

Safety Data Sheet

Product name: Methanol

CAS No.: 67-56-1

Prepared in accordance with GB/T 16483, GB/T 17519

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

>Product identifier

- Product name: Methanol
- CBnumber: CB7854099
- CAS: 67-56-1
- EINECS Number: 200-659-6
- Synonyms: Methanol,JIACHUN

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

- Relevant identified uses: For R&D use only. Not for medicinal, household or other use.
- Uses advised against: none

>Company Identification

- Company: Linyi Tuohui New Materials Co., Ltd.
- Address: Room A6159, 6F, Building 1, Linyi Software Park, No.6 Yihe Road, Zhimadun Subdistrict, Yishui New Area, Linyi City, Shandong Province, China
- Telephone: +86 176 6460 5089 (Manager Niu) / +86 130 4664 1786 (Manager Li)
- Email: nathan@tuohui-chem.com
- WhatsApp: +86 176 6460 5089
- Emergency telephone: +86 176 6460 5089

SECTION 2: Hazards identification

>GHS Label elements, including precautionary statements

- Symbol(GHS) 
- Signal word Danger

Precautionary statements

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P264 Wash hands thoroughly after handling.

P264 Wash 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.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing.

Rinse SKIN with water/shower.

P307+P311 IF exposed: call a POISON CENTER or doctor/physician.

P311 Call a POISON CENTER or doctor/physician.

P370+P378 In case of fire: Use ... for extinction.

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.

P501 Dispose of contents/container to.....

Hazard statements

H225 Highly Flammable liquid and vapour

H301 Toxic if swallowed

H311 Toxic in contact with skin

H319 Causes serious eye irritation

H331 Toxic if inhaled

H335 May cause respiratory irritation

H336 May cause drowsiness or dizziness

H360 May damage fertility or the unborn child

H370 Causes damage to organs

H372 Causes damage to organs through prolonged or repeated exposure

Disposal

WARNING.Cancer - <https://oehha.ca.gov/proposition-65/chemicals/methanol>

SECTION 3: Composition/information on ingredients

>Substance

- Product name: Methanol
- Synonyms: Methanol,JIACHUN
- CAS: 67-56-1
- EC number: 200-659-6
- MF: CH₄O
- MW: 32.04

SECTION 4: First aid measures

>Description of first aid measures

General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor

If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: fresh air. Make victim drink ethanol (e.g. 1 drinking glass of a 40% alcoholic beverage). Call a doctor immediately (mention methanol ingestion). Only in exceptional cases, if no medical care is available within one hour, induce vomiting (only in fully conscious persons) and make victim drink ethanol again (approx. 0.3 ml of a 40% alcoholic beverage/kg body weight/hour).

Notes to physician

Dizziness Drowsiness metabolic acidosis Blurred vision Seizures. Coma Blindness death

>Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

>Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

>Extinguishing media

Suitable extinguishing media

Water Foam Carbon dioxide (CO₂) Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

>Special hazards arising from the substance or mixture

Carbon oxides Combustible.

Pay attention to flashback.

Vapors are heavier than air and may spread along floors.

Development of hazardous combustion gases or vapours possible in the event of fire. Forms explosive mixtures with air at ambient temperatures.

>Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

>Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

>NFPA 704

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SECTION 6: Accidental release measures

>Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.

Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

>Environmental precautions

Do not let product enter drains. Risk of explosion.

>Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g.

Chemizorb). Dispose of properly. Clean up affected area.

>Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

>Precautions for safe handling

> Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

> Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

> Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

>Conditions for safe storage, including any incompatibilities

> Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

>Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

>control parameter

Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

>Exposure controls

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: butyl-rubber

Minimum layer thickness: 0,7 mm Break through time: 480 min Material tested:Butoject (KCL 898)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact Material: Viton

Minimum layer thickness: 0,7 mm Break through time: 120 min

Material tested:Vitoject (KCL 890 / Aldrich Z677698, Size M)

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type AX

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

Exposure limits

TLV-TWA (200 ppm) (ACGIH), 260mg/m³, 1040mg/m³ (800 ppm) 15minutes (NIOSH); STEL 310mg/m³ (250 ppm); IDLH 25,000 ppm (NIOSH).

SECTION 9: Physical and chemical properties

>Information on basic physicochemical properties

- Appearancecolorless liquid
- Odourcharacteristic
- Odour Threshold10 ppm
- pHNo data available
- Melting point/freezing pointMelting point/range: -98 °C
- Initial boiling point and boiling range64,7 °C
- Flash point9,7 °C - closed cup - Regulation (EC) No. 440/2008, Annex, A.9
- Evaporation rate6,3 - Diethyl ether1,9 - n-butyl acetate
- Flammability (solid, gas)No data available
- Upper/lower flammability or explosive limits Upper explosion limit: 44 %(V) Lower explosion limit: 5,5 %(V)
- Vapour pressure 169,27 hPa at 25 °C
- Vapour density 1,11
- Relative density0,791 g/mL at 25 °C 0,79 - 0,8 at 20 °C
- Water solubility1.000 g/l at 20 °C - completely miscibleat 20 °C soluble
- Partition coefficient: n-octanol/waterlog Pow: -0,77 - (Lit.), Bioaccumulation is not expected.
- Autoignition temperature455,0 °C at 1.013 hPa - DIN 51794
- Decomposition temperatureDistillable in an undecomposed state at normal pressure.
- ViscosityViscosity, kinematic: 0,54 - 0,59 mm²/s at 20 °C Viscosity, dynamic: >0,544 -< 0,59 mPa.s at 25 °C
- Explosive propertiesNo data available
- Oxidizing propertiesNo data available
- Henry's Law Constant4.99 at 25 °C (headspace-GC, Gupta et al., 2000)
- λ_{max}λ: 210 nm A_{max}: 0.50
λ: 220 nm A_{max}: 0.30
λ: 230 nm A_{max}: 0.15
λ: 235 nm A_{max}: 0.10
λ: 240 nm A_{max}: 0.05

λ : 260 nm Amax: 0.01

λ : 400 nm Amax: 0.01

>Other safety information

Minimum ignition energy

0,14 mJ

Conductivity < 1 μ S/cm

Relative vapor density

1,11

SECTION 10: Stability and reactivity

>Reactivity

Vapors may form explosive mixture with air.

>Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

>Possibility of hazardous reactions

Risk of explosion with: Oxidizing agents perchloric acid perchlorates

salts of oxyhalogenic acids chromium(VI) oxide halogen oxides

nitrogen oxides nonmetallic oxides

chromosulfuric acid chlorates

hydrides zinc diethyl halogens

powdered magnesium hydrogen peroxide Nitric acid

sulfuric acid permanganic acid sodium hypochlorite

Exothermic reaction with:

acid halides Acid anhydrides Reducing agents acids

Bromine Chlorine Chloroform magnesium

tetrachloromethane

Risk of ignition or formation of inflammable gases or vapours with: Fluorine

Oxides of phosphorus Raney-nickel

Generates dangerous gases or fumes in contact with: Alkaline earth metals

Alkali metals

>Conditions to avoid

Warming.

>Incompatible materials

various plastics, magnesium, zinc alloys

>Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

>Information on toxicological effects

Acute toxicity

Acute toxicity estimate Oral - 100,1 mg/kg (Expert judgment)

Acute toxicity estimate Oral - 100,1 mg/kg (Expert judgment)

Symptoms: Nausea, Vomiting

Acute toxicity estimate Inhalation - 4 h - 3,1 mg/l (Expert judgment)

Acute toxicity estimate Inhalation - 4 h - 3,1 mg/l (Expert judgment)

Symptoms: Irritation symptoms in the respiratory tract.

Acute toxicity estimate Dermal - 300,1 mg/kg (Expert judgment)

Acute toxicity estimate Dermal - 300,1 mg/kg (Expert judgment)

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation Remarks: (ECHA)

Drying-out effect resulting in rough and chapped skin.

Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation Remarks: (ECHA)

Respiratory or skin sensitization

(OECD Test Guideline 406)

Germ cell mutagenicity

Based on available data the classification criteria are not met. Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471

Result: negative

Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster lung cells

Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476

Result: negative

Test Type: Micronucleus test Species: Mouse

Cell type: Bone marrow

Application Route: Intraperitoneal injection Method: OECD Test Guideline 474

Result: negative

Carcinogenicity

No data available

Reproductive toxicity

Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

Causes damage to organs. - Eyes, Central nervous system

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure

Aspiration hazard

Toxicity

LD50 oral (rat)

5628 mg/kg

LD50 skin (rabbit)

15,840 mg/kg

LC50 inhal (rat)

>145,000 ppm (1 h)

PEL (OSHA)

200 ppm (260 mg/m³)

TLV-TWA (ACGIH)

200 ppm (260 mg/m³)—skin

STEL (ACGIH)

250 ppm (328 mg/m³)

SECTION 12: Ecological information

>Toxicity

Toxicity to fish

flow-through test LC50 - *Lepomis macrochirus* (Bluegill) - 15.400,0 mg/l - 96 h

(US-EPA)

Toxicity to daphnia and other aquatic invertebrates

semi-static test EC50 - *Daphnia magna* (Water flea) - 18.260 mg/l - 96 h

(OECD Test Guideline 202)

Toxicity to algae

static test ErC50 - *Pseudokirchneriella subcapitata* (green algae) - ca.

22.000,0 mg/l - 96 h (OECD Test Guideline 201)

Toxicity to bacteria

static test IC50 - activated sludge - > 1.000 mg/l - 3 h (OECD Test Guideline 209)

>Persistence and degradability

Biodegradability Result: 99 % - Readily biodegradable.

(OECD Test Guideline 301D)

Biochemical Oxygen Demand (BOD)

Chemical Oxygen Demand (COD)

Theoretical oxygen demand

600 - 1.120 mg/g Remarks: (IUCLID)

1.420 mg/g Remarks: (IUCLID)

1.500 mg/g Remarks: (Lit.)

Ratio BOD/ThBOD 76 %

Remarks: Closed Bottle test(IUCLID)

>Bioaccumulative potential

Bioaccumulation *Cyprinus carpio* (Carp) - 72 d

at 20 °C - 5 mg/l(Methanol)

Bioconcentration factor (BCF): 1,0

>Mobility in soil

Will not adsorb on soil.

>Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

>Toxics Screening Level

The Initial Threshold Screening Level (ITSL) is 20,000µg/m³ with 4-hour averaging time.

>Other adverse effects

Additional ecological information

Avoid release to the environment.

Stability in water at 19 °C 83 - 91 % - 72 h

Remarks: Hydrolyzes on contact with water. Hydrolyzes readily.

SECTION 13: Disposal considerations

>Waste treatment methods

Incompatibilities

Methanol reacts violently with strong oxidizers, causing a fire and explosion hazard.

Waste Disposal

Consult with environmental regulatory agencies for guidance on acceptable disposal practices. Generators of waste containing this contaminant (≥ 100 kg/mo) must conform to EPA regulations governing storage, transportation, treatment, and waste disposal. Incineration

SECTION 14: Transport information

>UN number

ADR/RID: 1230 IMDG: 1230

SECTION 15: Regulatory information

>Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015: Listed. website: <https://www.mem.gov.cn/>

Measures for Environmental Management of New Chemical Substances

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC): Listed. website: <https://www.mee.gov.cn/>

EC Inventory: Listed.

European Inventory of Existing Commercial Chemical Substances (EINECS): Listed. website: <https://echa.europa.eu/>

Korea Existing Chemicals List (KECL): Listed. website: <http://ncis.nier.go.kr>

New Zealand Inventory of Chemicals (NZIoC): Listed. website: <https://www.epa.govt.nz/>

Philippines Inventory of Chemicals and Chemical Substances (PICCS): Listed. website: <https://emb.gov.ph/>

United States Toxic Substances Control Act (TSCA) Inventory: Listed. website: <https://www.epa.gov/>

Vietnam National Chemical Inventory: Listed. website: <https://chemicaldata.gov.vn/>

SECTION 16: Other information

>Abbreviations and acronyms

- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- CAS: Chemical Abstracts Service
- EC50: Effective Concentration 50%
- IATA: International Air Transportation Association
- IMDG: International Maritime Dangerous Goods
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- STEL: Short term exposure limit
- TWA: Time Weighted Average

>References

- 【1】 CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- 【2】 ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- 【3】 ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>
- 【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- 【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- 【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- 【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- 【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- 【9】 IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- 【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

>Other Information

Burns with nonluminous bluish flame. Depending on the degree of exposure, periodic medical examination is suggested. Specific treatment may be necessary in case of poisoning with this substance; the appropriate means with instructions should be available.