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

1.1 Product identifier

**Trade name**  | Kohlendioxid / CO2
---|---

**Registration number (REACH)**  
A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

**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 & Co.KG  
Industriestrasse 10/12  
23840 Bad Oldesloe  
Germany  
Telephone: +49 (0) 4531 - 803 0  
Telefax: +49 (0) 4531 - 803 248  
Website: www.minimax.de

**National contact**

<table>
<thead>
<tr>
<th>National contact</th>
<th>e-Mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>MV Global R&amp;D - Technical Product Management - Inert Gas / CO2-based products</td>
<td><a href="mailto:ClaessenT@minimax.de">ClaessenT@minimax.de</a></td>
</tr>
</tbody>
</table>

**e-mail (competent person)**  | sdb@csb-online.de

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

1.4 Emergency telephone number

**Emergency information service**  | Consultank GmbH +49 (0) 178 433 7434
Kohlendioxid / CO2

Poison centre

<table>
<thead>
<tr>
<th>Country</th>
<th>Name</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>Giftinformationszentrum - Nord Göttingen</td>
<td>+49 551 19240</td>
</tr>
</tbody>
</table>

As above or next toxicological information centre.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

<table>
<thead>
<tr>
<th>Classification acc. to GHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>2.5</td>
</tr>
</tbody>
</table>

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.

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

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

There is no additional information.

Results of PBT and vPvB assessment

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

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

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
Breathing difficulties.
Unconsciousness.

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.

5.3 Advice for firefighters
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.

6.2 Environmental precautions
not required

6.3 Methods and material for containment and cleaning up
Advices 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
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
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 feedingstuffs.
Ventilation requirements
Provision of sufficient ventilation.
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)

<table>
<thead>
<tr>
<th>Country</th>
<th>Name of agent</th>
<th>CAS No</th>
<th>Notation</th>
<th>Identifier</th>
<th>TWA [ppm]</th>
<th>TWA [mg/m³]</th>
<th>STEL [ppm]</th>
<th>STEL [mg/m³]</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU</td>
<td>carbon dioxide</td>
<td>124-38-9</td>
<td>IOELV</td>
<td></td>
<td>5,000</td>
<td>9,000</td>
<td></td>
<td></td>
<td>2006/15/EC</td>
</tr>
<tr>
<td>GB</td>
<td>carbon dioxide</td>
<td>124-38-9</td>
<td>WEL</td>
<td></td>
<td>5,000</td>
<td>9,150</td>
<td>15,000</td>
<td>27,400</td>
<td>EH40/2005</td>
</tr>
</tbody>
</table>

**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

8.2 Exposure controls

**Appropriate engineering controls**

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**

Use appropriate container to avoid environmental contamination.
Keep away from drains, surface and ground water.
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

**Appearance**
- Physical state: gaseous
- Form: compressed
- Colour: colourless
- Odour: odourless or of citrus fruits (odorant)

**Other safety parameters**
- pH (value): 3.7
- Melting point/freezing point: these information are not available
- Initial boiling point and boiling range: these information are not available
- Flash point: not applicable
- Evaporation rate: these information are not available
- Flammability (solid, gas): non-combustible

**Explosive limits**
- Lower explosion limit (LEL): these information are not available
- Upper explosion limit (UEL): these information are not available
- Vapour pressure: 57,300 hPa at 20 °C
- Density: 0.001847 g/cm³ at 15 °C
- Vapour density: these information are not available
- Relative density: 1.53 (air = 1)

**Solubility(ies)**
- Water solubility: 1.7 g/l at 20 °C

**Partition coefficient**
- n-octanol/water (log KOW): these information are not available
- Auto-ignition temperature: these information are not available
- Relative self-ignition temperature for solids: not relevant (Gaseous)
- Decomposition temperature: >2,000 °C
### Kohlendioxid / CO2

#### Viscosity
- **Kinematic viscosity**: not relevant (gaseous)
- **Dynamic viscosity**: not relevant (gaseous)
- **Explosive properties**: not explosive
- **Oxidising properties**: shall not be classified as oxidising

#### 9.2 Other information
None

## SECTION 10: Stability and reactivity

### 10.1 Reactivity
Gas under pressure.
If heated:
danger of explosion, gas under pressure, danger of bursting container

### 10.2 Chemical stability
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

### 10.6 Hazardous decomposition products
Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects
If not otherwise specified the classification is based on:
Animal studies; Evidence from any other toxicity tests; Expert judgement (weight of evidence determination).
Kohlendioxid / CO2

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

**Acute toxicity**

<table>
<thead>
<tr>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDLo(rat): 6pph/24h/10d</td>
</tr>
<tr>
<td>LDLo(human): 9pph/5min</td>
</tr>
</tbody>
</table>

**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.
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

Data are not available.

12.4  Mobility in soil

Data are not 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  Other adverse effects

Data are not available.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone depletion potential</td>
<td>0</td>
</tr>
<tr>
<td>Global warming potential</td>
<td>1</td>
</tr>
</tbody>
</table>

Endocrine disrupting potential
Not listed.

Remarks
Water hazard class - WHC (Wassergefährdungsklasse): nwg (Non-hazardous to water)
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
1013

14.2 UN proper shipping name
CARBON DIOXIDE

14.3 Transport hazard class(es)

<table>
<thead>
<tr>
<th>Class</th>
<th>Subsidiary risk(s)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2</td>
<td>2.2 (gas under pressure)</td>
<td></td>
</tr>
</tbody>
</table>

14.4 Packing group
not assigned to a packing group

14.5 Environmental hazards
non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user
Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code
The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

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

<table>
<thead>
<tr>
<th>UN number</th>
<th>Proper shipping name</th>
<th>Class</th>
<th>Classification code</th>
<th>Danger label(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1013</td>
<td>UN1013, CARBON DIOXIDE, 2.2, (C/E)</td>
<td>2</td>
<td>2A</td>
<td>2.2</td>
</tr>
</tbody>
</table>
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
Emergency Action Code 2T

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

UN number 1013
Proper shipping name UN1013, CARBON DIOXIDE, 2.2
Class 2.2
Danger label(s) 2.2

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

UN number 1013
Proper shipping name UN1013, Carbon dioxide, 2.2
Class 2.2
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)**

not listed

**Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II**

not listed

**Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)**

<table>
<thead>
<tr>
<th>Name of substance</th>
<th>CAS No</th>
<th>Remarks</th>
<th>Threshold for releases to air (kg/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>carbon dioxide</td>
<td>124-38-9</td>
<td></td>
<td>100 million</td>
</tr>
</tbody>
</table>

**Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)**

not listed

**Regulation 98/2013/EU on the marketing and use of explosives precursors**

not listed

**SECTION 16: Other information**

**Indication of changes (revised safety data sheet)**

Indication of changes: Section 1

**Abbreviations and acronyms**

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>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)</td>
</tr>
<tr>
<td>ADR</td>
<td>Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)</td>
</tr>
</tbody>
</table>
**Kohlendioxid / CO₂**

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLP</td>
<td>Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures</td>
</tr>
<tr>
<td>DGR</td>
<td>Dangerous Goods Regulations (see IATA/DGR)</td>
</tr>
<tr>
<td>EC No</td>
<td>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)</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Commercial Chemical Substances</td>
</tr>
<tr>
<td>ELINCS</td>
<td>European List of Notified Chemical Substances</td>
</tr>
<tr>
<td>EmS</td>
<td>Emergency Schedule</td>
</tr>
<tr>
<td>GHS</td>
<td>&quot;Globally Harmonized System of Classification and Labelling of Chemicals&quot; developed by the United Nations</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>IATA/DGR</td>
<td>Dangerous Goods Regulations (DGR) for the air transport (IATA)</td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods Code</td>
</tr>
<tr>
<td>JOELV</td>
<td>Indicative occupational exposure limit value</td>
</tr>
<tr>
<td>MARPOL</td>
<td>International Convention for the Prevention of Pollution from Ships (abbr. of &quot;Marine Pollutant&quot;)</td>
</tr>
<tr>
<td>NLP</td>
<td>No-Longer Polymer</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent, Bioaccumulative and Toxic</td>
</tr>
<tr>
<td>ppm</td>
<td>Parts per million</td>
</tr>
<tr>
<td>REACH</td>
<td>Registration, Evaluation, Authorisation and Restriction of Chemicals</td>
</tr>
<tr>
<td>RID</td>
<td>Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)</td>
</tr>
<tr>
<td>STEL</td>
<td>Short-term exposure limit</td>
</tr>
<tr>
<td>TWA</td>
<td>Time-weighted average</td>
</tr>
<tr>
<td>vPvB</td>
<td>Very Persistent and very Bioaccumulative</td>
</tr>
<tr>
<td>WEL</td>
<td>Workplace exposure limit</td>
</tr>
</tbody>
</table>

**Key literature references and sources for data**

Kohlendioxid / CO2

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 chapter 2 and 3)

<table>
<thead>
<tr>
<th>Code</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>H280</td>
<td>Contains gas under pressure; may explode if heated.</td>
</tr>
</tbody>
</table>

Responsible for the safety data sheet

C.S.B. GmbH
Düsseldorfer Str. 113
47809 Krefeld

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

Disclaimer

This information is based upon the present state of our knowledge.
This SDS has been compiled and is solely intended for this product.