

SAFETY DATA SHEET

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY/UNDERTAKING

- 1.1. Product identifier:
DIETHYL CARBONATE
- CAS number: 105-58-8
EC number: 203-311-1
REACH registration number: 01-2119943044-45-0001; complete registration.
- 1.2. Relevant identified uses of the substance and uses advised against:
Organic synthesis intermediate for industrial use.
- 1.3. Details of the supplier of the safety data sheet:
Name of the manufacturer and distributor:
FRAMOCHEM FRENCH-HUNGARIAN FINE CHEMICALS LTD.
3700 Kazincbarcika,
Szerviz str. 5., POB. 504
Telephone: +36 (48) 311-991
Fax: +36 (48) 512-162
- 1.3.1. Responsible person: -
E-mail: info@framochem.hu
- 1.4. Emergency telephone number: **Public Toxicological Health Service (ETTSZ)**
1096 Budapest, Nagyvárad tér 2.
Tel.: +36 1 476 6464, 06 80 201 199 (0-24h)

SECTION 2: HAZARDS IDENTIFICATION

- 2.1. Classification of the substance:
- Classification Regulation 1278/2008/EC (CLP):
Skin Irrit. 2 – H315
Eye Irrit. 2 – H319
STOT SE 3 – H335
Flam. Liq. 3 – H226

H-phrases:

H226 – Flammable liquid and vapour.
H315 – Causes skin irritation.
H319 – Causes serious eye irritation.
H335 – May cause respiratory irritation.

Classification according to Directive 67/548/EEC:



R-phrases:

R 10 - Flammable.
R 36/37/38 - Irritating to eyes, respiratory system and skin.

- 2.2. Label elements:

**FRAMOCHEM FRENCH-HUNGARIAN
FINE CHEMICALS LTD.**

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DIETHYL CARBONATE

IUPAC name: Diethyl carbonate
CAS number: 105-58-8
EC number: 203-311-1



WARNING

H-phrases:

H226 – Flammable liquid and vapour.
H315 – Causes skin irritation.
H319 – Causes serious eye irritation.
H335 – May cause respiratory irritation.

P-phrases:

P243 – Take precautionary measures against static discharge.
P273 – Avoid release to the environment.
P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403 + P233 – Store in a well-ventilated place. Keep container tightly closed. Keep container tightly closed.

2.3. Other hazards:

The substance does not meet the criteria for PBT or vPvB substances.
Information concerning specific hazards for human and environment: See Section 11.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance:

IUPAC name: Diethyl carbonate
CAS number: 105-58-8
EC number: 203-311-1
Formula: C₅ H₁₀ O₃
Molar weight: 118.13
Synonym: Carbonic acid, diethyl ester
Purity: > 99.9 %

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures:

GENERAL INFORMATION: Transport the injured person into hospital and show the label or this safety data sheet.

IN CASE OF INGESTION:

Measures:

- Obtain immediate medical attention and show him the label or this safety data sheet.

IN CASE OF INHALATION:

Measures:

- Take the victim into fresh air, loosen his clothes and let him rest.
- If the victim is unconscious and breathing, place him into recovery position.
- Obtain immediate medical attention and show him the label or this safety data sheet.

IN CASE OF SKIN CONTACT:

Measures:

- Remove the contaminated clothes!
- Immediately wash the contaminated area with plenty of water and soap (for 15 minutes)!
- If symptoms occur, obtain immediate medical attention and show him the label.

IN CASE OF EYE CONTACT:

Measures:

- In case of contact with eyes flush immediately with plenty of flowing water for 15 minutes holding eyelids apart (for at least 15 minutes).
 - Obtain immediate medical attention and show him the label or this safety data sheet.
- 4.2. Most important symptoms and effects, both acute and delayed:
See section 11 for information on health effects and symptoms.
- 4.3. Indication of any immediate medical attention and special treatment needed:
INFORMATION TO THE PHYSICIAN: No specific prescription.
Handling: no specific prescription.

SECTION 5: FIRE-FIGHTING MEASURES

- 5.1. Extinguishing media:
5.1.1. Suitable extinguishing media:
Carbon dioxide, dry powder, alcohol resistant foam.
- 5.1.2. Unsuitable extinguishing media:
Avoid the use of any other extinguishing media.
- 5.2. Special hazards arising from the substance or mixture:
Hazardous combustion products: Smoke and other combustion products (CO₂, CO). The inhalation of such combustion products can cause serious adverse effects on health!
- 5.3. Advise for fire fighters
Wear appropriate full protective clothing and self-contained breathing apparatus (self-rescue breathing apparatus). These means can protect from the skin and eye contact and from the inhalation of the hazardous gases and smoke.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1. Personal precautions, protective equipment and emergency procedures:
6.1.1. For non-emergency personnel:
Keep unprotected people away, allow only well trained experts wearing suitable protective clothing to abide in the field of accident.
- 6.1.2. For emergency responders:
Evacuate the unauthorized persons.
Remove all ignition sources from the affected area.
Close the designated area.
Ensure adequate ventilation.
- 6.2. Environmental precautions:
Dispose of spillage and waste (product/packaging) in accordance with all applicable environmental laws. Do not allow to enter sewers/soil/surface or ground water. Notify the respective authorities in accordance with local law in the case of environmental pollution immediately.
- 6.3. Methods and material for containment and cleaning up:
Collect the spilled material with inert, non-combustible, mineral absorbent (sand, earth, and perlite), then place into a suitable, closed, properly labelled chemical waste container for disposal. During disposal wear suitable personal protective equipment.
- 6.4. Reference to other sections:
For further and detailed information see section 8 and 13.

SECTION 7: HANDLING AND STORAGE

- 7.1. Precautions for safe handling:
Precautions for safe handling:
Observe conventional hygiene precautions.
Avoid contact with skin, eyes and clothing, avoid inhalation of vapours.
Do not eat, drink and smoke during handling and in the workplace. Use adequate personal protective equipment (see section 8).
The contaminated clothes should be removed immediately.
After the handling of the product and before breaks or before eating wash your hands, after the work hours thorough washing (showering) is required.
Technical measures:
Ensure adequate ventilation / local suction!
Precautions against fire and explosion:
The use/handling of the product must be far from heat and ignition sources, avoid the sparking and use of open flame, avoid electrostatic charge.
Avoid the formation of flammable and explosive vapours, use spark and explosion proof equipment/tools during the handling.
- 7.2. Conditions for safe storage, including any incompatibilities:
Technical measures and storage condition:
Keep in original, closed and labelled container.
The place of storage has to be cool, properly ventilated and cleanable.

Store in cool and dry place.
Unauthorized persons must be kept away from the storage area.
Avoid spillage of the product.
Keep away from incompatible materials (e.g. strong oxidants). The product must be stored in properly coated (lined with polyethylene) or stainless steel container in cool and dry (protected from humidity) and well ventilated place.
Keep away from heat and ignition sources.
Keep away from humidity, water and the moisture of the air.
Do not smoke in the place and the vicinity of the storage.
Follow all instructions on the label.
Incompatible materials: strong oxidizing agents.
Packaging material: Metal container lined with polyethylene, with inert material, polyethylene container, stainless steel container.
It is forbidden to use other packaging material or packaging material made of other material.

- 7.3. Specific end use(s):
No specific instructions available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:

Occupational exposure limit values: none.

DNEL		Routes of exposure	Exposure frequency:	Remarks:
Worker	Consumer			
no data available	no data available	Dermal	Short term (acute) Long term (repeated)	no data available
no data available	no data available	Inhalative	Short term (acute) Long term (repeated)	no data available
no data available	no data available	Oral	Short term (acute) Long term (repeated)	no data available

PNEC			Exposure frequency:	Remarks:
Water	Soil	Air		
no data available	no data available	no data available	Short term (single use) Long term (continuous)	no data available
no data available	no data available	no data available	Short term (single use) Long term (continuous)	no data available
no data available	no data available	no data available	Short term (single use) Long term (continuous)	no data available

- 8.2. Exposure controls:
In case of a hazardous material with no controlled concentration limit it is the employer's duty to keep concentration levels down to a minimum achievable by existing scientific and technological means, where the hazardous substance poses no harm to workers.
- 8.2.1 Appropriate engineering controls
In pursuance of work is proper foresight needed to avoid spilling onto clothes and floors and to avoid contact with eyes and skin.
Ensure adequate ventilation, especially in closed areas.
Do not eat or smoke during the handling!
Do not inhale the vapours.
Keep away from skin and eyes.
Wash thoroughly after the work hours.
Provide appropriate personal protective equipment, safety shower and eye-wash bottle/fountain.
- 8.2.2 Individual protection measures, such as personal protective equipment:
1. Eye/face protection: use adequate protective goggles/ protective mask according to EN 166.
 2. Skin protection:
 - a. Hand protection: use adequate protective gloves according to EN 374.
 - b. Other: use adequate acid resistant protective clothes according to EN ISO 6529.
 3. Respiratory protection: use adequate respirator (for organic vapours) according to EN 136, 141.
 4. Thermal hazard: none known.
- 8.2.3 Environmental exposure controls:
No specific prescription.

The requirements detailed in Section 8 assume skilled work under normal conditions and usage of the product for appropriate aims. If conditions differ from normal or work is carried out under extreme conditions an expert's advice should be sought out before deciding upon further protective measures.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties:

Parameter		Test method:	Remarks:
1. Appearance:	colourless liquid		
2. Odour:	characteristic		
3. Odour threshold:	no data available		
4. pH value:	not applicable	aqueous solution, 20 °C	
5. Melting point/ freezing point:	- 43 °C		
6. Initial boiling point/boiling range:	125,8 °C		
7. Flash point:	25 °C		
8. Evaporation rate:	no data available		
9. Flammability:	class A; degree II; group T2		
10. Upper/lower flammability or explosive limits:	no data available		
11. Vapour pressure:	1270 Pa	20 °C	
12. Relative density:	no data available		
13. Solubility(ies):	soluble in the common solvents (acetone, toluene, chloroform, ether), in water: practically insoluble		
14. Partition coefficient: n-octanol/water:	no data available		
15. Self-ignition temperature:	445 °C		
16. Degradation temperature:	no data available		
17. Viscosity:	no data available		
18. Explosive properties:	no data available		
19. Oxidizing properties:	no data available		

9.2. Other information:

Density (20 °C): 0.9753 g/cm³

Vapour density (air =1): 4.07

Diethyl carbonate for active intermediate for synthesis, for pharmaceutical synthesis. Solvent of resins, oils, cellulose esters and nitrocellulose. The product hydrolyses very slowly, while carbon dioxide and ethanol is formed. The vapours of the diethyl carbonate and ethanol can form explosive mixtures with air. Lower explosion limit concentration: 6.2 vol. %.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity:

At normal temperature and general conditions of work stable.

10.2. Chemical stability:

During the distillation done in normal pressure, no decomposition was experienced.

10.3. Possibility of hazardous reactions:

Reacts with strong oxidizing agents.

10.4. Conditions to avoid:

Contact with water.

10.5. Incompatible materials:

Strong oxidizing agents.

10.6. Hazardous decomposition products:

None known.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects:

Acute toxicity: none known.

Skin corrosion/irritation: causes skin irritation.

Serious eye damage/eye irritation: causes serious eye irritation.

Respiratory or skin sensitisation: none known.
Germ cell mutagenicity: none known.
Carcinogenicity: none known.
Reproductive toxicity: none known.
STOT-single exposure: may cause respiratory irritation.
STOT-repeated exposure: none known.
Aspiration hazard: none known.

11.1.1. For substances subject to registration, brief summaries of the information derived from the test conducted:
No data available.

11.1.2. Relevant toxicological properties of the hazardous substances:

Acute toxicity (LD₅₀):

LD₅₀ (oral, rat): 8500 mg/kg.

11.1.3. Information on likely routes of exposure:

Ingestion, inhalation, skin contact, eye contact.

11.1.4. Symptoms related to the physical, chemical and toxicological characteristics:

The product causes eye, skin and respiratory tract/mucous membrane irritation.

11.1.5. Delayed and immediate effects as well as chronic effects from short and long-term exposure:

Causes skin irritation.

Causes serious eye irritation.

May cause respiratory irritation.

11.1.6. Interactive effects:

No data available.

11.1.7. Absence of specific data:

No information.

11.1.8. Other information:

No data available.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity:

No data available.

12.2. Persistence and degradability:

No data available.

12.3. Bioaccumulation potential:

No data available.

12.4. Mobility in soil:

No data available.

12.5. Results of PBT and vPvB assessment:

This substance does not meet the criteria of PBT or vPvB.

12.6. Other adverse effects:

No data available.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods:

Disposal according to the local regulations.

13.1.1. Information regarding the disposal of the product:

Product: The product can be incinerated in a chemical incinerator equipped with an afterburner and scrubber. Do not enter the waste material into soil, drains and watercourses.

European Waste Code:

During the disposal of the product, its residue and its packaging the national and local prescriptions should be observed. The EWC codes indicated below are only recommendations, but they may have to be changed due to special circumstances, in such cases new classification may be needed.

13.1.2. Information regarding the disposal of the packaging:

Packaging: The packaging material contaminated with hazardous waste should be disposed according to the local regulations. The emptied packaging material should be collected and disposed according to the pertinent regulation.

13.1.3. Physical/chemical properties that may affect waste treatment options shall be specified:

None known.

13.1.4. Sewage disposal:

None known.

13.1.5. Special precautions for any recommended waste treatment:

No data available.

SECTION 14: TRANSPORT INFORMATION

- 14.1. UN Number:
2366
- 14.2. UN proper shipping name:
ADR/RID: DIETHYL CARBONATE
IMDG: DIETHYL CARBONATE
IATA: Diethyl carbonate
- 14.3. Transport hazard class(es):
ADR/RID: 3.F1
IMDG: 3
IATA: 3
- 14.4. Packaging group:
ADR/RID: III
IMDG: III
IATA: III
- 14.5. Environmental hazard:
ADR/RID: no
IMDG: no
IATA: no
- 14.6. Special precautions for user:
None.
- 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:
Not applicable.

SECTION 15: REGULATORY INFORMATION

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture:
REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC
- COMMISSION REGULATION (EC) No 790/2009 of 10 August 2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
- REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
- COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- 15.2. Chemical safety assessment: no information available.

SECTION 16: OTHER INFORMATION

Information regarding the revision of the safety data sheet:

The safety data sheet has been revised according to Annex I of Regulation 453/2010/EU (Section 1-16).

There is no change in the hazard classification compared to the previous version (11. 09. 2014).

Full text of the abbreviations in the safety data sheet:

DNEL: Derived no effect level. PNEC: Predicted no effect concentration. CMR effects: carcinogenicity, mutagenicity and toxicity for reproduction: PBT: Persistent, bioaccumulative and toxic. vPvB: very persistent, very bioaccumulative. n.d.: not defined. n.a.: not applicable.

Data sources: n.d.

Relevant R-Phrases (number and full text) of Section 2 and 3:

R 10 - Flammable.

R 36/37/38 - Irritating to eyes, respiratory system and skin.

Relevant H-Phrases (number and full text) of Section 2 and 3:

FRAMOCHEM FRENCH-HUNGARIAN
FINE CHEMICALS LTD.

7 / 8.

DIETHYL CARBONATE

Date of issue: 10. 06. 2006.
Date of revision: 11. 09. 2014.
Version: CLP_C



<http://www.msds-europe.com>

H226 – Flammable liquid and vapour.

H315 – Causes skin irritation.

H319 – Causes serious eye irritation.

H335 – May cause respiratory irritation.

Training instructions: n.d.

This safety data sheet had been prepared on the basis of information provided by the manufacturer/supplier and conform to the relevant regulations. The information, data and recommendations contained herein are provided in good faith, obtained from reliable sources and believed to be true and accurate as of the date issued; however, no representation is made as to the comprehensiveness of the information. The SDS shall be used only as a guide for handling the product; in the course of handling and using the product other considerations may arise or be required. Users are cautioned to determine the appropriateness and applicability of the above information to their particular circumstances and purposes and assume all risk associated with the use of this product. It is the responsibility of the user to fully comply with local, national and international regulations concerning the use of this product.