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SECTION 1: Identification of the substance or mixture and of the company

Product identifier	Methanol
UN number or ID number	UN1230
Synonyms	Methyl alcohol, wood alcohol, methyl hydroxide
Other information	Chemical Family - Alcohols
Recommended use	Industrial use, Professional use, Consumer use: Solvent, Fuels, Raw material, Cleaning agent, Laboratory reagent, Use in oil and gas field drilling and production operations, Water treatment chemicals, wastewater, Consumer use of cleaning agents and de-icers
Restrictions on use	No information available

Details of the supplier of the safety data sheet:

Supplier

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+(56)-225814934

SECTION 2: Identification of the hazard or the hazards

Classification of the substance or mixture

Acute toxicity - Oral	Category 3
Acute toxicity - Dermal	Category 3
Acute toxicity - Inhalation (Vapors)	Category 3
Specific target organ toxicity (single exposure)	Category 1
Flammable liquids	Category 2

Label elements



Signal word

Danger

Hazard statements

H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H331 - Toxic if inhaled
H370 - Causes damage to organs
H225 - Highly flammable liquid and vapor

Precautionary statements

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor
P321 - Specific treatment (see supplemental first aid instructions on this label)
P370 + P378 - In case of fire: Use dry chemical, CO₂, water spray or alcohol-resistant foam to extinguish
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Additional information

This product requires tactile warnings if supplied to the general public. This product requires child resistant fastenings if supplied to the general public.

Specific classification

Not applicable.

Specific symbol

Not applicable.

Other hazards

Risk of blindness after swallowing the product. Harmful to aquatic life.

SECTION 3: Composition/information on ingredients**Substance**

Chemical name Methanol

CAS No 67-56-1

Chemical name	Common name	Weight-%	CAS No.
Methanol	Methyl alcohol	99.85	67-56-1

SECTION 4: First aid measures

General advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Inhalation Remove to fresh air. IF exposed or concerned: Get medical advice/attention. If breathing has stopped, give artificial respiration. Get medical attention immediately. 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. If breathing is difficult, (trained personnel should) give oxygen.

Skin contact Remove/Take off immediately all contaminated clothing. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical attention.

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. Get immediate medical attention.
Ingestion	Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical attention.
Expected acute effects	Toxic if swallowed, in contact with skin or if inhaled. Blindness. Coughing and/ or wheezing. Difficulty in breathing. Central nervous system effects. Symptoms of drunkenness.
Expected delayed effects	No information available.
Most important symptoms/effects, acute and delayed	Exposure may cause 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. Coughing and/ or wheezing. Difficulty in breathing. May cause blindness.
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. 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.
Note to physicians	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	Use water spray to cool fire-exposed containers. Water will not cool methanol below its flash point. Alcohol Resistant Film Forming foam 3% or 6%. Dry chemical. Carbon dioxide (CO ₂). Water spray. Alcohol resistant foam.
Unsuitable extinguishing media	No information available.
Hazardous combustion products	Toxic gases or vapors. Carbon monoxide. Carbon dioxide (CO ₂). Formaldehyde.
Specific hazards arising from the chemical	Mixtures >20% methanol with water: flammable. Highly flammable liquid and vapor. Vapors are heavier than air and may spread along floors. 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.
Specific/special fire-fighting measures	Methanol: Burns with invisible flame. Flame may not be visible in daylight. Cool containers with flooding quantities of water until well after fire is out. Fires need to be assessed to determine appropriate protocols and safety measures for firefighting, including establishing safe zones, extinguishing media to be used, firefighter protection, and actions to control or extinguish the fire.
Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Steps to be taken in the event of accidental release/spillage

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.
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.
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.
Methods and material for containment and cleaning up	Small spill: Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use non-sparking tools. Collect spillage. Large spill: Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. 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.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.
Reference to other sections	Safe handling: see Section 7. Personal protection equipment (PPE): see Section 8. Disposal: see Section 13.

SECTION 7: Handling and storage**Handling**

Advice on safe handling	Do not enter confined area unless adequately ventilated. 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 breathe vapor or mist. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product.
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.

Storage

Storage Conditions	Keep unauthorized personnel away. 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.
Incompatible materials	Lead. Aluminum. Zinc. Oxidizing agent. Strong acids. Strong bases. Polyethylene. Polyvinyl chloride (PVC). Nitriles.
Packaging materials	No information available.
Specific use(s)	Manufacture of substance. Formulation & (re)packing of substances and mixtures Distribution of formulations. Use as an intermediate. Use as a Process chemical Distribution of substance. Use as a Fuel (use in industrial settings). Use in Cleaning Agents (use in industrial settings). Use as laboratory reagent/agent (use in industrial settings). Use as wastewater treatment chemical (use in industrial settings). Use in Oilfield drilling and production operations (use in industrial settings). Use as a Fuel (use in professional settings). Use in Cleaning Agents (use in professional settings). Use as laboratory reagent/agent (use in professional settings). Use in Cleaning Agents Use in De-icing and Anti-icing agents (consumer use) (spray products). Use in Cleaning Agents Use in De-icing and Anti-icing agents (consumer use) (liquid products). Use as Fuel additive (consumer use) (outdoor use).

SECTION 8: Exposure controls / personal protection

Exposure guidelines

Chemical name	S.D. 594/1999	ACGIH TLV
Methanol 67-56-1	LPP: 175 ppm LPP: 229 mg/m ³ LPT: 250 ppm LPT: 328 mg/m ³ Sk*	TWA: 200 ppm STEL: 250 ppm Sk*

Biological occupational exposure limits

Chemical name	S.D. 594/1999	ACGIH
Methanol 67-56-1	7 mg/g Creatinine: urine (Methanol) - not critical	15 mg/L - urine (Methanol) - end of shift

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

Personal protective equipment

Eye/face protection	Tight sealing safety goggles.
Skin and body protection	Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron. Antistatic boots.
Hand protection	Wear suitable gloves. Impervious gloves.

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
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.
Environmental exposure controls	Avoid release to the environment. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Clear liquid
Physical state	Liquid
Color	Clear
Odor	Alcohol
Odor threshold	4.2 - 5960 ppm

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Melting point / freezing point	-97.8 °C	No data available
Initial boiling point and boiling range	64.7 °C	No data available
Flammability		No data available
Flammability Limit in Air		
Upper flammability or explosive limits	36.5%	No data available
Lower flammability or explosive limits	5.5%	No data available
Flash point	11 °C	No data available
Evaporation rate	4.1	Butyl acetate = 1
Autoignition temperature	464 °C	No data available
Decomposition temperature		No data available
pH		No data available
pH (as aqueous solution)		No data available
Kinematic viscosity		No data available
Dynamic viscosity	0.8 cP	@ 20 °C
Water solubility	Miscible in water	No data available
Solubility(ies)		No data available
Partition Coefficient (n-octanol/water)	-0.77	log Pow
Vapor pressure	12.8 kPa	@ 20 °C
Relative density	0.791 - 0.793	@20°C
Bulk density		No data available
Liquid Density		No data available
Relative vapor density	1.1	@ 20 °C (air = 1)
Particle characteristics		
Particle Size		No data available
Particle Size Distribution		No data available
<u>Other information</u>		
Molecular weight	32.04	
VOC content	100%	

Information with regard to physical hazard classes

Explosive properties Vapors may form explosive mixtures with air
Oxidizing properties No data available

Other safety characteristics
No information available

SECTION 10: Stability and reactivity

Reactivity Containers may rupture or explode if exposed to heat.

Chemical stability May form flammable/explosive vapor-air mixture.

Possibility of hazardous reactions None under normal processing.

Explosion data
 Sensitivity to mechanical impact None.
 Sensitivity to static discharge Yes.

Conditions to avoid Containers may rupture or explode if exposed to heat. Heat, flames and sparks. Excessive heat.

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

Hazardous decomposition products Carbon monoxide. Carbon dioxide (CO2). Ketones. Formaldehyde.

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

SECTION 11: Toxicological information

Acute toxicity Toxic if swallowed. Toxic in contact with skin. Toxic by inhalation.

Numerical measures of toxicity Acute Toxicity Estimate (ATE) values provided as a reflection of the hazard classification. The acute toxicity of methanol varies greatly species to species and has been well documented. Methanol's toxicity is driven by its metabolism and the creation of toxic metabolites. Metabolism within animal species utilized for acute toxicity testing is not an accurate representation of human metabolism. Therefore, positive human evidence outweighs rat and rabbit toxicity values. Animal toxicity values are reported below, but are not appropriate for human health hazard classification. The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	100.00 mg/kg
ATEmix (dermal)	300.00 mg/kg
ATEmix (inhalation-vapor)	3.00 mg/l

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Methanol	= 6200 mg/kg (Rat)	= 15840 mg/kg (Rabbit)	= 22500 ppm (Rat) 8 h = 64000 ppm (Rat) 4 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No information available.

Serious eye damage/eye irritation May cause mild to moderate irritation.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity Contains no ingredient listed as a carcinogen.

Reproductive toxicity No information available.

STOT - single exposure Causes damage to organs.
H370 - Causes damage to the following organs: Central nervous system, visual organs.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

Information on likely routes of exposure

Product Information

Inhalation Toxic by inhalation.

Eye contact May cause irritation.

Skin contact Toxic in contact with skin.

Ingestion Toxic if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics 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. Coughing and/ or wheezing. Difficulty in breathing. Blindness.

Interactive effects No information available

SECTION 12: Ecotoxicological information

Ecotoxicity Avoid release to the environment. Harmful to aquatic life.

Chemical name	Algae/aquatic plants	Fish	Crustacea
Methanol	-	LC50: =28200mg/L (96h, Pimephales promelas) LC50: >100mg/L (96h,	-

		Pimephales promelas) LC50: 19500 - 20700mg/L (96h, Oncorhynchus mykiss) LC50: 18 - 20mL/L (96h, Oncorhynchus mykiss) LC50: 13500 - 17600mg/L (96h, Lepomis macrochirus)	
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Terrestrial ecotoxicity

Chemical name	Earthworm	Avian	Honeybees
Methanol	<i>Acute Toxicity: LC50 > 1 mg/cm2 (Eisenia foetida, 48 h filter paper)</i>	-	-

Persistence and degradability Readily biodegradable.

Bioaccumulative potential Not expected to bioaccumulate.

Bioconcentration factor (BCF) <10

Chemical name	Partition coefficient
Methanol	-0.77

Mobility in soil Adsorbs on soil.

Other adverse effects No information available.

SECTION 13: Information regarding the disposal of the substance or mixture

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 as hazardous substance.

Contaminated packaging Recover or recycle if possible. Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers. Labeled according to S. D. 148 "Sanitary Regulation on Hazardous Waste Management.

SECTION 14: Transport information**Land**

UN number or ID number UN1230
UN proper shipping name METHANOL
Transport hazard class(es) 3
Packing group II
Description UN1230, METHANOL, 3 (6.1), II

Maritime

UN number or ID number UN1230
UN proper shipping name Methanol
Transport hazard class(es) 3
Subsidiary hazard class 6.1
Packing group II
Description UN1230, Methanol, 3 (6.1), II, (11°C c.c.)

Marine pollutant	NP
Environmental hazards	No
EmS-No.	F-E S-D

Air

UN number or ID number	UN1230
UN proper shipping name	Methanol
Transport hazard class(es)	3
Subsidiary hazard class	6.1
Packing group	II
Description	UN1230, Methanol, 3 (6.1), II
Environmental hazards	No
Special Provisions	A113
ERG Code	3L

SECTION 15: Information on the regulationNational regulations**S.D. 298/1994 - Regulation on Transport of Dangerous Cargoes by Streets and Roads**

Applies

S.D. 60/2022 - Regulation on Storage of Hazardous Substances

Applies

S.D. 148/2004 - Sanitary Regulation on Hazardous Waste Management

Applies

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

International Inventories

TSCA	Listed
DSL/NDSL	Listed
EINECS/ELINCS	Listed
ENCS	Listed
IECSC	Listed
KECI	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 Chemicals Inventory**PICCS** - Philippines Inventory of Chemicals and Chemical Substances**AIIC** - Australian Inventory of Industrial Chemicals

SECTION 16: Other informations**Key or legend to abbreviations and acronyms used in the safety data sheet****Legend**

SVHC: Substances of Very High Concern for Authorization:
 PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances
 vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances
 STOT: Specific Target Organ Toxicity
 ATE: Acute Toxicity Estimate
 LC50: 50% Lethal Concentration
 LD50: 50% Lethal Dose

Legend Section 8: Exposure controls/personal protection

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

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

Agency for Toxic Substances and Disease Registry (ATSDR)
 U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 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)
 National Institute of Technology and Evaluation (NITE)
 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 Library of Medicine's PubMed database (NLM PUBMED)
 U.S. 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
 World Health Organization

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Reason for revision Updated format. Regulatory update. SDS sections updated: 4, 8, 11.

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