

Safety Data Sheet

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

Carbon dioxide / CO2

Version number: 4.0
Replaces version of: 2014-08-25 (3)

Revision: 2023-02-27
First version: 14.07.2014

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

1.1 Product identifier

Trade name	<u>Carbon dioxide / CO2</u>
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
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1.3 Details of the supplier of the safety data sheet

Minimax GmbH	Telephone: +49 (0) 4531 - 803 0
Industriestrasse 10/12	e-mail: mv_rd_spezial@mx-vk.eu
23840 Bad Oldesloe	Website: www.minimax.de
Germany	

e-mail (competent person)	sdb@csb-compliance.com
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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 statement
2.5	gas under pressure	C	Press. Gas C	H280

For full text of abbreviations: see SECTION 16

Carbon dioxide / CO₂

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.

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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.

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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/m ³]	STEL [ppm]	STEL [mg/m ³]	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)

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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)

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Solubility(ies)

Water solubility 1.7 g/l at 20 °C

Partition coefficient n-octanol/water (log value) not relevant
(inorganic)

Vapour pressure 57,300 hPa at 20 °C

Density and/or relative density

Density 0.00197 g/cm³ at 0 °C
(gaseous)

Relative vapour density 1.53 (air = 1)

Particle characteristics not relevant
(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.

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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

-

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- 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
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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

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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.

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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)

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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

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Disclaimer

This information is based upon the present state of our knowledge.

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.