

SAFETY DATA SHEET
Carbon dioxide, filled in cartridge

Release date: 27/08/2007
Revision date: 2022.03.29.

Version: 2.2
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SECTION 1: Identification of the substance/mixture of the company/undertaking

1.1 Product identifier

Product name: Carbon dioxide, liquid

Trade name: Charger

Additional identifiers

Chemical designation: Carbon dioxide

Chemical formula: CO₂

EU number:

CAS number: 124-38-9

EC number: 204-696-9

REACH registration number: it is included in Annex IV/V to EC Regulation No. 1907/2006 (REACH), it is excluded from registration.

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

Identified uses: industrial food and/or health use

Uses advised against: The product of industrial or technical quality is not suitable for medical and/or food uses and inhalation.

1.4. Emergency telephone number: + 36 80 20 11 99 - Health Toxicological Information Services. H-1096 Budapest, Nagyvárad tér 2.

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SECTION 2: Hazards identification

2.1 Classification of substance or mixture

Classification according to EC 1272/2008 as amended.

Physical hazards

Gas under pressure

Liquid gas

H280: Contains gas under pressure; may explode if heated.

2.2 Label elements



Warning:

Warning

Hazard statements:

H280: Contains gas under pressure; may explode if heated.

Precautionary statements

Prevention:

None

Responses:

None

Storage:

P102 Keep out of reach of children.
P403: Store in a well-ventilated place.
P410 Protect from sunlight.

Disposal:

None

2.3 Other hazards:

Contact with the steaming liquid may cause frostbite.

SECTION 3: Composition and information on ingredients

3.1 Substances

Chemical designation

Carbon dioxide

EU number:

-

CAS number:

124-38-9

EC number:

204-696-9

REACH registration number:

it is included in Annex IV/V to EC Regulation No. 1907/2006 (REACH), it is excluded from registration.

Purity:

100%

In this section, purity only serves for classification and does not reflect the actual purity of the delivered substance for which another documentation must be investigated.

Trade name:

Charger

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SECTION 4: First aid measures

General: It may cause asphyxia in significant concentration. Symptoms may include the loss of motility or consciousness. The injured does not perceive the state of asphyxia. In addition to using a self-contained respiratory apparatus, move the injured to fresh air. Keep them warmly and calmly. In case of respiratory arrest provide artificial respiration. Call a doctor on the spot.

4.1 Description of first aid measures

Inhalation: It may cause asphyxia in significant concentration. Symptoms may include the loss of motility or consciousness. The injured does not perceive the state of asphyxia. In addition to using a self-contained respiratory apparatus, move the injured to fresh air. Keep them warmly and calmly. In case of respiratory arrest provide artificial respiration. Call a doctor on the spot.

Eyes Wash your eyes immediately with water. Remove contact lenses if present and easy to do so. Continue rinsing. Rinse the eyes at least for 15 minutes. Get prompt medical attention. If medical help is not available, continue rinsing the eyes for additional 15 minutes.

Skin Contact with the steaming liquid may cause frostbite.

Ingestion: Ingestion does not belong to the potential exposures.

4.2 Most important symptoms and effects, both acute and delayed: Carbon dioxide is known as the strongest cerebral vasodilator, its inhalation in large concentration causes circulatory dysfunction which may lead to coma and death. Asphyxia probably takes place before the overexposure of carbon dioxide. Chronic, adverse effect is not known in case of repeated inhalation in small concentration. The exposure of small-concentration carbon dioxide may cause increased respiration and headache. Its effects as a result of lack of oxygen may be: shortness of breath, decreased mental alertness, reduced coordination, faulty judgment, depression, emotional instability and fatigue. As the asphyxia advances, it may cause nausea, vomit, drowsiness and loss of consciousness then it may lead to cramps, coma and death. Anoxic conditions during pregnancy may cause malformation in humans and experimental animals.

4.3 Indication of any immediate medical attention and special treatment needed

Hazards: Respiratory paralysis. Due to the fast evaporative cooling, contact with the liquid gas may be harmful (freezing).

Treatment: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: The substance is non-combustible. To extinguish fire in the environment, use suitable extinguishing media.

Unsuitable extinguishing media: None

5.2 Special hazards arising from the substance or mixture: None

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Hazardous combustion products: None

5.3 Advice for firefighters

Special procedures: In case of fire: Stop leak if safe to do so. Use a fire extinguisher to stop fire. Remove ignition source or let it burn.

Special protective equipment for firefighters: Firefighters are expected to use standard protective equipment including fire retardant jacket, helmet with face guard, gloves, rubber boots and a self-contained breathing apparatus. EN Directive 469 Protective clothing for firefighters Performance requirements for protective clothing for firefighting. EN 15090 Footwear for firefighters. EN 659 Protective gloves for firefighters. EN 443 Helmets for firefighting in buildings and other structures. EN 137 Respiratory protective devices. Compressed air breathing apparatus. Requirements, testing, marking.

SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures:** Empty the area. Provide appropriate ventilation. Do not allow it to enter sewers, basement, excavation or other places where its accumulation may be hazardous. When entering the area, use a self-contained respiratory apparatus unless the area has been found safe. EN 137 Respiratory protective devices. Compressed air breathing apparatus. Requirements, testing, marking.
- 6.2 Environmental precautions:** If safe to do so, do not allow additional leak or spill.
- 6.3 Methods and material for containment and cleaning up:** Provide appropriate ventilation.
- 6.4 Reference to other sections:** Refer section 8.

SECTION 7: Handling and storage:

7.1 Precautions for safe handling:

- 7.1.1 Technical precautions** Ensure ventilation, use protective equipment
- 7.1.2 Advice for safe handling** Avoid skin, eye, cloth contact. Avoid the inhalation of the product's mist, steam. Avoid the product's contact with oily, greasy surface. Only use equipment which is suitable for this product, the planned pressure and temperature.

7.2 Conditions for safe storage, including any incompatibilities:

- 7.2.1. Technical measures / Storage conditions** keep in a dry, cool and well-ventilated place in its original, closed packing away from heat and source of ignition.
- 7.2.2 Incompatible products** N/A
- 7.2.3 Packings** in retail packings and/or in bulk

7.3 Specific end uses (end uses):
none

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SECTION 8: Exposure controls and personal protection

8.1 Control parameters

Occupational exposure limits

| Chemical designation | Type | Exposure limits | Source |
|----------------------|------|--------------------------|---|
| Carbon dioxide | TWA | 5.000 ppm 9.000 mg/m3 | EU. Indicative exposure limits according to Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU (2009. 09.) |
| | AK | 9.000 mg/m3 | Occupational exposure limit value (OEL), Joint Decree No. 25/2000 (IX. 30.) of the Ministry of Health and the Ministry of Social and Family Affairs on the chemical safety of workplaces. (2007. 12.) |

8.2 Protection against exposure

provide ventilation, use protective equipment. Avoid the inhalation of the product's mist, steam. Avoid skin, eye, cloth contact.

8.2.1. Occupational exposure controls

8.2.1.1. Respiratory protection



in case of inadequate ventilation or extraction, use a respiratory apparatus. In a closed area use a self-contained respiratory apparatus.

8.2.1.2 Hand protection:



protective gloves, (MSZ EN-388)

8.2.1.3. Eye protection



tightly fitting protective glasses (EN 166),

8.2.1.4. Skin protection

safety shoes (MSZ EN 345-1, SB)

8.2.2. Environmental exposure controls

avoid release to sewer, pits and basement.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

External characteristics

Physical state: Gas
Form: Liquid gas
Colour: Colourless

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| | |
|--|---|
| Odour: | Odourless |
| Odour threshold: | The odour threshold is subjective and not suitable for the warning of excessive exposure. |
| pH value: | 3.2 - 3.7 pH value of saturated CO ₂ solutions range between 3.7 and 3.2 at a pressure of 101 KPa (1 atm) and 2,370 KPa (23,4 atm) |
| Melting point: | -56.6 °C |
| Boiling point: | -78.5 °C |
| Sublimation point: | -78.5 °C |
| Critical temperature (°C): | 31.0 °C |
| Flash point: | Not applicable to gases and gas mixtures. |
| Evaporation rate: | Not applicable to gases and gas mixtures. |
| Flammability (solid, gas): | Non-flammable gas |
| Explosive limit - Top (%)-: | not applicable. |
| Explosive limit - Lower (%)-: | not applicable. |
| Vapour pressure: | 45.1 bar (10 °C) |
| Vapour density (air=1): | 1.522 (21 °C) |
| Relative density: | 1.512 (-56.6 °C) |
| Solubility | |
| Water: | 2.900 mg/l (25 °C) |
| Partition coefficient: (n-octanol/water): | 0.83 |
| Auto-ignition temperature: | not applicable. |
| Decomposition temperature: | Not determined. |
| Viscosity | |
| Cinematic viscosity: | Not determined. |
| Dynamic viscosity: | 0.07 mPa.s (20 °C) 0.02 mPa.s (20 °C) |
| Explosive properties: | Not applicable. |
| Oxidising properties: | not applicable. |

9.2 OTHER INFORMATION:

Its gas/vapour is heavier than air. In closed areas, it may accumulate easily, especially on the floor or in low-lying areas.

Molecular weight: 44.01 g/mol (CO₂)

SECTION 10: Stability and reactivity

| | |
|---|--|
| 10.1 Reactivity | As regards reactivity, there is no additional hazards in addition to those included in this section. |
| 10.2 Chemical stability: | Stable under normal circumstances. |
| 10.3 Possibility of hazardous reactions: | None |
| 10.4 Conditions to avoid: | None |
| 10.5 Incompatible materials: | It does not react with any substance under neither dry nor wet circumstances. |

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10.6 Hazardous decomposition products: No hazardous decomposition products would be expected under the normal conditions of use and storage.

SECTION 11: Toxicological information

General information: In large concentration, it may cause the fast deterioration of circulation even at average level of oxygen concentration. The symptoms may be a headache, nausea, vomit which may lead to loss of consciousness or even death.

11.1 Information on toxicological effects

Acute toxicity - Ingestion
Product Based on the available data the criteria for classification is not possible.

Acute toxicity - Skin contact
Product Based on the available data the criteria for classification is not possible.

Acute toxicity - Inhalation
Product Based on the available data the criteria for classification is not possible.

Skin corrosion/Skin irritation
Product Based on the available data the criteria for classification is not possible.

Serious eye damage/Eye irritation
Product Based on the available data the criteria for classification is not possible.

Respiratory or skin sensitization
Product Based on the available data the criteria for classification is not possible.

Germ cell mutagenicity
Product Based on the available data the criteria for classification is not possible.

Carcinogenicity
Product Based on the available data the criteria for classification is not possible.

Reproductive toxicity
Product Based on the available data the criteria for classification is not possible.

Target organ toxicity - single exposure
Product Based on the available data the criteria for classification is not possible.

Target organ toxicity - repeated exposure
Product Based on the available data the criteria for classification is not possible.

Aspiration hazard
Product Not applicable to gases and gas mixtures.

SECTION 12: Ecological information

12.1 Toxicity

Acute toxicity
Product This product does not cause ecological damages.

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12.2 Persistence and degradability

Product Not applicable to gases and gas mixtures.

12.3 Bioaccumulation

Product The respective product is expected to degrade biologically and does not survive for long in the aquatic environment.

12.4 Mobility in soil

Product Due to its high volatility, the soil or water pollution of the product is not possible.

12.5 Results of PBT and vPvB assessment

Product Not classified as PBT or vPvB substance.

12.6 Other adverse effects:

Global warming potential

Global warming potential: 1
When it is emitted in large volume, it may contribute to the greenhouse effect.

Carbon dioxide Global warming potential: 1

SECTION 13: Disposal considerations

13.1 Product disposal

The product became unsuitable for further use arising from the substance or formulation, the tools and packaging contaminated with the substance shall be transported to an authorised operator for additional utilisation/disposal.

13.2 Packing disposal

the packing may be treated similarly to the product.

13.3 EWC data

15 01 05 mixed composite packaging

SECTION 14: Transport information

ADR/ADN/RID

14.1 UN number: UN 2037
14.2 Shipping name: Small containers filled with gas (gas cartridges)
14.3 Hazard class(es)
Class: 2
Risk label(s): 2.2
Classification code: 5A
Hazard identification (Kemler) number: 20
Tunnel restriction code: (E)
14.4 Packing group: —
14.5 Environmental hazards: no
14.6 Special precautions for user: —



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IMDG

14.1 UN number: UN 2037
14.2 Shipping name: Small containers filled with gas (gas cartridges)
14.3 Hazard class(es)
Class: 2
Risk label(s): 2.2
EmS No.: F-D, S-U
14.3 Packing group: -
14.5 Marine pollutant: no
14.6 Special precautions for user: -

IATA

14.1 UN number: UN 2037
14.2 Shipping name: Small containers filled with gas (gas cartridges)
14.3 Hazard class(es)
Class: 2.2
Risk label(s): 2.2
14.4 Packing group: -
14.5 Environmental hazards: not applicable.
14.6 Special precautions for user: -

OTHER INFORMATION

Passenger and cargo aircraft: Authorised.
Only cargo aircraft: Authorised.
PAX Y203, 203
CAO 203

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code: not applicable

Additional identifiers

Avoid transport in vehicles which do not have a hold separate from the cab. The driver shall know the possible hazards of the freight and the measures to be taken in case of an accident or danger. Before the product's transport make sure it is safe. Ensure adequate ventilation.

SECTION 15: Regulatory information

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

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15.1.1 Key regulations for the product

Act XCIII of 1993 on health and safety and related regulations
Act CLXXXV of 2012 on waste
Act XXV of 2000 on chemical safety
Government Decree No. 225/2015. (VIII. 7.) on the detailed rules of specific activities in connection with hazardous waste
Joint Decree No. 3/2002. (II. 8.) of the Ministry of Health and the Ministry of Social and Family Affairs on the minimum level of occupational safety requirements of workplaces
Decree No. 54/2014. (XII. 5.) of the Ministry of Internal Affairs on the National Fire Safety Regulations
Decree No. 44/2000. (XII. 20.) of the Ministry of Health on the detailed rules of specific procedures and activities in connection with hazardous substances and formulations
Joint Decree No. 5/2020. (II. 6.) of the Ministry of Innovation and Technology On the protection of the health and safety of workers from the risks related to chemical agents
EC Regulation 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
EC Regulation 1272/2008 on the classification, labelling and packaging of substances and mixtures (CLP).
This Safety Data Sheet has been made in compliance with EU Regulation 830/2015.

15.1.2 Other respective regulation

EWC codes: Decree No. 72/2013. (VIII. 27.) of the Ministry of Rural Development on waste list
Road transport: Decree No. 387/2021 (VI. 30.) of the Government on the publication and national application of Annex 'A' and 'B' of the European Agreement on the International Road Transport of Hazardous

15.2. 15.2 Chemical safety assessment:

not necessary

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SECTION 16: Other information

Information on revisions: 2.0 - Sections: 1.1, 2, 3, 4, 6, 8.1, 9, 10, 11, 12,
2.1 - Revised according to EU Regulation 830/2015 Removal of DSD information
2.2 - Sections: 1.3, 2.2, 15.1.1, 15.1.2, 16.2

Full text of H statements in sections 2 and 3

H280 Contains gas under pressure; may explode if heated.

Information on training: Appropriate use of respiratory apparatus shall be exercised. The risk of asphyxia shall be emphasised more frequently during the training of the operators. Take special care to train the employees so that they become familiar with product hazards.

Classification according to EC 1272/2008 as amended.

Press. Gas Liq. Gas, H280

16.1 General information

This information applies to the PRODUCT AS SOLD and complies with the undertaking's specification.
In case of products and mixtures, make sure that no new risk arises.
Information included in the data sheet is based on our best knowledge existing at the date of the safety data sheet's print. However, the revision of some data is in progress.
The attention of the users is drawn to the possibility of further hazards if the product is used for other purposes than the recommendations. This data sheet may be used and reproduced only for prevention and safety purposes.
References to legislation, regulations and practical rules, documents shall not be considered to be full.
The person taking over the product shall be liable to investigate all official documents in connection with the product use and handling.
It is also the responsibility of persons handling the product that all information necessary included in the safety data sheet and necessary for work safety, protection of health and environment forward all persons who get in contact with the product (use, storage, cleaning of containers, other procedures).

16.2 Technical advisory service

Liss Patrongyártó, Töltő és Forgalmazó Zrt.
Address: 9653 Répcelak, 947/18 hrsz.
Tel: +36 209 500 100

16.3 Sources of data used for the safety data sheet

Safety data sheet – Liss Kft (2005.05.17) Liss Product data sheet