



dimethyl carbonate

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)
Issue date: 03/12/2020 Revision date: 03/12/2020 Version: 1.00

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

1.1. Product identifier

Product form : Substance
Trade name : dimethyl carbonate
Chemical name : dimethyl carbonate
EC Index-No. : 607-013-00-6
EC-No. : 210-478-4
CAS-No. : 616-38-6
REACH registration No : 01-2119548399-23-0007

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

1.2.1. Relevant identified uses

Main use category : Industrial use

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier

Shandong Shida Shenghua Chemical Group Co, LTD
Tongxing Road 198
257503 Dongying - China
T 0086-546-2169356
henry.pan@sinodmc.com

Email competent person

sds@kft.de

Importer

Shida Shenghua s.r.o
Karolinská 661/4
18600 Prag
T 0086-546-2169356
shidashenghua@sinodmc.com

1.4. Emergency telephone number

Emergency number : National Health Service (NHS)
24 hour national number consumer
England and Scotland: 111
Wales: 0845 46 47
Northern Ireland: call your local General Practitioner

Call 999 if there is a life-threatening incident.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable liquids, Category 2 H225
Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Highly flammable liquid and vapour.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



dimethyl carbonate

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

	GHS02
Signal word (CLP)	: Danger
Hazard statements (CLP)	: H225 - Highly flammable liquid and vapour.
Precautionary statements (CLP)	: 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. P403+P235 - Store in a well-ventilated place. Keep cool.
Listed in Annex VI	: EC Index-No. : 607-013-00-6

2.3. Other hazards

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%
dimethyl carbonate	(CAS-No.) 616-38-6 (EC-No.) 210-478-4 (EC Index-No.) 607-013-00-6 (REACH-no) 01-2119548399-23-0007	-

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: In all cases of doubt, or when symptoms persist, seek medical attention.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Rinse skin with water/shower. Take off immediately all contaminated clothing.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Rinse mouth. Do not give an unconscious person anything to drink. Vomiting: prevent asphyxia/aspiration pneumonia. Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects after inhalation	: irritation of mucous membranes. In case of inhalation of high concentrations : Pulmonary oedema.
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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	: Water spray. Dry powder. Foam. Carbon dioxide. Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	: Strong water jet.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Highly flammable liquid and vapour.
Explosion hazard	: Explosive vapour/air mixtures may be formed.
Hazardous decomposition products in case of fire	: Toxic fumes may be released. Carbon monoxide. Carbon dioxide (CO ₂).

5.3. Advice for firefighters

Firefighting instructions	: Protect container with water spray.
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dimethyl carbonate

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
Other information	: Do not allow run-off from fire fighting to enter drains or water courses. Disposal must be done according to official regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. No open flames, no sparks, and no smoking.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid sub-soil penetration. Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up liquid spill into absorbent material. Cover spill with non combustible material, e.g.: sand/earth. Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal. Notify authorities if product enters sewers or public waters.

Other information : Disposal must be done according to official regulations.

6.4. Reference to other sections

Information for safe handling. See section 7. Concerning personal protective equipment to use, see section 8. For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	: In use, may form flammable vapour-air mixture.
Precautions for safe handling	: Ensure good ventilation of the work station. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapours may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment.
Hygiene measures	: Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Ground/bond container and receiving equipment.
Storage conditions	: Store in a well-ventilated place. Keep cool. Keep container tightly closed. Keep away from heat and direct sunlight.
Incompatible materials	: Some plastics. Rubbers.
Heat and ignition sources	: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from heat and direct sunlight.
Information about storage in one common storage facility	: Keep away from food, drink and animal feeding stuffs.

7.3. Specific end use(s)

No additional information available

dimethyl carbonate

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

dimethyl carbonate (616-38-6)	
DNEL/DMEL (Workers)	
Long-term - systemic effects, dermal	5 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	34.9 mg/m ³
DNEL/DMEL (General population)	
Long-term - systemic effects, oral	2.5 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	8.7 mg/m ³
Long-term - systemic effects, dermal	2.5 mg/kg bodyweight/day
PNEC (Water)	
PNEC aqua (freshwater)	0.5 mg/l
PNEC aqua (marine water)	0.05 mg/l
PNEC aqua (intermittent, freshwater)	1 mg/l
PNEC (STP)	
PNEC sewage treatment plant	188 mg/l

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

Hand protection:

In case of repeated or prolonged contact wear gloves. Butyl rubber. EN ISO 374. Choosing the proper glove is a decision that depends not only on the type of material, but also on other quality features, which differ for each manufacturer. Gloves must be replaced after each use and whenever signs of wear or perforation appear. Apply emollient cream

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Chemically resistant protective gloves	Butyl rubber	5 (> 240 minutes)	0,5	No additional information available	EN ISO 374

Eye protection:

Use splash goggles when eye contact due to splashing is possible. EN 166

Skin and body protection:

Wear suitable protective clothing. EN 13034. EN 340. EN ISO 13688

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Breathing apparatus with filter. P2. EN 143. . Breathing equipment is only to be used in order to handle the residual risk of short term jobs if all other risk minimizing measures have been carried out e.g. retention and/or local exhaust

Environmental exposure controls:

Avoid release to the environment.

Other information:

Do not eat, drink or smoke when using this product. Avoid contact with skin and eyes. Do not breathe gas/vapour/aerosol. Wash hands before breaks and after work. Wash contaminated clothing before reuse. Use only in well ventilated areas. Precautions manipulation. Always wash hands after handling the product.

dimethyl carbonate

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: colourless.
Odour	: pleasant.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: 90.2 °C (101.3 kPa; (OECD 103 method))
Flash point	: 16.7 °C (1013.2 hPa; (closed cup))
Auto-ignition temperature	: 458 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: 7570.4 Pa (25.15 °C; (OECD 104 method))
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 1.06 g/cm ³ (25 °C; (OECD 109 method))
Solubility	: Water: 114.7 g/l (20 °C; pH ca. 6; (OECD 105 method))
Partition coefficient n-octanol/water (Log Pow)	: 0.354 (20 °C; pH > 6.5 - < 7.5; (OECD 107 method))
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 0.585 mPa·s (25 °C; (OECD 114 method))
Explosive properties	: Product is not explosive. Explosive vapour/air mixtures may be formed.
Oxidising properties	: Non oxidizing.
Explosive limits	: 4.22 – 12.87 vol %

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Highly flammable liquid and vapour.

10.2. Chemical stability

Stable under normal conditions. To avoid thermal decomposition, do not overheat.

10.3. Possibility of hazardous reactions

Flammable or explosive vapour/air mixtures may be formed.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

oxidising substances. Reducing agents.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation)	: Not classified (Based on available data, the classification criteria are not met)

dimethyl carbonate

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

dimethyl carbonate (616-38-6)	
LD50 oral rat	> 5000 mg/kg bodyweight (OECD 401 method)
LD50 dermal rabbit	> 2000 mg/kg bodyweight
LC50 Inhalation - Rat (Vapours)	> 5.36 mg/l/4h (OECD 403 method)

Skin corrosion/irritation	: Not classified (Based on available data, the classification criteria are not met)
Additional information	: (OECD 404 method)
Serious eye damage/irritation	: Not classified (Based on available data, the classification criteria are not met)
Respiratory or skin sensitisation	: Not classified (Based on available data, the classification criteria are not met)
Additional information	: (OECD 406 method)
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met)

dimethyl carbonate (616-38-6)	
NOAEL (animal/male, F1)	500 mg/kg bodyweight/day (NOEL; rat; (OECD 415 method))
NOAEL (animal/female, F1)	500 mg/kg bodyweight/day (NOEL; rat; (OECD 415 method))
STOT-single exposure	: Not classified (Based on available data, the classification criteria are not met)
STOT-repeated exposure	: Not classified (Based on available data, the classification criteria are not met)

dimethyl carbonate (616-38-6)	
NOAEL (oral, rat, 90 days)	> 500 mg/kg bodyweight/day (NOEL; (OECD 408 method))
Aspiration hazard	: Not classified (Based on available data, the classification criteria are not met)

dimethyl carbonate (616-38-6)	
Viscosity, kinematic	0.55 mm ² /s

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: Based on available data, the classification criteria are not met.
Hazardous to the aquatic environment, short-term (acute)	: Not classified (Based on available data, the classification criteria are not met)
Hazardous to the aquatic environment, long-term (chronic)	: Not classified (Based on available data, the classification criteria are not met)

dimethyl carbonate (616-38-6)	
LC50 fish 1	≥ 100 mg/l (96 h; Danio rerio; (OECD 203 method))
EC50 Daphnia 1	> 100 mg/l (48 h; Daphnia magna; (OECD 202 method))
EC50 72h algae	> 100 mg/l (72 h; Pseudokirchneriella subcapitata; (OECD 201 method))
ErC50 (algae)	> 100 mg/l (72 h; Pseudokirchneriella subcapitata; (OECD 201 method))
NOEC chronic crustacea	25 mg/l (21 d; Daphnia magna; (OECD 211 method))
NOEC chronic algae	≥ 100 mg/l (72 h; Pseudokirchneriella subcapitata; (OECD 201 method))

12.2. Persistence and degradability

dimethyl carbonate (616-38-6)	
Persistence and degradability	Readily biodegradable.
Biodegradation	86 % (28 d; (OECD 301C method))

dimethyl carbonate

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

12.3. Bioaccumulative potential

dimethyl carbonate (616-38-6)	
Partition coefficient n-octanol/water (Log Pow)	0.354 (20 °C; pH > 6.5 - < 7.5; (OECD 107 method))
Bioaccumulative potential	Based on the n-octanol/water partition coefficient accumulation in organisms is not expected.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

dimethyl carbonate (616-38-6)	
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII	
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII	

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods	: Disposal must be done according to official regulations. European waste catalogue. Do not dispose of with domestic waste. Do not discharge into drains or the environment.
Product/Packaging disposal recommendations	: Recycle or dispose of in compliance with current legislation.
Additional information	: Flammable vapours may accumulate in the container.
European List of Waste (LoW) code	: 07 01 04* - other organic solvents, washing liquids and mother liquors
HP Code	: HP3 - "Flammable:" — flammable liquid waste: liquid waste having a flash point below 60 °C or waste gas oil, diesel and light heating oils having a flash point > 55 °C and ≤ 75 °C; — flammable pyrophoric liquid and solid waste: solid or liquid waste which, even in small quantities, is liable to ignite within five minutes after coming into contact with air; — flammable solid waste: solid waste which is readily combustible or may cause or contribute to fire through friction; — flammable gaseous waste: gaseous waste which is flammable in air at 20 °C and a standard pressure of 101.3 kPa; — water reactive waste: waste which, in contact with water, emits flammable gases in dangerous quantities; — other flammable waste: flammable aerosols, flammable self-heating waste, flammable organic peroxides and flammable self-reactive waste.

SECTION 14: Transport information






In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
UN 1161	UN 1161	UN 1161	UN 1161	UN 1161
14.2. UN proper shipping name				
DIMETHYL CARBONATE	DIMETHYL CARBONATE	Dimethyl carbonate	DIMETHYL CARBONATE	DIMETHYL CARBONATE
Transport document description				
UN 1161 DIMETHYL CARBONATE, 3, II, (D/E)	UN 1161 DIMETHYL CARBONATE, 3, II (18°C c.c.)	UN 1161 Dimethyl carbonate, 3, II	UN 1161 DIMETHYL CARBONATE, 3, II	UN 1161 DIMETHYL CARBONATE, 3, II

dimethyl carbonate

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

14.3. Transport hazard class(es)				
3	3	3	3	3
				
14.4. Packing group				
II	II	II	II	II
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR) : F1
Limited quantities (ADR) : 1I
Excepted quantities (ADR) : E2
Transport category (ADR) : 2
Hazard identification number (Kemler No.) : 33
Orange plates :



Tunnel restriction code (ADR) : D/E
EAC code : 3YE

Transport by sea

Limited quantities (IMDG) : 1 L
Excepted quantities (IMDG) : E2
EmS-No. (Fire) : F-E
EmS-No. (Spillage) : S-D

Air transport

PCA Excepted quantities (IATA) : E2
PCA Limited quantities (IATA) : Y341
PCA limited quantity max net quantity (IATA) : 1L
PCA packing instructions (IATA) : 353
PCA max net quantity (IATA) : 5L
CAO max net quantity (IATA) : 60L

Inland waterway transport

Classification code (ADN) : F1
Limited quantities (ADN) : 1 L
Excepted quantities (ADN) : E2

Rail transport

Classification code (RID) : F1
Limited quantities (RID) : 1L
Excepted quantities (RID) : E2
Transport category (RID) : 2
Hazard identification number (RID) : 33

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

dimethyl carbonate

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

Reference code	Applicable on
3(a)	dimethyl carbonate
40.	dimethyl carbonate

dimethyl carbonate is not on the REACH Candidate List

dimethyl carbonate is not on the REACH Annex XIV List

dimethyl carbonate is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

dimethyl carbonate is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

Other information, restriction and prohibition regulations : Take note of Directive 94/33/EC on the protection of young people at work.

Directive 2012/18/EU (SEVESO III)

Seveso III Part I (Categories of dangerous substances)	Qualifying quantity (tonnes)	
	Lower-tier	Upper-tier
P5c FLAMMABLE LIQUIDS Flammable liquids, Categories 2 or 3 not covered by P5a and P5b	5000	50000

15.1.2. National regulations

United Kingdom

National regulations : Take note of Directive 94/33/EC on the protection of young people at work.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent Bioaccumulative Toxic

dimethyl carbonate

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)

PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
vPvB	Very Persistent and Very Bioaccumulative
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
IARC	International Agency for Research on Cancer
LOAEL	Lowest Observed Adverse Effect Level
TLM	Median Tolerance Limit

Data sources : ECHA (European Chemicals Agency).
Department issuing data : KFT Chemieservice GmbH
specification sheet: Im Leuschnerpark. 3 64347 Griesheim
Germany

Phone: +49 6155-8981-400 Fax: +49 6155 8981-500
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Contact person : Christian Rank

Full text of H- and EUH-statements:	
Flam. Liq. 2	Flammable liquids, Category 2
H225	Highly flammable liquid and vapour.

KFT SDS EU 00

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.