# Safety Data Sheet

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

# Carbon dioxide / CO2

Version number: 4.0
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## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

**Trade name** **Carbon dioxide / CO2**

**Registration number (REACH)** This information is not available.

**EC number** 204-696-9

**CAS number** 124-38-9

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

**Relevant identified uses** Fire extinguishing agent

### 1.3 Details of the supplier of the safety data sheet

Minimax GmbH
Industriestrasse 10/12
23840 Bad Oldesloe
Germany

Telephone: +49 (0) 4531 - 803 0
e-mail: mv_rd_spezial@mx-vk.eu
Website: www.minimax.de

**e-mail (competent person)** sdb@csb-compliance.com

Please do not use this e-mail address to ask for the latest safety data sheet. For this purpose contact Minimax GmbH.

### 1.4 Emergency telephone number

**Emergency information** Consultank GmbH +49 (0) 178 433 7434

As above or nearest toxicological information centre.

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Classification according to Regulation (EC) No 1272/2008 (CLP)**

| Classification | | | | |
|---|---|---|---|---|
| **Section** | **Hazard class** | **Category** | **Hazard class and category** | **Hazard state-ment** |
| 2.5 | gas under pressure | C | Press. Gas C | H280 |

For full text of abbreviations: see SECTION 16

**The most important adverse physicochemical, human health and environmental effects**

May displace oxygen and cause rapid suffocation.
Victim may not be aware of asphyxiation.
Contains gas under pressure; may explode if heated.

## 2.2 Label elements

**Labelling according to Regulation (EC) No 1272/2008 (CLP)**

**Signal word** warning

**Pictograms**

**GHS04**

**Hazard statements**

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

**Precautionary statements**

**P410** Protect from sunlight.

## 2.3 Other hazards

**Results of PBT and vPvB assessment**

According to the results of its assessment, this substance is not a PBT or a vPvB.

**Endocrine disrupting properties**

Not listed.

# SECTION 3: Composition/information on ingredients

## 3.1 Substances

| | |
|---|---|
| **Name of substance** | carbon dioxide |
| **Identifiers** | |
| CAS No | 124-38-9 |
| EC No | 204-696-9 |
| **Molecular formula** | CO2 |
| **Molar mass** | 44.01 $^{g}/_{mol}$ |

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General notes

Remove victim out of the danger area
In case of inadequate ventilation wear respiratory protection. (Self-contained breathing apparatus (EN 133)).
In all cases of doubt, or when symptoms persist, seek medical advice.

#### Following inhalation

Provide fresh air.
If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Mouth to mouth resuscitation should be avoided. Use alternative methods, preferably with oxygen or compressed air driven apparatus.

#### Following skin contact

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

#### Following eye contact

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

#### Following ingestion

Get medical advice/attention if you feel unwell.

#### Notes for the doctor

None.

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

Vertigo.
Disorientation.
Unconsciousness.
Large doses may result in coma and death (>8%).

### 4.3 Indication of any immediate medical attention and special treatment needed

None.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Co-ordinate firefighting measures to the fire surroundings

### 5.2 Special hazards arising from the substance or mixture

Hazardous decomposition products: Section 10.
Contact with the product can cause burns and/or frostbite.
Contains gas under pressure; may explode if heated.

**Hazardous combustion products**

carbon dioxide (CO2)

### 5.3 Advice for firefighters

Non-combustible.
In case of fire and/or explosion do not breathe fumes.
Co-ordinate firefighting measures to the fire surroundings.
Collect contaminated firefighting water separately.
Fight fire with normal precautions from a reasonable distance.

**Special protective equipment for firefighters**

Use suitable breathing apparatus

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel**

Remove persons to safety.
Ventilate affected area.

**For emergency responders**

Wear breathing apparatus if exposed to vapours/dust/spray/gases.
Self-contained breathing apparatus.

### 6.2 Environmental precautions

Not required.

### 6.3 Methods and material for containment and cleaning up

**Advice on how to clean up a spill**

Not applicable.

**Other information relating to spills and releases**

Ventilate affected area.

### 6.4 Reference to other sections

Hazardous combustion products: see section 5.
Personal protective equipment: see section 8.
Incompatible materials: see section 10.
Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Do not breathe gas.

**Measures to prevent fire as well as aerosol and dust generation**

Use local and general ventilation.

**Specific notes/details**

None.

**Measures to protect the environment**

Refer to manufacturer/supplier for information on recovery/recycling.

**Advice on general occupational hygiene**

Do not eat, drink and smoke in work areas.

### 7.2 Conditions for safe storage, including any incompatibilities

**Flammability hazards**

None.

**Incompatible substances or mixtures**

Incompatible materials: see section 10.

**Protect against external exposure, such as**

heat

**Consideration of other advice**

Keep away from food, drink and animal feeding stuffs.

**Ventilation requirements**

Provision of sufficient ventilation.

**Specific designs for storage rooms or vessels**

Keep container tightly closed and in a well-ventilated place.

**Packaging compatibilities**

Only packagings which are approved (e.g. acc. to ADR) may be used.

### 7.3 Specific end use(s)

No information available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**Occupational exposure limit values (Workplace Exposure Limits)**

| Country | Name of agent | CAS No | Identifier | TWA [ppm] | TWA [mg/m³] | STEL [ppm] | STEL [mg/m³] | Notation | Source |
|---|---|---|---|---|---|---|---|---|---|
| EU | carbon dioxide | 124-38-9 | IOELV | 5,000 | 9,000 | - | - | - | 2006/15/EC |

**Notation**

| | |
|---|---|
| STEL | short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified) |
| TWA | time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified) |

### 8.2 Exposure controls

**Appropriate engineering controls**

Use local and general ventilation.

**Individual protection measures (personal protective equipment)**

**Eye/face protection**

Not required.

**Hand protection**

Wear suitable gloves.
Protect against external exposure, such as cold

**Respiratory protection**

In case of inadequate ventilation wear respiratory protection.
Self-contained breathing apparatus (EN 133).

**Environmental exposure controls**

Do not empty into drains.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

| | |
|---|---|
| **Physical state** | gaseous (compressed) |
| **Colour** | colourless |
| **Odour** | odourless or like citrus fruits (odorant) |
| **Melting point/freezing point** | not applicable (decomposition or sublimation occur prior to or during melting) |
| **Sublimation point** | -78.5 °C |
| **Boiling point or initial boiling point and boiling range** | not applicable (1013 mbar) |
| **Flammability** | non-combustible |
| **Lower and upper explosion limit** | not applicable |
| **Flash point** | not applicable |
| **Auto-ignition temperature** | not applicable |
| **Decomposition temperature** | >2,000 °C |
| **pH (value)** | 3.7 |
| **Viscosity** | not relevant (gaseous) |

| | |
|---|---|
| **Solubility(ies)** | |
| Water solubility | 1.7 $^{g}/_{l}$ at 20 °C |
| **Partition coefficient n-octanol/water (log value)** | not relevant<br>(inorganic) |
| **Vapour pressure** | 57,300 hPa at 20 °C |
| **Density and/or relative density** | |
| Density | 0.00197 $^{g}/_{cm^3}$ at 0 °C<br>(gaseous) |
| Relative vapour density | 1.53 (air = 1) |
| **Particle characteristics** | not relevant<br>(gaseous) |

### 9.2 Other information

| | |
|---|---|
| **Information with regard to physical hazard classes** | there is no additional information |
| **Other safety characteristics** | there is no additional information |

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

This material is not reactive under normal ambient conditions.

If heated:

Gas under pressure. Danger of bursting container.

### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
See below "Conditions to avoid".

### 10.3 Possibility of hazardous reactions

No known hazardous reactions.

### 10.4 Conditions to avoid

Contains gas under pressure; may explode if heated.

### 10.5 Incompatible materials

bases, amine, Metal as dust (Aluminium, chromium, magnesium, manganese, titanium, Zirconium), ammonia (NH3), ammonium compounds, peroxide, inorganic, alkali metal, metal hydride

### 10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.
Hazardous combustion products: see section 5.

## SECTION 11: Toxicological information

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

If not otherwise specified the classification is based on:

Animal studies; Evidence from any other toxicity tests; Expert judgement (weight of evidence determination).

#### Classification according to GHS (1272/2008/EC, CLP)

**Acute toxicity**

| Value |
|---|
| LDLo(rat): 6pph/24h/10d |
| LDLo(human): 9pph/5min |

**Skin corrosion/irritation**

Shall not be classified as corrosive/irritant to skin.

**Serious eye damage/eye irritation**

Shall not be classified as seriously damaging to the eye or eye irritant.

**Respiratory or skin sensitisation**
**Skin sensitisation**

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Respiratory sensitisation**

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Germ cell mutagenicity**

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Carcinogenicity**

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Reproductive toxicity**

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Specific target organ toxicity - single exposure**

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Specific target organ toxicity - repeated exposure**

Classification could not be established because:
Data are lacking, inconclusive, or conclusive but not sufficient for classification.

**Aspiration hazard**

Shall not be classified as presenting an aspiration hazard.

**Symptoms related to the physical, chemical and toxicological characteristics**

If inhaled:

Large doses may result in coma and death (>8 %).

### 11.2 Information on other hazards

**Endocrine disrupting properties**

Not listed.

## SECTION 12: Ecological information

### 12.1 Toxicity

**Aquatic toxicity (acute)**

No data available.

**Aquatic toxicity (chronic)**

No data available.

### 12.2 Persistence and degradability

**Biodegradation**

The study does not need to be conducted because the substance is inorganic.

**Persistence**

The study does not need to be conducted because the substance is inorganic.

### 12.3 Bioaccumulative potential

No data available.

| | |
|---|---|
| **n-octanol/water (log KOW)** | not relevant (inorganic) |

### 12.4 Mobility in soil

No data available.

### 12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

### 12.6 Endocrine disrupting properties

Not listed.

### 12.7 Other adverse effects

Data are not available.

| | |
|---|---|
| **Ozone depletion potential** | 0 |
| **Global warming potential** | 1 |

**Remarks**

Wassergefährdungsklasse, WGK (water hazard class): nwg

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Refer to manufacturer or supplier for information on recovery or recycling.

**Sewage disposal-relevant information**

Do not empty into drains.

**Waste treatment of containers/packagings**

Refer to manufacturer/supplier for information on recovery/recycling.

**Remarks**

Please consider the relevant national or regional provisions.

## SECTION 14: Transport information

### 14.1 UN number or ID number

| | |
|---|---|
| **ADR/RID/ADN** | UN1013 |
| **IMDG-Code** | UN1013 |
| **ICAO-TI** | UN1013 |

### 14.2 UN proper shipping name

| | |
|---|---|
| **ADR/RID/ADN** | CARBON DIOXIDE |
| **IMDG-Code** | CARBON DIOXIDE |
| **ICAO-TI** | Carbon dioxide |

### 14.3 Transport hazard class(es)

| | |
|---|---|
| **ADR/RID/ADN** | 2 (2.2) |
| **IMDG-Code** | 2.2 |
| **ICAO-TI** | 2.2 |

### 14.4 Packing group

-

| | | |
|---|---|---|
| **14.5** | **Environmental hazards** | - |
| **14.6** | **Special precautions for user** | - |
| **14.7** | **Maritime transport in bulk according to IMO instruments** | - |

**14.8 Information for each of the UN Model Regulations**

**Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) Additional information**

| | |
|---|---|
| Particulars in the transport document | UN1013, CARBON DIOXIDE, 2.2, (C/E) |
| Classification code | 2A |
| Danger label(s) | 2.2 |

| | |
|---|---|
| Special provisions (SP) | 378, 584, 653, 662 |
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 120 ml |
| Transport category (TC) | 3 |
| Tunnel restriction code (TRC) | C/E |
| Hazard identification No | 20 |

**European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) Additional information**

| | |
|---|---|
| Number of cones/blue lights | 0 |

**International Maritime Dangerous Goods Code (IMDG) Additional information**

| | |
|---|---|
| Marine pollutant | - |
| Danger label(s) | 2.2 |

| | |
|---|---|
| Special provisions (SP) | - |
| Excepted quantities (EQ) | E1 |
| Limited quantities (LQ) | 120 mL |
| EmS | F-C, S-V |
| Stowage category | A |

**International Civil Aviation Organization (ICAO-IATA/DGR) Additional information**

| | |
|---|---|
| Danger label(s) | 2.2 |

| | |
|---|---|
| Excepted quantities (EQ) | E1 |

## SECTION 15: Regulatory information

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

**Relevant provisions of the European Union (EU)**

**Restrictions according to REACH, Annex XVII**

Not listed.

**List of substances subject to authorisation (REACH, Annex XIV) / SVHC - candidate list**

Not listed.

**Seveso Directive**

Not assigned.

**Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)**

Not listed.

**Regulation on the marketing and use of explosives precursors**

Not listed.

**Regulation on drug precursors**

Not listed.

**Regulation on substances that deplete the ozone layer (ODS)**

Not listed.

**Regulation concerning the export and import of hazardous chemicals (PIC)**

Not listed.

**Regulation on persistent organic pollutants (POP)**

Not listed.

### 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance by the supplier.

## SECTION 16: Other information

### Abbreviations and acronyms

| Abbr. | Descriptions of used abbreviations |
|---|---|
| 2006/15/EC | Commission Directive establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC |
| ADN | Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways) |
| ADR | Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road) |
| ADR/RID/ADN | Agreements concerning the International Carriage of Dangerous Goods by Road/Rail/Inland Waterways (ADR/RID/ADN) |
| CAS | Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances) |
| CLP | Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures |
| DGR | Dangerous Goods Regulations (see IATA/DGR) |
| EC No | The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union) |
| EINECS | European Inventory of Existing Commercial Chemical Substances |
| ELINCS | European List of Notified Chemical Substances |
| EmS | Emergency Schedule |
| GHS | "Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations |
| IATA | International Air Transport Association |
| IATA/DGR | Dangerous Goods Regulations (DGR) for the air transport (IATA) |
| ICAO | International Civil Aviation Organization |
| ICAO-TI | Technical instructions for the safe transport of dangerous goods by air |
| IMDG | International Maritime Dangerous Goods Code |
| IMDG-Code | International Maritime Dangerous Goods Code |
| IOELV | Indicative occupational exposure limit value |
| NLP | No-Longer Polymer |
| PBT | Persistent, Bioaccumulative and Toxic |
| ppm | Parts per million |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals |
| RID | Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail) |

| Abbr. | Descriptions of used abbreviations |
|---|---|
| STEL | Short-term exposure limit |
| SVHC | Substance of Very High Concern |
| TWA | Time-weighted average |
| vPvB | Very Persistent and very Bioaccumulative |

### Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.
Regulation (EC) No. 1907/2006 (REACH).

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN).
International Maritime Dangerous Goods Code (IMDG).
Dangerous Goods Regulations (DGR) for the air transport (IATA).

### List of relevant phrases (code and full text as stated in section 2 and 3)

| Code | Text |
|---|---|
| H280 | Contains gas under pressure; may explode if heated. |

### Responsible for the safety data sheet

C.S.B. GmbH
Dujardinstr. 5
47829 Krefeld, Germany

Telephone: +49 (0) 2151 - 652086 - 0
Telefax: +49 (0) 2151 - 652086 - 9
e-Mail: info@csb-compliance.com
Website: www.csb-compliance.com

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This SDS has been compiled and is solely intended for this product.
This safety data sheet is for information only and does not comply with the official language requirements of article 31 (5) of REACH.