



SAFETY DATA SHEET

Revision Date 04/02/2019
Date of the previous version --

Version 1
EU EN

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Name	Carbon dioxide
Chemical Name	Carbon dioxide
CAS-No	124-38-9
EC-No	204-696-9
Formula	CO ₂

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

Recommended Use	No information available.
Uses advised against	No information available.

1.3. Details of the supplier of the safety data sheet

OCI Nitrogen BV
Mijnweg 1
P.O. Box 601
6160 AP Geleen, The Netherlands
Tel: +31 (0) 46 7020111
www.ocinitrogen.com

info.agro@ocinitrogen.com

1.4. Emergency telephone number

UK National Health Service (NHS) call 111 or, in life-threatening emergencies, call 999

WAL National Health Service (NHS) call 0845 46 47

IE National Poisons Information Centre
+353 1 809 2566 or +353 1 837 9964 (only for healthcare professionals)

Manufacturer: Alert & Care Centre Chemelot (Geleen, The Netherlands)
+31 46 4765555 (24/7)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (1272/2008/EC)

Compressed Gas	- H280
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For the full text of the H-Statements mentioned in this section, see Section 16.

2.2 Label elements

**Signal word**

Warning

Hazard Statements

H280 - Contains gas under pressure; may explode if heated

Precautionary Statements

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

2.3 Other hazards

Asphyxiant in high concentrations.

This substance does not meet the criteria for classification as PBT or vPvB.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Substance name	EC-No	CAS-No	Weight %	Classification (1272/2008/EC)	REACH Registration Number
Carbon dioxide	204-696-9	124-38-9	100	Press. gas H280	Exempted

For the full text of the H-Statements mentioned in this section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General advice	No hazards which require special first aid measures.
Eye contact	Immediate medical attention is not required.
Skin contact	Immediate medical attention is not required.
Ingestion	Immediate medical attention is not required.
Inhalation	Move to fresh air. If not breathing, if breathing is irregular or if respiration arrest occurs, provide artificial respiration or oxygen by trained personnel. Consult a physician.
Protection of first-aiders	No special protective equipment required.

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

Main symptoms	In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Low concentrations of CO ₂ cause increased respiration and headache.
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4.3. Indication of any immediate medical attention and special treatment needed

Notes to physician	Treat symptomatically.
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SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media The product itself does not burn. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media None known.

5.2. Special hazards arising from the substance or mixture

Special Hazard Contains gas under pressure; may explode if heated. Gases are invisible, heavier than air and spread out on the floor.

5.3. Advice for firefighters

Fire fighting measures Keep containers and surroundings cool with water spray.

Special protective equipment for fire-fighters Wear self-contained breathing apparatus and protective suit.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Avoid breathing vapours or mists. Do not stay in the gas cloud, stay upwind of the source. In case of insufficient ventilation, wear suitable respiratory equipment.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so.

6.3 Methods and material for containment and cleaning up

Allow to evaporate.

6.4. Reference to other sections

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Contents under pressure. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from frost, heat and sunlight. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling.

7.3. Specific end use(s)

Exposure scenario Not available.

Other information Not available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Substance name	European Union	The United Kingdom	France	Spain	Germany
Carbon dioxide	TWA: 9000 mg/m ³	TWA: 5000 ppm TWA: 9150 mg/m ³ STEL: 15000 ppm STEL: 27400 mg/m ³	VME: 5000 ppm VME: 9000 mg/m ³	VLA-ED: 5000 ppm VLA-ED: 9150 mg/m ³	MAK: 5000 ppm MAK: 9100 mg/m ³ Spitzenbegrenzung: 10000 ppm Spitzenbegrenzung: 18200 mg/m ³ AGW: 5000 ppm AGW: 9100 mg/m ³

Substance name	Italy	Portugal	Netherlands	Denmark	Poland
Carbon dioxide	TWA: 5000 ppm TWA: 9000 mg/m ³	VLE-MP: 5000 ppm VLE-MP: 9000 mg/m ³ VLE-CD: 30000 ppm	TGG: 9000 mg/m ³	GV: 5000 ppm GV: 9000 mg/m ³	NDS: 9000 mg/m ³ NDSch: 27000 mg/m ³

Substance name	Belgium	Sweden	Hungary	Finland	Czech Republic
Carbon dioxide	STEL: 54784 mg/m ³ TWA: 9131 mg/m ³	NGV: 5000 ppm NGV: 9000 mg/m ³ Vägledande KGV: 10000 ppm Vägledande KGV: 18000 mg/m ³	TWA: 9000 mg/m ³	TWA: 9100 mg/m ³	Ceiling: 45000 mg/m ³ TWA: 9000 mg/m ³

Legend:

STEL - Short Term Exposure Limit

TWA - Time-Weighted Average

Biological Limit Values	Not established.
Recommended monitoring procedures	No information available.
Derived No Effect Level (DNEL)	No information available.
Predicted No Effect Concentration (PNEC)	No information available.

8.2. Exposure controls

Appropriate engineering controls	Ensure adequate ventilation, especially in confined areas. Gases are invisible, heavier than air and spread out on the floor. Automatic flow shutdown and alarms are recommended to alert personnel following releases.
Individual protection measures, such as personal protective equipment	
Eye protection	Tightly fitting safety goggles.
Hand Protection	Protective gloves. Wear leather gloves to prevent frostbite injuries from rapidly expanding gas when handling pressurized gas bottles.
Skin and body protection	Long sleeved clothing.
Respiratory protection	In case of insufficient ventilation wear suitable respiratory equipment: Self-contained breathing apparatus.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.
Environmental Exposure Controls	The product should not be allowed to enter drains, water courses or the soil.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state @20°C	Gas
Appearance	No information available
Colour	Colourless
Odour	Odourless
pH	3.70
Melting/freezing point	-57 °C (5000 hPa)
Boiling point/boiling range	No information available
Flash point	No information available
Evaporation rate	No information available
Flammability (solid, gas)	No information available
Flammability Limits in Air	No information available
Vapour pressure	58240 hPa (@20°C)
Vapour density	No information available
Relative density	1.5 (@-79°C)
Solubility	
Water solubility	2.9 g/L
Solubility in other solvents	Soluble in: Ethanol, Ether, Acetone, Methanol, Toluene, Methyl acetate, Heptanes
Partition Coefficient (n-octanol/water)	log Pow = 0.83
Autoignition temperature	No information available
Decomposition temperature	No information available
Viscosity, dynamic	0.07 mPa.s
Oxidising properties	No information available
Explosive properties	No information available

9.2 Other information

Other information No information available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None under normal processing. Contains gas under pressure; may explode if heated.

10.2. Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Reacts with: Bases (exothermic reaction), Finely powdered metals.

10.4. Conditions to avoid

Heat.

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

None under normal use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

Ingestion

No known effect.

Skin contact

No known effect.

Inhalation

Causes asphyxiation by hypoxia and acts as toxicant. Effects to: Central nervous system (CNS), biotransformation, Respiratory system, heart/circulatory system. Unlike simple asphyxiants, carbon dioxide has the ability to cause death even when normal oxygen levels (20-21%) are maintained. Carbon dioxide is physiologically active, affecting circulation and breathing.

Skin corrosion/irritation

No known effect.

Serious eye damage/irritation

No known effect.

Respiratory or skin sensitisation

No known effect.

Germ cell mutagenicity

Not known to cause heritable genetic damage.

Carcinogenicity

Contains no ingredient listed as a carcinogen.

Reproductive toxicity

Not known to cause birth defects or have a deleterious effect on a developing fetus. Not known to adversely affect reproductive functions and organs.

STOT-single exposure

No known effect.

STOT-repeated exposure

No known effect.

Aspiration hazard

No known effect.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Contains no substances known to be hazardous for the environment.

12.2. Persistence and degradability

Not applicable.

12.3. Bioaccumulative potential

Not applicable.

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

No information available.

12.6. Other adverse effects

No information available.

SECTION 13: DISPOSAL CONSIDERATIONS**13.1. Waste treatment methods****Waste from residues / unused products**

Dispose of in accordance with local regulations.

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal

SECTION 14: TRANSPORT INFORMATION

According to: ADR, RID, ADN, IMDG, IATA/ICAO.

14.1. UN number

1013

14.2. UN proper shipping name

CARBON DIOXIDE

14.3. Transport hazard class(es)

2

14.4. Packing group

Not applicable.

14.5 Environmental hazards

Not applicable.

14.6 Special precautions for user

Not applicable.

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

No information available.

SECTION 15: REGULATORY INFORMATION

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

Restrictions on use No information available.

Europe

Component	EU - REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	EU - REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances of Very High Concern for Authorisation	EU - REACH (1907/2006) - Potential Substances of Very High Concern
Carbon dioxide 124-38-9 (100)	Not listed	Not listed	Not listed	Not listed

National regulatory information

Component	WGK Classification (VwVwS)
Carbon dioxide 124-38-9 (100)	Reg. no. 256, non-hazardous to water

Other Regulations No information available.

International legislation/requirements

Component	Chemical Weapon Convention List Schedules I, II and III Chemicals	The Montreal Protocol on Substances that Deplete the Ozone Layer	The Stockholm Convention on Persistent Organic Pollutants
Carbon dioxide 124-38-9 (100)	Not listed	Not listed	Not listed

15.2 Chemical safety assessment

Not required.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3 H280 - Contains gas under pressure; may explode if heated

Revision Note

Not applicable.

Training Advice

Workers must be trained in the proper use and handling of this product as required under applicable regulations.

Abbreviations and acronyms

STOT: Specific Target Organ Toxicity
PBT: Persistent, Bioaccumulative, Toxic
vPvB: very Persistent and very Bioaccumulating
ADR: Accord européen relatif au transport international des marchandises Dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
EC: European Commission
RID: Règlement concernant le transport international ferroviaire des marchandises dangereuses (Regulations for the International Transport of Dangerous Goods by Rail)
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)
ICAO: International Civil Aviation Organization
REACH: Registration, Evaluation, Authorisation and Restriction of Chemical substances
ES: Exposure Scenario
DNEL: Derived No Effect Level
PNEC: Predicted No Effect Concentration
IARC: International Agency for Research on Cancer

SDS No.

OC00027 /OCE1

Disclaimer

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