



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH) and Regulation (EU) No. 2015/830

Revision date: 23/1/2019  
Version: 11  
Language: en-GB,IE  
Date of print: 20/3/2020

## Carbon dioxide

Material number 4042X/4068X/4092X

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

#### 1.1 Product identifier

Trade name: Carbon dioxide  
This safety data sheet pertains to the following products:  
40422040: 425 g bottle  
40424000: 2 kg bottle  
40423000: 2 kg bottle  
40422000: 4 x 425 g Bottle  
40687000: 4 x 425 g Bottle  
40920000: 18 x 425 g Bottle  
40921000: 18 x 425 g Bottle

CAS-Number: 124-38-9  
EC-number: 204-696-9

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

General use: Propellant for food and beverages (E290)  
Food Additive

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

Company name: Grohe AG  
Street/POB-No.: Industriepark Edelburg  
Postal Code, city: 58675 Hemer  
Germany  
WWW: www.grohe.com  
E-mail: info@grohe.com  
Telephone: +49 (0)2372 93-0  
Telefax: +49 (0)2372 93-1322  
Department responsible for information:  
Telephone: +49 (0)2372 93-2037  
sustainability@grohe.com

#### 1.4 Emergency telephone number

GIZ-Nord, Göttingen, Germany,  
Telephone: +49 551-19240

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification according to EC regulation 1272/2008 (CLP)

Liquef. Gas; H280 Contains gas under pressure; may explode if heated.



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## 2.2 Label elements

### Labelling (CLP)



Signal word:

**Warning**

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

Precautionary Statements: P102 Keep out of reach of children.

P410+P403 Protect from sunlight. Store in a well-ventilated place.

### Special labelling

Text for labelling: Asphyxiant in high concentrations.

## 2.3 Other hazards

Asphyxiant in high concentrations.  
Contact with the product can cause cold burns or frostbite.

Additional information Liquefied gas

Results of PBT and vPvB assessment:  
No data available

## SECTION 3: Composition / information on ingredients

### 3.1 Substances

Chemical characterisation: CO<sub>2</sub>  
Carbon dioxide (Compressed, liquefied gas)  
CAS-Number: 124-38-9  
EC-number: 204-696-9  
RTECS-Number: FF6400000  
Customs tariff number: 2811 21 00

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

In case of inhalation: Move victim to fresh air wearing a self contained breathing apparatus. Make sure he/she is warm and comfortable. Seek medical attention.  
If breathing has stopped, give artificial respiration immediately.

Following skin contact: In the event of cold burns, wash with water for at least 15 minutes. Cover frostbitten skin with sterile tissue. Seek medical attention.

After eye contact: Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. In case of troubles or persistent symptoms, consult an ophthalmologist.

After swallowing: Swallowing is not regarded as a possible way of exposition.



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

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility and consciousness. Victim may not be aware of asphyxiation.  
Low concentrations of carbon dioxide cause accelerated breathing and headaches.  
Contact with the product can cause cold burns or frostbite.

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

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media:

Product is non-combustible. Extinguishing materials should therefore be selected according to surroundings.

Extinguishing media which must not be used for safety reasons:

Full water jet

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

Not combustible. In case of surrounding fires: May form dangerous gases and vapours in case of fire.

### 5.3 Advice for firefighters

Special protective equipment for firefighters:

Wear self-contained positive pressure breathing apparatus and full firefighting protective clothing.

Additional information:

Hazchem-Code: 2T

Exposure to fire may cause containers to rupture/explode.

If possible, stop flow of product. Move container away or cool with water from a protected position.

## SECTION 6: Accidental release measures

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

Evacuate area. Provide adequate ventilation. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Prevent access to canalization, cellars, work pits or other locations where the gathering could be dangerous.  
Wear appropriate protective equipment. Keep unprotected people away.

### 6.2 Environmental precautions

If possible, stop flow of product.

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

Vapours are invisible, heavier than air and will spread at floor level. Vapours are suffocating.  
Air the room.

Additional information:

Build up of static electricity may occur at increased flow rates and may ignite any explosive mixtures present.

### 6.4 Reference to other sections

Refer additionally to section 8 and 13.



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### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

Advices on safe handling: Make sure there is sufficient air exchange and / or that working rooms are air suctioned. Prevent water access and back-flow into the gas vessel. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact supplier if guidance is required. Refer to gas supplier's handling instructions.

Precautions against fire and explosion:

Build up of static electricity may occur at increased flow rates and may ignite any explosive mixtures present.

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

Requirements for storerooms and containers:

Keep container in a well-ventilated place.  
Protect from direct exposure to sunlight and temperatures exceeding 50 °C.  
Store containers in upright position. Do not drop, drag or bang the container.  
Secure gas cylinders before transport. For transport, screw tightly protective caps and dummy nuts.  
Transport always in closed, upright and safe containers  
Keep the product and the empty containers away from heat and ignition sources.

Hints on joint storage: Keep away from combustible material.

#### 7.3 Specific end use(s)

No information available.

### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

Occupational exposure limit values:

Type	Limit value
Europe: IOELV: TWA	9000 mg/m <sup>3</sup> ; 5000 ppm
Great Britain: WEL-STEL	27400 mg/m <sup>3</sup> ; 15000 ppm
Great Britain: WEL-TWA	9150 mg/m <sup>3</sup> ; 5000 ppm
Ireland: 15 minutes	27000 mg/m <sup>3</sup> ; 15000 ppm
Ireland: 8 hours	9000 mg/m <sup>3</sup> ; 5000 ppm

#### 8.2 Exposure controls

Transfer and handle product only in closed systems.  
Provide good ventilation and/or an exhaust system in the work area.

#### Personal protection equipment

##### Occupational exposure controls

Respiratory protection: Respiratory protection must be worn whenever the WEL levels have been exceeded. The following applies to carbon dioxide in general:  
If the concentration is exceeded, closed-circuit breathing apparatus must be used!

Hand protection: Wear gloves in accordance with EN 388 as a protection against mechanical risks. Protective gloves against coldness according to EN 511 (Glove material: Leather). Observe glove manufacturer's instructions concerning penetrability and breakthrough time.



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Eye protection: Tightly sealed goggles according to EN 166.  
Body protection: Wear suitable protective clothing.  
When handling gas flasks/containers, wear suitable safety shoes.  
General protection and hygiene measures:  
When using do not eat, drink or smoke.  
Wash hands before breaks and after work.  
Do not breathe gas/fumes/vapour/spray.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance: Form: gaseous  
Colour: colourless

Odour: odourless  
Odour threshold: No data available

pH value: No data available

Melting point/freezing point: -56.6 °C (5,2 bar)  
Initial boiling point and boiling range: -78.5 °C  
Flash point/flash point range: not applicable  
Evaporation rate: No data available  
Flammability: No data available  
Explosion limits: No data available  
Vapour pressure: at 20 °C: 57300 hPa  
Vapour density: No data available  
Density: at 20 °C: (gas) 0.00197 g/cm<sup>3</sup>  
Water solubility: 1.5 - 2 g/L  
Partition coefficient: n-octanol/water: 0.83 log P(o/w)  
Based on the n-octanol/water partition coefficient accumulation in organisms is not expected.

Auto-ignition temperature: No data available  
Decomposition temperature: > 2000 °C  
Viscosity, kinematic: No data available  
Explosive properties: Product is not explosive.  
Oxidizing characteristics: none

### 9.2 Other information

Additional information: Molar mass: 44.01 g/mol  
Relative vapour density at 20 °C (air=1): 1.52  
Critical temperature: 31 °C  
Sublimation point: -78.5 °C  
Relative density, liquid (water = 1): 1.03



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### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

Gases/vapours are heavier than air and can accumulate in closed spaces, particularly on the ground/in lower lying areas.

Build up of static electricity may occur at increased flow rates and may ignite any explosive mixtures present.

#### 10.2 Chemical stability

Stable under recommended storage conditions.

#### 10.3 Possibility of hazardous reactions

Danger of explosion with: Potassium, Sodium peroxide, metal powder.

Danger of polymerisation with: Acrylaldehyde, 2-Methylaziridine.

#### 10.4 Conditions to avoid

Keep away from heat sources, sparks and open flames.

#### 10.5 Incompatible materials

Amines, Ammonia, Strong bases, Water, Barium peroxide, Caesium oxides, Aluminium lithium hydride, Lithium, Sodium

#### 10.6 Hazardous decomposition products

No dangerous substances are released.

Thermal decomposition: > 2000 °C

### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

Acute toxicity: Lowest published toxic concentration Rat, inhalative: 6 pph/24h/10d

Lowest published lethal concentration human, inhalative: 9 pph/5min

Toxicological effects:

Acute toxicity (oral): Lack of data.

Acute toxicity (dermal): Lack of data.

Acute toxicity (inhalative): Lack of data.

Skin corrosion/irritation: Lack of data.

Serious eye damage/irritation: Lack of data.

Sensitisation to the respiratory tract: Lack of data.

Skin sensitisation: Lack of data.

Germ cell mutagenicity/Genotoxicity: Lack of data.

Carcinogenicity: Lack of data.

Reproductive toxicity: Lack of data.

Effects on or via lactation: Lack of data.

Specific target organ toxicity (single exposure): Lack of data.

Specific target organ toxicity (repeated exposure): Lack of data.

Aspiration hazard: Lack of data.



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### Symptoms

Contact with the product can cause cold burns or frostbite.  
Asphyxiant in high concentrations. Risk of heart circulatory collapse. risk of unconsciousness, death.  
Symptoms: headache, dizziness, tinnitus, Accelerated respiration and heart rate, nausea, states of excitation, fatigue, unconsciousness, spasms.

## SECTION 12: Ecological information

### 12.1 Toxicity

Further details: Global Warming potential (GWP): 1

### 12.2 Persistence and degradability

Further details: No data available

### 12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water:

0.83 log P(o/w)

Based on the n-octanol/water partition coefficient accumulation in organisms is not expected.

### 12.4 Mobility in soil

not applicable

### 12.5 Results of PBT and vPvB assessment

No data available

### 12.6 Other adverse effects

General information: Do not allow to enter into ground-water, surface water or drains.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste key number: 16 05 05 = Gases in pressure containers other than those mentioned in 16 05 04.

Recommendation: Blow-off to atmosphere in a well ventilated place. Do not release large quantities into the atmosphere.

Do not discharge into any place where its accumulation could be dangerous.

#### Contaminated packaging

Waste key number: 15 01 11\* = Metallic packaging containing a dangerous solid porous matrix (e.g. asbestos), including empty pressure containers.

\* = Evidence for disposal must be provided.

Recommendation: Dispose of waste according to applicable legislation.

Return to the gas supplier.



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### SECTION 14: Transport information

#### 14.1 UN number

ADR/RID, IMDG, IATA-DGR:

UN 1013

#### 14.2 UN proper shipping name

ADR/RID, IMDG, IATA-DGR:

UN 1013, CARBON DIOXIDE

#### 14.3 Transport hazard class(es)

ADR/RID:

Class 2, Code: 2A

IMDG:

Class 2.2, Subrisk -

IATA-DGR:

Class 2.2



#### 14.4 Packing group

ADR/RID, IATA-DGR: not applicable

IMDG:

-

#### 14.5 Environmental hazards

Marine pollutant:

no

#### 14.6 Special precautions for user

##### Land transport (ADR/RID)

Warning board:

ADR/RID: Kemmler-number 20, UN number UN 1013

Hazard label:

ADR: 2.2 / RID: 2.2+13

Special provisions:

378 584 653 662

Limited quantities:

120 mL

EQ:

E1

Contaminated packaging - Instructions:

P200

Special provisions for packing together:

MP9

Portable tanks - Instructions:

(M)

Tank coding:

PxBN(M)

Tunnel restriction code:

C/E

##### Sea transport (IMDG)

EmS:

F-C, S-V

Special provisions:

378

Limited quantities:

120 mL

Excepted quantities:

E1

Contaminated packaging - Instructions:

P200

Contaminated packaging - Provisions:

-

IBC - Instructions:

-

IBC - Provisions:

-

Tank instructions - IMO:

-

Tank instructions - UN:

-

Tank instructions - Provisions:

-

Stowage and handling:

Category A.

Properties and observations:

Liquefied, non-flammable gas. Heavier than air (1,5). Cannot remain in the liquid state above 31°C.

Segregation group:

none





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### Air transport (IATA)

Hazard label:	Non-flamm. gas
Excepted Quantity Code:	E1
Passenger and Cargo Aircraft: Ltd.Qty.:	Forbidden
Passenger and Cargo Aircraft:	Pack.Instr. 200 - Max. Net Qty/Pkg. 75 kg
Cargo Aircraft only:	Pack.Instr. 200 - Max. Net Qty/Pkg. 150 kg
Special provisions:	A202
Emergency Response Guide-Code (ERG):	2L

Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.  
Secure gas cylinders before transport. Cylinder valve must be closed and leak-proof. Valve outlet cap nut or plug (where provided) must be correctly fitted. Valve protection device (where provide) must be correctly fitted.  
Ensure adequate ventilation of the storage area.  
Consider compliance with applicable regulations.

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

No data available

## SECTION 15: Regulatory information

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

#### National regulations - Great Britain

Hazchem-Code: 2T  
No data available

#### National regulations - EC member states

Volatile organic compounds (VOC):  
0 % by weight

#### Labelling of packaging with <= 125mL content



Signal word: **Warning**  
Hazard statements: not applicable  
Precautionary Statements:  
P102 Keep out of reach of children.

### 15.2 Chemical Safety Assessment

For this substance a chemical safety assessment is not required.



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### SECTION 16: Other information

#### Further information

Take care of the national and local legal and statutory regulations.  
The risk of suffocation is often overlooked and must be specifically highlighted when instructing the employees.

#### Abbreviations and acronyms:

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways  
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road  
OEL: Occupational Exposure Limit Value  
AS/NZS: Australian Standards/New Zealand Standards  
CAS: Chemical Abstracts Service  
CFR: Code of Federal Regulations  
CLP: Classification, Labelling and Packaging  
DMEL: Derived minimal effect level  
DNEL: Derived no-effect level  
EC: European Community  
EN: European Standard  
EU: European Union  
GWP: Global warming potential  
IATA: International Air Transport Association  
IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk  
IMDG Code: International Maritime Dangerous Goods Code  
log P(o/w): Partition coefficient: octanol/water  
MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships  
OSHA: Occupational Safety and Health Administration  
PBT: Persistent, bioaccumulative and toxic  
PNEC: Predicted no-effect concentration  
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals  
RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail  
TLV: Threshold Limit Value  
vPvB: Very persistent and very bioaccumulative  
WEL: Workplace Exposure Limit

Reason of change: ADR/RID 2019

Date of first version: 19/5/2014

#### Department issuing data sheet

Contact person: see section 1: Department responsible for information

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.