# MATERIAL SAFETY DATA SHEET
# Methanol

**Section 1 Product and Company Identification**

Product Identifier

Product Name: Methanol
Synonyms: -
CAS No.: 67-56-1
EC No.: 200-659-6
Molecular Formula: $CH_4O$

Relevant Identified Uses of the Substance or Mixture and Uses Advised Against
Details of the Supplier of the Safety Data Sheet

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**Section 2 Hazards Identification**

Hazard class and label elements of the product according to GHS (the tenth revised edition):

**GHS Hazard Class**

Flammable Liquids — Category 2
Acute Toxicity – Oral — Category 3

Acute Toxicity – Dermal — Category 3
Acute Toxicity – Inhalation — Category 3
Specific Target Organ Toxicity (Single Exposure) — Category 1

GHS Label Elements

Pictogram

Signal Word: Danger

**Hazard Statements**

H225 Highly flammable liquid and vapour

H301 Toxic if swallowed
H311 Toxic in contact with skin
H331 Toxic if inhaled
H370 Causes damage to organs

Precautionary Statements

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof [electrical/ventilating/lighting] equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P262 Do not get in eyes, on skin, or on clothing.
P264 Wash hands and other contact area thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or with adequate ventilation.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

Response

P316 Get emergency medical help immediately.
P321 Specific treatment (see measures on this label).
P330 Rinse mouth.
P301+P316 IF SWALLOWED: Get emergency medical help immediately.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P316 IF exposed or concerned: Get emergency medical help immediately.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P370+P378 In case of fire: Use suitable extinguishing media to extinguish.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water.

Storage

P405 Store locked up.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P403+P235 Store in a well-ventilated place. Keep cool.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Section 3 Composition/Information on Ingredients**

| Component | CAS No. | EC No. | Concentration (weight percent, %) |
|---|---|---|---|
| Methanol | 67-56-1 | 200-659-6 | 99.9 |

**Section 4 First Aid Measures**

Description of First Aid Measures

General Advice
Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.

Eye Contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.

Skin Contact
Take off contaminated clothing and shoes immediately. Wash off with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.

Ingestion
Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.

Inhalation
Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.

Protecting of first-aiders
Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

Most Important Symptoms and Effects, both Acute and Delayed

Substance accumulation in the human body may occur and may cause some concern following repeated or long-term occupational exposure.

Indication of Any Immediate Medical Attention and Special Treatment Needed

1 Treat symptomatically.
2 Symptoms may be delayed.

**Section 5 Fire Fighting Measures**

Extinguishing Media

Suitable Extinguishing Media
Dry chemical, carbon dioxide or alcohol-resistant foam.

Unsuitable Extinguishing Media
Do not use a solid water stream as it may scatter or spread fire.

Specific Hazards Arising from the Substance or Mixture

1 Will form explosive mixtures with air.
2 Fire exposed containers may vent contents through pressure relief valves thereby increasing fire intensity and/or vapour concentration.
3 Vapours may travel to source of ignition and flash back.
4 Liquid and vapour are flammable.
5 May emit poisonous fumes on fire.
6 Containers may explode when heated.
7 Fire exposed containers may vent contents through pressure relief valves.
8 May expansion or decompose explosively when heated or involved in fire.

Advice for Firefighters

1 As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2 Fight fire from a safe distance, with adequate cover.
3 Prevent fire extinguishing water from contaminating surface water or the ground water system.

**Section 6 Accidental Release Measure**

Personal Precautions, Protective Equipment and Emergency Procedures

1 Avoid breathing vapors and contacting with skin and eye.
2 Beware of vapours accumulating to form explosive concentrations.
3 Vapours can accumulate in low areas.
4 Emergency personnel wear positive pressure self-contained breathing apparatus. Wear protective and anti-static clothing. Wear chemical impermeable gloves.
5 Ensure adequate ventilation. Remove all sources of ignition.
6 Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
7 Use personal protective equipment. Avoid breathing vapours, mist, gas or dust.

Environmental Precautions

1 Prevent further leakage or spillage if safe to do so.
2 Discharge into the environment must be avoided.

Methods and Materials for Containment and Cleaning Up

1 Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
2 Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

**Section 7 Handling and Storage**

Precautions for Handling

1 Avoid inhalation of vapors.
2 Use only non-sparking tools.
3 To prevent fire caused by electrostatic discharge steam, equipment on all metal parts should be grounded.
4 Use explosion proof equipment.
5 Handling is performed in a well ventilated place.
6 Wear suitable protective equipment.
7 Avoid contact with skin and eyes.
8 Keep away from heat/sparks/open flames/hot surfaces.
9 Take precautionary measures against static discharges.

Precautions for Storage

1 Keep containers tightly closed.
2 Keep containers in a dry, cool and well-ventilated place.
3 Keep away from heat/sparks/open flames/hot surfaces.
4 Store away from incompatible materials and foodstuff containers.

**Section 8 Exposure Controls/Personal Protection**
Control Parameters
**Occupational Exposure Limit Values**

| Component | Country/Region | Limit Value - Eight Hours | | Limit Value - Short Term | |
|---|---|---|---|---|---|
| | | (ppm) | mg/m³ | (ppm) | mg/m³ |
| Methanol 67-56-1 | USA - OSHA | 200 | 260 | - | - |
| | South Korea | 200 | 260 | 250 | 310 |
| | Ireland | 200 | 260 | - | - |
| | Germany (AGS) | 200 | 270 | 800 | 1080 |
| | Denmark | 200 | 260 | 400 | 520 |
| | Australia | 200 | 262 | 250 | 328 |

Biological Limit Values
No information available

Monitoring Methods

1 EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

2 GBZ/T 160 Determination of toxic substances in workplace air(Series effective standard)and GBZ/T 300 Determination of toxic substances in workplace air(Series standard).

Engineering Controls
1 Ensure adequate ventilation, especially in confined areas.
2 Ensure that eyewash stations and safety showers are close to the workstation location.
3 Use explosion-proof electrical/ventilating/lighting/equipment.
4 Set up emergency exit and necessary risk-elimination area.

> Personal Protection Equipment

Eye Protection Hand Protection
Tightly fitting safety goggles (approved by EN 166(EU) or NIOSH (US).

Hand Protection
Wear protective gloves (such as butyl rubber), passing the tests according to EN 374(EU), US F739 or AS/NZS 2161.1 standard.

Respiratory protection
If exposure limits are exceeded or if irritation or other symptoms are experienced, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges.

Wear fire/flame resistant/retardant clothing and antistatic boots.

**Section 9 Physical and Chemical Properties**

Appearance: colourless transparent liquid
Odor: No information available
Odor Threshold: No information available
pH: 7
Melting Point/Freezing Point (°C): -98
Initial Boiling Point and Boiling Range (°C): 65
Flash Point (°C)(Closed Cup): 9
Evaporation Rate: No information available
Flammability: Not applicable

Vapor Pressure (KPa): 12.9 (20°C)
Relative Density (Water=1): 0.79 (20°C)
n-Octanol/Water Partition Coefficient: -0.74

Upper/lower explosive limits (%v/v): Upper limit: 50 ; Lower limit: 6

Relative Vapour Density (Air=1): 1.1
Solubility: Miscible with water
Auto-Ignition Temperature (°C): 464

Decomposition Temperature (°C): No information available
Kinematic Viscosity (mm²/s): No information available
Particle characteristics: Not applicable
Critical Temperature (°C): Not applicable

**Section 10 Stability and Reactivity**

Reactivity: Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical Stability: Stable under proper operation and storage conditions.
Possibility of Hazardous Reactions: In contact with oxidants causes severe reactions, and may cause a fire or explosion.
Conditions to Avoid: Incompatible materials, heat, flame and spark.
Incompatible Materials: Oxidants, alkali metals, alkaline earth metals and aluminum.
Hazardous Decomposition Products: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**Section 11 Toxicological Information**

Acute Toxicity

| Component | CAS No. | LD50(Oral) | LD50(Dermal) | LC50(Inhalation, 4h) |
|---|---|---|---|---|
| Methanol | 67-56-1 | 5628mg/kg(Rat) | 15800mg/kg(Rabbit) | 83.867mg/L(Rat) |

Skin Corrosion/Irritation: No information available
Serious Eye Damage/Irritation: No information available
Skin Sensitization: No information available

Respiratory Sensitization: No information available
Germ Cell Mutagenicity: No information available

Carcinogenicity

| ID | CAS No. | Component | IARC | NTP |
|---|---|---|---|---|
| 1 | 67-56-1 | Methanol | Not Listed | Not Listed |

Reproductive Toxicity: No information available
STOT-Single Exposure: Causes damage to organs(Category 1)(Methanol)
STOT-Repeated Exposure: No information available
Aspiration Hazard: No information available

**Section 12 Ecological Information**

Acute Aquatic Toxicity

| Component | CAS No. | Fish | Crustaceans | Algae |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Methanol | 67-56-1 | LC50: 24000mg/L (96h) | EC50: 24500mg/L (48h) | No information available |

Chronic Aquatic Toxicity: No information available

Others:
Persistence and Degradability: No information available
Bioaccumulative Potential: No information available
Mobility in Soil: No information available
Results of PBT and vPvB Assessment: Methanol does not meet criteria

**Section 13 Disposal Considerations**

Waste Chemicals
Before disposal should refer to the relevant national and local laws and regulation.

Contaminated Packaging
Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.

Disposal Recommendations
Refer to Waste chemicals and Contaminated packaging.

**Section 14 Transport Information**

Marine pollutant: No
UN Number: 1230
UN Proper Shipping Name: METHANOL
Transport Hazard Class: 3
Transport Subsidiary Hazard Class: 6.1
Packing Group: II

**Section 15 Regulatory Information**
International Chemical Inventory

| Component | EINECS | TSCA | DSL | IECSC | NZIoC | PICCS | KECL | AIC | ENCS |
|---|---|---|---|---|---|---|---|---|---|
| Methanol | √ | √ | √ | √ | √ | √ | √ | √ | √ |

**Section 16 Additional Information**

Disclaimer

This Safety Data Sheet (SDS) was prepared according to UN GHS (the 10th revised edition)...
(complete paragraph preserved exactly as in PDF)

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