Methanol

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 11/15/2018 Version: 2

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Liquid

Product name : Methanol

Product code : 562010-50

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

Use of the substance/mixture : Methanol, general laboratory reagent, fixative for cytogenetic applications.

1.3. Details of the supplier of the safety data sheet

ADS BIOTEC INC.
7409 Irvington Road
Omaha, NE 68122 - USA
support@adstiotec.com

1.4. Emergency telephone number

Emergency Contact Number : USA: 1-800-255-3924 (CHEMTEL 24hr); International: +1-813-248-0585 (CHEMTEL 24hr)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Flam. Liq. 2	H225
Acute Tox. 3 (Oral)	H301
Acute Tox. 3 (Dermal)	H311
Acute Tox. 3 (Inhalation)	H331
Spec. target organ tox 1	H370
Serious eye damage 1	H318

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS02

GHS08

GHS06

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) :
H225 - Highly flammable liquid and vapour
H301+H311+H314+H318+H331 – Toxic\Harmful if swallowed, in contact with skin, eyes or if inhaled
H370 – Causes damage to organs

Precautionary statements (GHS-US) :
P210 - Keep away from heat, sparks, open flames, hot surfaces. - No smoking
P233 - Keep container tightly closed
P243 - Take precautionary measures against static discharge
P261 - Avoid breathing vapours
P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves, protective clothing, eye protection, face protection
P301+P312 - IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell
P330 - If swallowed, rinse mouth
P303+P361+P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
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
P362+P364 - Take off contaminated clothing and wash it before reuse
P370+P378 - In case of fire: Use dry sand, dry chemical or alcohol resistant foam for extinction
P403+P235 - Store in a well-ventilated place. Keep cool

P501 - Dispose of contents/container to licensed waste management site

2.3. Other hazards

Other hazards not contributing to the classification : Vapours may form explosive mixture with air.

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Synonyms Methyl Alcohol
Molecular Weight 32.04 g/mol
Formula CH_4O
CAS-No. 67-56-1
EC-No. 603-001-00-X
Registration No. 01-2119433307-44-XXXX

3.2. Methanol

Name	Product identifier	%	GHS-US classification
Methanol (single constituent)	(CAS No) 67-56-1	100	Flam. Liq. 2, H225 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 STOT SE 1, H370

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Remove to fresh air, keep the patient warm and at rest. If symptoms develop obtain medical attention.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water. If symptoms develop obtain medical attention. Wash contaminated clothing before reuse.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If symptoms develop obtain medical attention.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Give 100 - 200 ml of water to drink. If symptoms develop obtain medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : Harmful if inhaled.

Symptoms/injuries after skin contact : Harmful in contact with skin.

Symptoms/injuries after eye contact : Causes serious eye irritation.

Symptoms/injuries after ingestion : Harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Highly flammable liquid and vapour.

Explosion hazard : On exposure to high temperature, may decompose, releasing explosive vapours. May form flammable/explosive vapour-air mixture.

Reactivity : Stable under normal conditions.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Avoid fire-fighting water enteing the environment.

Protection during firefighting : Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Avoid all contact with skin, eyes, or clothing.

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Wear suitable protective clothing and eye or face protection.

Emergency procedures : Remove ignition sources. Avoid contact with eyes, skin and clothing. Ensure adequate ventilation.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Wash spill area with soapy water.

6.4. Reference to other sections

SECTION 8: Exposure controls/personal protection. SECTION 13: Disposal considerations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapours are flammable.

Precautions for safe handling : Avoid contact with skin, eyes and clothing. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Use only non-sparking tools. Keep away from open flames, hot surfaces and sources of ignition.

Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed.

Storage conditions : Keep only in the original container in a cool well ventilated place. Keep container tightly closed.

Incompatible products : Acids. Strong bases. Metals. Oxidizing agent. Reducing agents. combustible materials.

7.3. Specific end use(s)

A general reagent or used for preparing fixative reagent in a professional diagnostic or research laboratory.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Methanol (CAS 67-56-1)		
USA OSHA, NIOSH	OSHA PEL (TWA) (mg/m³)	260 mg/m³
USA OSHA, NIOSH	OSHA PEL (TWA) (ppm)	200 ppm
	Remarks	Headache Nausea Dizziness Eye damage Danger of cutaneous absorption
USA, ACGIH (TLV)	STEL	250 ppm
		Headache Nausea Dizziness Eye damage Danger of cutaneous absorption

Methanol (CAS 67-56-1)		
USA NIOSH	STE	250 ppm, 260 mg/m3
California	C	1000 ppm
	Skin	
California	STEL	250 ppm, 325 mg/m3

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological Specimen	Basis
Methanol	**(CAS 67-56-1)**	Methanol	15 mg/L	Urine	ACGIH

Derived no effect level (DNEL)

Application Area	Exposure Routes	Health Effect	Value
Workers	Skin contact	Long-term systemic effects	40 mg/kg BW/d
Consumers	Skin contact	Long-term systemic effects	8 mg/kg BW/d
Consumers	Ingestion	Long-term systemic effects	8 mg/kg BW/d
Workers	Skin contact	Acute systemic effects	40 mg/kg BW/d
Consumers	Ingestion	Acute systemic effects	8 mg/kg BW/d
Consumers	Ingestion	Acute systemic effects	8 mg/kg BW/d
Workers	Inhalation	Acute systemic effects	260 mg/m3
Workers	Inhalation	Acute local effects	260 mg/m3
Workers	Inhalation	Long-term systemic effects	260 mg/m3
Workers	Inhalation	Long-term local effects	260 mg/m3
Consumers	Inhalation	Acute systemic effects	50 mg/m3
Consumers	Inhalation	Acute local effects	50 mg/m3
Consumers	Inhalation	Long-term systemic effects	50 mg/m3
Consumers	Inhalation	Long-term local effects	50 mg/m3

Predicted No Effect Concentration (PNEC)

Component	Value
Soil	23.5 mg/kg
Marine water	15.4 mg/l
Fresh water	154 mg/l
Fresh water sediment	5704.4 mg/kg
Onsite sewage treatment plant	100 mg/kg

8.2. Exposure controls

Appropriate engineering controls : Ensure adequate ventilation.
Personal protective equipment : Avoid all unnecessary exposure.
Hand protection : Wear chemically resistant protective gloves.
Eye protection : Safety glasses with face shield.

Skin and body protection	:	Use chemically protective clothing.
Respiratory protection	:	Wear suitable respiratory protective equipment.
Thermal hazard protection	:	Not required for normal conditions of use.
Environmental exposure controls	:	Avoid release to the environment.
Other information	:	Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Colour	:	Colourless.
Odour	:	Alcohol odor, pungent.
Odour threshold	:	No data available
pH	:	No data available
Relative evaporation rate (butylacetate=1)	:	No data available
Melting point	:	-98 °C (-144 °F) METHANOL
Freezing point	:	No data available
Boiling point	:	64.7 °C (148.5 °F) METHANOL
Flash point	:	9.7 °C (49.5°F) METHANOL
Self ignition temperature	:	455 °C
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	130.3 hPa (97mmHg) @ 20 °C (68 °F) 546.6 hPa (410 mmHg) @ 50 °C (122 °F) 169.27 hPa (126.96 mmHg) @ 25 °C (77 °F)
Relative vapour density at 20 °C	:	1.11
Relative density	:	0.791 g/ml
Solubility	:	Miscible with water.
Log Pow	:	-0.77
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	Not explosive
Oxidising properties	:	Not classified as oxidizing
Explosive limits	:	6 - 36 vol % METHANOL

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available.

10.2. Chemical stability

Stable under recommended stoirage conditions.

10.3. Possibility of hazardous reactions

Vapors may form explosive mixture with air.

10.4. Conditions to avoid

Heat, flames, sparks. Extremely high or low temperatures.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids. Strong bases. Peroxides. Acid anhydrides. Oxidizers, reducing agents, acids

10.6. Hazardous decomposition products

Carbon monoxide. Carbon dioxide. May release flammable gases.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	:	Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled. LD50 Oral – Rat male and female - > 1,187 - 2,769 mg/kg Remarks: (ECHA) (Regulation (EC) No 1272/2008, Annex VI) LDLO Oral – Human - 143 mg/kg Remarks: Lungs, Thorax, or Respiration: Dyspnea. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. LC50 Inhalation – Rat - male and female - 4 h - 131.25 mg/l Remarks: (ECHA) (Regulation (EC) No 1272/2008, Annex VI) LD50 Dermal – Rabbit - 17,100 mg/kg Remarks: (External MSDS) (Regulation (EC) No 1272/2008, Annex VI)
Skin corrosion/irritation	:	Skin - Rabbit Result: No skin irritation Remarks: (ECHA) Drying - out effect resulting in rough and chapped skin
Serious eye damage/irritation	:	Eyes - Rabbit Result: No eye irritation Remarks: (ECHA) Irritation of mucous membrane
Respiratory or skin sensitisation	:	Maximization Test -Guinea pig Result: negative (OECD Test Guideline 406)
Germ cell mutagenicity	:	Based on available data, the classification criteria are not met Ames test S. typhimurium Result: negative In vitro mammalian cell gene mutation test Fibroblast Result: negative OECD Test Guideline 474 Mouse - male and female -Bone marrow Result: negative
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified Based on available data, the classification criteria are not met
Specific target organ toxicity (single exposure)	:	Causes damage to organs – Eyes Acute inhalation toxicity – irritation symptoms in the respiratory tract.
Specific target organ toxicity (repeated exposure)	:	Not classified Based on available data, the classification criteria are not met
Aspiration hazard	:	Not classified Based on available data, the classification criteria are not met
Potential Adverse human health effects and symptoms	:	Based on available data, the classification criteria are not met. Harmful if swallowed. Harmful in contact with skin.
Symptoms/injuries after inhalation	:	Harmful if inhaled.
Symptoms/injuries after skin contact	:	Harmful in contact with skin.
Symptoms/injuries after eye contact	:	Causes serious eye irritation.
Symptoms/injuries after ingestion	:	Harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Not classified.

Methanol	
Toxicity to fish	LC50 - Lepomis macrochiris (Bluegill) – 15,400 mg/l -96 hrs (US EPA)
Toxicity to daphnia and other aquatic invertebrates	EC50 – Daphnia magna (water flea) - > 10, 000 mg/l – 48 hrs (ECHA) Semi-static test EC50 – Daphnia magna (water flea) – 18, 260 mg/l – 96 hrs. (OECD test guideline 202)

Methanol	
Toxicity to algae	Static test ErC50 Pseudokirchneriella subcapitata (green algae)-ca.22,000.0 mg/l – 96 hrs (OECD test guideline 201)
Toxicity to bacteria	EC5 - Pseudomonas fluorescens - 6,600 mg/l - 16 hrs Remarks: (IUCLID) Static test IC50 - activated sludge - > 1,000 mg/l - 3 hrs (OECD Test Guideline 209)

12.2. Persistence and degradability

Methanol	
Persistence and degradability	Aerobic - Exposure time 5 d Result: 72 % - Readily biodegradable. Result: 99 % - Readily biodegradable. (OECD Test Guideline 301D)
Biological Oxygen Demand (BOD)	600 - 1,120 mg/g ; Remarks : (IUCLID)
Chemical Oxygen Demand (COD)	1,420 mg/g; Remarks: (IUCLID)
Theoretical Oxygen Demand	1500 mg/g; Remarks: (Lit.)
Ratio BOD\ThBOD	76 %; Remarks: Closed Bottle test (IUCLID)

12.3. Bioaccumulative potential

Methanol	
Bioaccumulative potential	Cyprinus carpio (Carp) - 72 d at 20 °C - 5 mg/l Bioconcentration factor (BCF) : 1.0

12.4. Mobility in soil

Methanol	
Ecology – soil	Will not absrob on soil.

12.5. Other adverse effects

Other information : Avoid release to the environment.
At 19 °C 83 - 91 % - 72 h; Remarks: Hydrolyses on contact with water. Hydrolyses readily.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of empty containers as unused product.

Additional information : Handle empty containers with care because residual vapours are flammable.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT

UN-No.(DOT) : 1230

DOT Proper Shipping Name : Methanol

Department of Transportation (DOT) Hazard Classes : 3 - Class 3 - Flammable and Combustible Liquid 49 CFR 173.120

Hazard Labels (DOT) : 3 - Flammable liquid -

Packing group (DOT) : II - Medium Danger

DOT Packaging Exceptions (49 CFR 173.xxx) : 150

DOT Packaging Non Bulk (49 CFR 173.xxx) : 202

DOT Packaging Bulk (49 CFR 173.xxx) : 242

DOT Quantity Limitations Passenger Aircraft/Rail (49 CFR 173.27) : 1 L

DOT Quantity Limitations Cargo Aircraft Only (49 CFR 175.75) : 60 L

DOT Vessel Stowage Location : B - (i) The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) ‘‘On deck only’’ on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

Additional information

Other information : No supplementary information available.

Transport by sea

Proper Shipping Name (IMDG) : Methanol
Class (IMDG) : 3 (6.1) - Flammable Liquids, Toxic
Packing group (IMDG) : II - Medium Danger

Air transport

Proper Shipping Name (IATA) : Methanol
Class (IATA) : 3 (6.1) - Flammable Liquids, Toxic
Packing group (IATA) : II – Medium Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

Methanol	
SARA 311/312 Hazard Classes	Fire hazard, Immediate (acute) health hazard, Chronic health hazard
SARA 302 Components	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302
SARA 313	The following components are subject to reporting levels established by SARA Title III, Section 313:

Methanol (CAS 67-56-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on SARA Section 313 (Specific toxic chemical listings)	
RQ (Reportable quantity, section 304 of EPA's List of Lists) :	5000 lb final RQ, 2270 lb kg final RQ

15.2. International regulations

CANADA

Methanol	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects

15.2.2. National regulations

No additional information available

15.3. US State regulations

Methanol (67-56-1)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List U.S. – California Prop 65 – developmental toxicity 3/16/2012

SECTION 16: Other information

Abbreviations and acronyms : ADR (Accord européen relatif au transport international des marchandises Dangereuses par Route). CAS (Chemical Abstracts Service) number. IARC (International Agency for Research on Cancer). IATA (International Air Transport Association). IMDG (International Maritime Dangerous Goods Code). RID (Règlement concernant le transport international ferroviaire de marchandises).

Other information : None.

Full text of H-phrases: see section 16:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Eye Irrit. 1	Serious eye damage/eye irritation, Category 1A
Flam. Liq. 2	Flammable liquids, Category 2
H225	Highly flammable liquid and vapour
H301	Harmful if swallowed
H311	Harmful in contact with skin
H314	Causes severe burns and eye damage.
H318	Serious eye damage
H331	Harmful if inhaled
H370	Causes damage to organs

NCEC SDS US GHS (Hazcom 2012)

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