degradability Readily biodegradable.

C Bioaccumulative potential

BCF: <10

Component Information

Chemical name	Partition coefficient
Methanol	-0.77

- D Mobility in soil** Adsorbs on soil
- Mobility** No information available.
- E Other adverse effects** No information available.

13. Disposal considerations**A Waste treatment methods**

Waste from residues/unused products Do not allow into any sewer, on the ground or into any body of water. Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation. Dispose in accordance with Waste Control Act.

B Disposal considerations

Contaminated packaging Recover or recycle if possible. Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.

14. Transport information

- A UN number** UN1230
- B UN proper shipping name** METHANOL
- C Transport hazard class(es)** 3
- Subsidiary hazard class** 6.1
- D Packing group** II
- E Marine pollutant** Not regulated
- Special Provisions** 279
- EmS-No** F-E, S-D
- Description** UN1230, METHANOL, 3 (6.1), II, (11°C C.C.)
- F Special precautions for user** Not regulated

15. Regulatory information

A Industrial Safety and Health Law

Prohibited substance Not applicable

Substances Requiring Permission Not applicable

Harmful substances subject to control

Chemical name	Harmful substances subject to control
Methanol	Applicable

Harmful agents subject to work environment monitoring (Measurement cycle: 6 months)

Chemical name	Organic compounds	Metals	Acids and alkalis	Gas-phase substances	Dusts

Methanol	Applicable	Not applicable	Not applicable	Not applicable	Not applicable
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Harmful agents subject to workers requiring health examination (Diagnostic cycle: 12 months)

Chemical name	Organic compounds	Metals	Acids and alkalis	Gas-phase substances	Dusts
Methanol	Applicable	Not applicable	Not applicable	Not applicable	Not applicable

Harmful or dangerous substances subject to submission of process safety reports Not applicable**Control parameters**

See section 8 for national exposure control parameters

B Chemicals Control Act

Chemical name	Toxic substance	Prohibited substance	Restricted substance
Methanol	97-1-80, 85 % *	Not applicable	Not applicable
<i>* Mixtures containing this % or more are designated</i>			

Act on Registration, Evaluation, etc. of Chemicals (K-REACH) Applicable

Chemical name	Existing substances subject to registration	Existing substances not likely to be subject to registration	Existing substances known to be of very low risk
Methanol	Applicable	Not applicable	Not applicable

Chemicals Control Act (CCA) - Accident Precaution Chemicals Not applicable

Chemical name	Chemicals Control Act (CCA) - Accident Precaution Chemicals
Methanol	Applicable

C Safety Control of Dangerous Substances Act**Dangerous Goods Class**

Class 4 - flammable liquids - alcohols, 400l

D Wastes Management

Dispose of waste in accordance with environmental legislation.

E Other Regulations**Pollutant Release and Transfer Registry (PRTR)**

Chemical name	Toxic Release Inventory Chemicals - Group 1	Toxic Release Inventory Chemicals - Group 2
Methanol		>=1.0 % w/w

International Inventories

TSCA	Listed.
DSL/NDSL	Listed on DSL.
EINECS/ELINCS	Listed.
ENCS	Listed.
IECSC	Listed.
KECL	Listed.
PICCS	Listed.
AICS	Listed.

Legend:**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances**ENCS** - Japan Existing and New Chemical Substances**IECSC** - China Inventory of Existing Chemical Substances**KECL** - Korean Existing and Evaluated Chemical Substances**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**AICS** - Australian Inventory of Chemical Substances**16. Other information****A Information source and references**

Prepared By Product Safety Department.

B Issuing Date 17-Dec-2020

C Revision number and date

Revision Number 11
Revision Note Updated format.
Revision Date 17-Dec-2020

D Other

Key or legend to abbreviations and acronyms used in the safety data sheet

ACGIH ACGIH (American Conference of Governmental Industrial Hygienists)
 IMDG International Maritime Dangerous Goods (IMDG)

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

Key literature references and sources for data used to compile the SDS

U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 EPA (Environmental Protection Agency)
 Acute Exposure Guideline Level(s) (AEGl(s))
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
 U.S. Environmental Protection Agency High Production Volume Chemicals
 Food Research Journal
 Hazardous Substance Database
 International Uniform Chemical Information Database (IUCLID)
 Japan GHS Classification
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
 NIOSH (National Institute for Occupational Safety and Health)
 National Library of Medicine's ChemID Plus (NLM CIP)
 National Toxicology Program (NTP)
 New Zealand's Chemical Classification and Information Database (CCID)
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program
 Organization for Economic Co-operation and Development Screening Information Data Set
 RTECS (Registry of Toxic Effects of Chemical Substances)
 World Health Organization

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.

End of Safety Data Sheet