Safety Data Sheet

Product name: Dimethyl carbonate CAS No.: 616-38-6

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: Dimethyl carbonate
- CBnumber: CB8853983
- CAS: 616-38-6
- EINECS Number: 210-478-4
- Synonyms: DMC,dimethyl carbonate

>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 wordDanger

Precautionary statements

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

P405 Store locked up.

P403+P235 Store in a well-ventilated place. Keep cool.

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

P308+P313 IF exposed or concerned: Get medical advice/attention.

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

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

P241 Use explosion-proof electrical/ventilating/lighting/.../equipment.

P240 Ground/bond container and receiving equipment.

P233 Keep container tightly closed.

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

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

P201 Obtain special instructions before use.

Hazard statements

H361 Suspected of damaging fertility or the unborn child

H225 Highly Flammable liquid and vapour

SECTION 3: Composition/information on ingredients

>Substance

- Product name: Dimethyl carbonate
- Synonyms: DMC,dimethyl carbonate
- CAS: 616-38-6
- EC number: 210-478-4
- MF: C3H6O3
- MW: 90.08

SECTION 4: First aid measures

>Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

>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

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

>Special hazards arising from the substance or mixture

Carbon oxides

>Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

>Further information

Use water spray to cool unopened containers.

>NFPA 704

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SECTION 6: Accidental release measures

>Personal precautions, protective equipment and emergency procedures

Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

For personal protection see section 8.

>Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

>Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet- brushing and place in container for disposal according to local regulations (see section 13).

>Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

>Precautions for safe handling

Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

>Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Air sensitive.

>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

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

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

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Full contact

Material: butyl-rubber

Minimum layer thickness: 0,3 mm Break through time: 480 min

Material tested:Butoject (KCL 897 / Aldrich Z677647, Size M)

Splash contact Material: butyl-rubber

Minimum layer thickness: 0,3 mm Break through time: 480 min

Material tested:Butoject (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Impervious clothing, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full- face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and

components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties

>Information on basic physicochemical properties

- Appearancecolourless liquid
- OdourNo data available
- Odour ThresholdNo data available
- pHNo data available
- Melting point/freezing pointMelting point/range: 2 - 4 °C - lit.
- Initial boiling point and boiling range90 °C - lit.
- Flash point16 °C - closed cup
- Evaporation rateNo data available
- Flammability (solid, gas)No data available
- Upper/lower flammability or explosive limits Upper explosion limit: 12,87 %(V) Lower explosion limit: 4,22 %(V)
- Vapour pressure24 hPa at 21,1 °C
- Vapour density3,11 - (Air = 1.0)
- Relative density1,069 g/cm3 at 25 °C
- Water solubility114,7 g/l at 20 °C - OECD Test Guideline 105 - completely soluble
- Partition coefficient: n-octanol/waterlog Pow: 0,354 at 20 °C
- Autoignition temperatureNo data available
- Decomposition temperatureNo data available
- ViscosityNo data available
- Explosive propertiesNo data available
- Oxidizing propertiesNo data available

>Other safety information

Surface tension 31,92 mN/m

Relative vapour density

3,11 - (Air = 1.0)

SECTION 10: Stability and reactivity

>Reactivity

No data available

>Chemical stability

Stable under recommended storage conditions.

>Possibility of hazardous reactions

>Conditions to avoid

Heat, flames and sparks.

>Incompatible materials

Oxidizing agents, Strong acids, Strong bases

>Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides Other decomposition products - No data available

In the event of fire: see section 5

SECTION 11: Toxicological information

>Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - > 5.000 mg/kg (OECD Test Guideline 401)
LC50 Inhalation - Rat - male and female - 4 h - > 5,36 mg/l (OECD Test Guideline 403)
LD50 Dermal - Rabbit - male and female - > 2.000 mg/kg

Skin corrosion/irritation

Skin - Rabbit
Result: No skin irritation (OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit
Result: No eye irritation

Respiratory or skin sensitisation

(OECD Test Guideline 406)

Germ cell mutagenicity

Result: negative

Carcinogenicity

No data available
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No toxicity to reproduction

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Aspiration hazard

Additional Information

RTECS: FG0450000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Toxicity

LD50 in rats (g/kg): 13.8 orally; 2.5 dermally; LC50 (4 hr) in rats (mg/l): 140 by inhalation (Ono)

SECTION 12: Ecological information

>Toxicity

Toxicity to fish
flow-through test LC50 - Danio rerio (zebra fish) - > 100 mg/l - 96 h (OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates

static test EC50 - Daphnia magna (Water flea) - > 100 mg/l - 48 h (OECD Test Guideline 202)

Toxicity to algae
static test EC50 - Pseudokirchneriella subcapitata (green algae) - > 100 mg/l - 72 h

(OECD Test Guideline 201)

>Persistence and degradability

Biodegradability aerobic - Exposure time 28 d

Result: 86 % - Readily biodegradable. (OECD Test Guideline 301C)

>Bioaccumulative potential

No data available

>Mobility in 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) for dimethyl carbonate is 300 µg/m3 based on an annual averaging time.

>Other adverse effects

No data available

SECTION 13: Disposal considerations

>Waste treatment methods

> Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

> Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

>UN number

ADR/RID: 1161 IMDG: 1161 IATA: 1161

>UN proper shipping name

	ADR/RID: DIMETHYL CARBONATE IMDG: DIMETHYL CARBONATE	
IATA: Dimethyl carbonate		
14.3	Transport hazard class(es) ADR/RID: 3 IMDG: 3	IATA: 3
14.4	Packaging group ADR/RID: II IMDG: II	IATA: II
14.5	Environmental hazards ADR/RID: no IMDG Marine pollutant: no	IATA: no

14.6	Special precautions for user No data available	

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

Vietnam National Chemical Inventory:Listed. website: https://chemicaldata.gov.vn/
United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: https://www.epa.gov/
Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: https://emb.gov.ph/
New Zealand Inventory of Chemicals (NZIoC):Listed. website: https://www.epa.govt.nz/
Korea Existing Chemicals List (KECL):Listed. website: http://ncis.nier.go.kr
European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: https://echa.europa.eu/
EC Inventory:Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: https://www.mee.gov.cn/

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/