

Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Dimethyl carbonate

Reference number(SDS): 43285jis_J_E1-1

Product type:

Reagent

Details of the supplier of the safety data sheet

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

Address: 1-6, Ohmano-cho, Koshigaya-shi, Saitama 343-0844, Japan

Division: Quality Assurance Department

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2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

PHYSICAL AND CHEMICAL HAZARDS

Flammable liquids: Category 2

HEALTH HAZARDS

Reproductive toxicity: Category 2

Label elements



Signal word: Danger

HAZARD STATEMENT

H225-Highly flammable liquid and vapor

H361-Suspected of damaging fertility or the unborn child

PRECAUTIONARY STATEMENT

Prevention

Obtain special instructions before use.

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

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Keep container tightly closed.

Ground and bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use non-sparking tools.

Take action to prevent static discharges.

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

Use personal protective equipment as required.

Response

In case of fire: Use appropriate media other than water to extinguish.

IF exposed or concerned: Get medical advice/attention.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

Storage

Store in a well-ventilated place. Keep cool.

Store locked up.

Disposal

Dispose of contents/container in accordance with local/national regulation.

Specific Physical and Chemical hazards

Highly flammable liquid. Vapor/air mixture may explode.

3. Composition/information on ingredients**Mixture/Substance selection:****Substance**

Ingredient name: Dimethyl carbonate

Content (%): 99.0 <

Chemical formula: C₃H₆O₃

Chemicals No, Japan: 2-2853

CAS No.: 616-38-6

MW: 90.08

ECNO: 210-478-4

4. First-aid measures**Descriptions of first-aid measures****General measures**

IF exposed or concerned: Get medical advice/attention.

Keep victim warm and quiet.

Call emergency medical service.

Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.

Give artificial respiration if victim is not breathing.

Administer oxygen if breathing is difficult.

Call a POISON CENTER/doctor/physician if you feel unwell.

IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water or shower.

If skin irritation or rash occurs: Get medical advice/attention.

Remove and isolate contaminated clothing and shoes.

In case of burns, immediately cool affected skin for as long as possible with chilled water. Do not remove clothing if adhering to skin.

IF IN EYES

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

IF SWALLOWED

Rinse mouth.

Call a POISON CENTER/doctor/physician if you feel unwell.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Cough

(Symptoms when skin and/or eye contact)

Conjunctival redness of the eyes.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

In case of fire, use water mist, foam, dry powder, CO₂ to extinguish.

Unsuitable extinguishing media

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Cool container with water spray.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.

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

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.

In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

PUBLIC SAFETY: Ventilate closed spaces before entering.

Do not touch or walk through spilled material.

Environmental precautions

Runoff to sewer may create fire or explosion hazard.

Vapor explosion hazard indoors, outdoors or in sewers.

Avoid release to headsprings, rivers, lakes, ocean and groundwater.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Use clean non-sparking tools to collect absorbed material.

All equipment used when handling the product must be grounded.

Preventive measures for secondary accident

Collect spillage.

Stop leak if you can do it without risk.

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

Prevent entry into waterways, sewers, basements or confined areas.

Keep out of low areas.

7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Avoid breathing dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Ground and bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use non-sparking tools.
Take action to prevent static discharges.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.
Avoid contact with eyes.

Safety Measures

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/protective clothing/eye protection/face protection.
Use personal protective equipment as required.
When using do not eat, drink or smoke.

Any incompatibilities

Oxidizing agents, Potassium tert-butoxide should not be mixed with the chemicals.

Storage

Conditions for safe storage

Store in a well-ventilated place. Keep container tightly closed.
Keep cool. Protect from sunlight.
Store in accordance with local/national regulation.
Store locked up.

Container and packaging materials for safe handling data is not available.

Specific end use(s)

See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

8. Exposure controls/personal protection

Control parameters

Control value in MHLW is not available.

Adopted value

Adopted value in JSOH is not available.
Adopted value in ACGIH is not available.

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.
Eye wash station should be available.
Washing facilities should be available.

Individual protection measures

Respiratory protection

Wear respiratory protection.

Hand protection

Wear protective gloves. Recommended material(s): butyl rubber
Consult with your glove and/or personnel equipment manufacturer for selection of appropriate compatible materials.

Eye protection

Wear safety glasses with side-shields.
Wear eye/face protection.

Skin and body protection

Wear impervious clothing and boots in case of repeated or prolonged treatment.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid

Color: Colorless

Odor: Characteristic odor

Odor threshold data is not available.

Melting point/Freezing point: 3°C

Boiling point or initial boiling point: 90°C

Boiling range data is not available.

Flammability (gases, liquids and solids): Ignitable

Lower and upper explosion limit/flammability limit:

Lower explosion limit: 4.2vol %

Upper explosion limit: 12.9vol %

Flash point: (c.c.)14°C

Auto-ignition temperature: 458°C

Decomposition temperature data is not available.

Self-Accelerating Decomposition Temperature/SADT data is not available.

pH data is not available.

Dynamic viscosity: 0.664mPas(20°C)

Kinematic viscosity: 0.62mm²/s(20°C)

Solubility:

Solubility in water: 114.7g/liter(20°C)

Solubility in solvent: Miscible with alcohol and ether.

n-Octanol/water partition coefficient: log Pow 0.354 (20°C)

Vapor pressure: 7.4 kPa (25°C)

Vapor density data is not available.

VOC data is not available.

Evaporation rate data is not available.

Density and/or relative density: 1.066~1.075g/ml (20°C)

Relative vapor density (Air=1): 3.1

Relative density of the Vapor/air - mixture at 20°C (Air = 1): 1.1

Critical temperature data is not available.

Particle characteristics data is not available.

10. Stability and Reactivity

Reactivity

Runaway polymerization will not occur.

Chemical stability

Stable under normal storage/handling conditions.

Highly flammable.

Possibility of hazardous reactions

The vapour is heavier than air and may travel along the ground; distant ignition possible.

The vapour mixes well with air, explosive mixtures are easily formed.

Reacts violently with oxidants and potassium tert-butoxide. This generates fire hazard.

Decomposes on burning. This produces irritating fumes.

Conditions to avoid

Contact with incompatible materials.

Open flames. Heat. Sparks.

Incompatible materials

Oxidizing agents, Potassium tert-butoxide

Hazardous decomposition products

Carbon oxides

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[GHS Cat. Japan, base data]

rat LD50=6400~12800mg/kg (PATTY 5th, 2001)

Acute toxicity (Dermal)

[GHS Cat. Japan, base data]

rat LD50 >2500mg/kg (IUCLID, 2000)

Irritant properties

Skin corrosion/irritation

[GHS Cat. Japan, base data]

rabbit et al.: not irritating (IUCLID, 2000)

Serious eye damage/irritation data is not available.

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

Carcinogenic effects data is not available.

Reproductive toxicity

[GHS Cat. Japan, base data]

cat. 2; HSDB, 2003

STOT

STOT-single exposure data is not available.

STOT-repeated exposure data is not available.

Aspiration hazard data is not available.

12. Ecological Information

Ecotoxicity

Ecotoxicity data is not available.

Water solubility

114.7g/L (20°C) (REACH Registration dossier)

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

log Pow=0.354(20°C) (REACH Registration dossier)

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Dispose of contents/container in accordance with local/national regulation.

14. Transport Information

UN No., UN CLASS

UN No. or ID No.: 1161

UN Proper Shipping Name : DIMETHYL CARBONATE

Dimethyl carbonate, JUNSEI CHEMICAL CO., LTD., 43285jis_J_E1-1, 2021/07/19

Class or division (Transport hazard class) : 3

Packing group : II

ERG GUIDE No.: 129

IMDG Code (International Maritime Dangerous Goods Regulations)

UN No.: 1161

Proper Shipping Name : DIMETHYL CARBONATE

Class or division : 3

Packing group : II

IATA Dangerous Goods Regulations

UN No.: 1161

Proper Shipping Name : DIMETHYL CARBONATE

Class or division : 3

Hazard labels : Flamm.liquid

Packing group : II

Environmental hazards

MARPOL Annex III – Prevention of pollution by harmful substances

Marine pollutants (yes/no) : no

Maritime transport in bulk according to IMO instruments

Not applicable to Maritime transport in bulk according to IMO instruments

15. Regulatory Information

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

Chemicals listed in TSCA Inventory

Dimethyl carbonate

Other regulatory information

We are not able to check up the regulatory information with regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

Regulatory information in this section are limited to intentional ingredient(s), but does not contain information on non-intentional ingredients or impurities which are not informed by supplier(s).

Chemical safety assessment

Advice on safe handling for this product can be found in sections 7 and 8 of this SDS.

16. Other information**GHS classification and labelling**

H225–Flam. Liq. 2: H225 Highly flammable liquid and vapor

H361–Repr. 2: H361 Suspected of damaging fertility or the unborn child

Reference Book

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN

IMDG Code, 2018 Edition (Incorporating Amendment 39–18)

IATA Dangerous Goods Regulations (62nd Edition) 2021

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2021 TLVs and BEIs. (ACGIH)

JIS Z 7252 : 2019

JIS Z 7253 : 2019

2020 Recommendation on TLVs (JSOH)

Supplier's data/information

Chemicals safety data management system "GHS Assistant" Version 4.11 (<https://www.asahi-ghs.com/>)

NITE Chemical Risk Information Platform "NITE-CHRIP"

(https://www.nite.go.jp/en/chem/chrip/chrip_search/systemTop)

GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.0) (Mar. 2020, METI)

Definitions and Abbreviations

SDS (Safety Data Sheet)

LD50 (Lethal Dose, 50%)

LC50 (Lethal Concentration, 50%)

IARC (International Agency for Research on Cancer)

ACGIH (American Conference of Governmental Industrial Hygienists)

EPA (US Environmental Protection Agency)

NTP (US National Toxicology Program)

JSOH (Japan Society for Occupational Health)

EU (European Union)

EC50 (Effective Concentration, 50%)

NOEC (No Observed Effect Concentration)

BOD (Biochemical Oxygen Demand)

COD (Chemical Oxygen Demand)

BCF (Bioconcentration Factor)

anh (anhydride)

General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2019).