

**Safety Data Sheet according to Regulation (EC)
No. 1907/2006 (REACH)**

Printed 21.06.2019
Revision 21.06.2019 (GB) Version 7.0

Carbon dioxide
3200, 3204, 0069



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

1.1. Product identifier

Name of product	Carbon dioxide Art-Nr(n): 3200, 3204, 0069
Name of substance	carbon dioxide
EC No	204-696-9
REACH registration number	-
CAS No	124-38-9

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

Identified uses

Remark

It is not required to list the identified uses because the substance is exempted from the obligation to register according to REACH [Article 2 (7) in conjunction with Annex IV / V of the REACH-Regulation (EC) 1907/2006].

! Recommended intended purpose(s)

Basic substance.
Fire extinguishing agent.
Cover gas.
Laboratory reagent.
Aerosol propellant.
Refrigerant (R-744).
Test gas.
Extractive agent.

1.3. Details of the supplier of the safety data sheet

Manufacturer/distributor	GHC Gerling, Holz & Co. Handels GmbH Ruhrstraße 113, D-22761 Hamburg Phone +49 40 853 123-0, Fax +49 40 853 123-66 E-Mail hamburg@ghc.de Internet www.ghc.de
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Advice	GHC Gerling, Holz & Co. Handels GmbH Phone +49 40 853 123-0 Fax +49 40 853 123-66 E-mail (competent person): msds@ghc.de
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1.4. Emergency telephone number

Emergency advice	Medical Emergency information in case of poisoning: Poison Information Center Mainz -24h- Phone +49 (0) 6131 19240 (service in German or English)
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! SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

! Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]

Hazard classes and Hazard categories	Hazard Statements	Classification procedure
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Liquef. Gas	H280
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! Hazard statements for physical hazards

H280	Contains gas under pressure; may explode if heated.
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2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]



GHS04

! Signal word

Warning

! Hazard statements for physical hazards

H280 Contains gas under pressure; may explode if heated.

Precautionary Statements

! Storage

P403 Store in a well-ventilated place.

Supplemental Hazard information (EU)

! Health properties

Asphyxiant in high concentrations.

2.3. Other hazards

! Information pertaining to special dangers for human and environment

Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

Contact with liquid may cause cold burns/frostbite.

Receptacle under pressure.

! Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

! SECTION 3: Composition/ information on ingredients

3.1. Substances

! Description

Content: > 99 %

CAS No 124-38-9

carbon dioxide

EC No 204-696-9

REACH registration number -

! Additional advice

The substance does not require registration according to Article 2 (7) in conjunction with Annex IV / V of the Regulation (EC) No 1907/2006 [REACH].

3.2. Mixtures

not applicable

! SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Remove contaminated soaked clothing immediately.

Adhere to personal protective measures when giving first aid.

Seek medical advice immediately.

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In case of inhalation

Remove the casualty into fresh air and keep him immobile.

In case of respiratory standstill give artificial respiration by respiratory bag (Ambu bag) or respirator. Send for a doctor.

! In case of skin contact

In case of frostbite rinse with plenty of water. Don't remove clothing.

In case of frostbite spray with lukewarm (not hot) water for at least 15 minutes. Do not remove clothing frozen to the skin. Thaw it with lukewarm water. Apply a sterile dressing. Obtain medical assistance.

! In case of eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call for a doctor immediately.

In case of ingestion

Ingestion is not considered a potential route of exposure.

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

! Physician's information / possible symptoms

Unconsciousness

Headache

Contact with liquid may cause cold burns/frostbite.

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

! Treatment (Advice to doctor)

Treat symptoms.

! SECTION 5: Firefighting measures

5.1. Extinguishing media

! Suitable extinguishing media

Product does not burn, fire-extinguishing activities according to surrounding.

Alcohol-resistant foam

Dry powder

Water spray jet

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

In the event of fire the following can be released:

Carbon monoxide (CO)

5.3. Advice for firefighters

! Special protective equipment for fire-fighters

Use breathing apparatus with independent air supply (isolated).

Wear full protective clothing.

Additional information

Cool endangered containers with water spray jet.

Exposure to fire may cause containers to rupture / explode.

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! SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

! For non-emergency personnel

Evacuate area.
Keep people away and stay on the upwind side.

! For emergency responders

Remove persons to safety.
Personal protection by wearing close-fitting protective clothing and breathing apparatus.

6.2. Environmental precautions

If possible, stop flow of product.
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
If necessary, secure leaky pressure receptacles in a salvage packaging.
Do not discharge into the subsoil/soil.

6.3. Methods and material for containment and cleaning up

Ensure adequate air ventilation.
Allow to vaporise.

6.4. Reference to other sections

Safe handling: see section 7
Disposal: see section 13
Personal protection equipment: see section 8

! SECTION 7: Handling and storage

7.1. Precautions for safe handling

! Advice on safe handling

Use only in thoroughly ventilated areas.
Transfer and handle only in enclosed systems.
Containers' temperature may not be increased above 50 °C.
Do not heat with open flames.
The working pressure in the receptacle must not exceed 2/3 of the test pressure of the pressure receptacle.
Provide good room ventilation even at ground level (vapours are heavier than air).
Prevent cylinders from falling over.
Ensure valve outlet cap nut or plug is correctly fitted.
Ensure valve protection device is correctly fitted.
Open valve slowly to avoid pressure shock.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature.
Do not allow backfeed into the container.
Suck back of water into the container must be prevented.
No water to valves, flanges and other fittings.
Purging of pipes and valves with inert gases - to avoid: water, solvents.

General protective measures

Do not inhale gases/vapours/aerosols.

Hygiene measures

At work do not eat, drink and smoke.
Wash hands before breaks and after work.

! Advice on protection against fire and explosion

The product is not combustible.
Pay attention to general rules of internal fire prevention.

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7.2. Conditions for safe storage, including any incompatibilities

! Requirements for storage rooms and vessels

Keep in closed original container.
Ventilate store-rooms thoroughly.
Only use containers that are approved specifically for the substance/product.
Suitable materials: Normalised carbon steel, tempered alloy steel, aluminium alloys, austenitic stainless steels.
Valve: Suitable materials: Brass, copper alloys, carbon steels, aluminium alloys, austenitic stainless steels.
Other material details see ISO 11114.
All regulations and local requirements for the storage of containers have to be respected.

! Advice on storage compatibility

Do not store together with spontaneously flammable materials.
Do not store together with combustible liquids or combustible solids.
Do not store together with animal feedstuffs.
Do not store together with infectious substances.
Do not store together with radioactive material.
Do not store together with toxic liquids or toxic solids.
Do not store together with oxidizing liquids or oxidizing solids.

! Further information on storage conditions

Ensure valve protection device is correctly fitted.
Store closed container at cool and aired place.
Store only in original container at temperature of 50°C maximum (=122°F).
Protect from heat and direct solar radiation.
Prevent cylinders from falling over.

7.3. Specific end use(s)

! Recommendation(s) for intended use

No further recommendations.

! SECTION 8: Exposure controls/personal protection

8.1. Control parameters

! Ingredients with occupational exposure limits to be monitored

CAS No	Name	Code	[mg/m ³]	[ppm]	Remark
124-38-9	Carbon dioxide	WEL, 8 hours Short-term	9150 27400	5000 15000	EH40, UK
124-38-9	Carbon dioxide	REL, 8 hours Short-term	9000 54000	5000 30000	NIOSH, USA
124-38-9	Carbon dioxide	PEL, 8 hours	9000	5000	OSHA, USA

Indicative occupational exposure limit values (91/322/EEC, 2000/39/EC, 2004/37/EC, 2006/15/EC or 2009/161/EU)

CAS No	Name	Code	[mg/m ³]	[ppm]	Remark
124-38-9	carbon dioxide	8 hours	9000	5000	

8.2. Exposure controls

! Respiratory protection

Breathing apparatus in the event of high concentrations.
Keep self contained breathing apparatus readily available for emergency use.
Respiratory protection complying with EN 137.
In case of rescue and maintenance activities in storage containers use environment-independent breathing apparatus because of risk of suffocation by edging out of air oxygen

! Hand protection

Leather gloves
Safety gloves according to EN 374.

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Safety gloves according to EN 388

! Eye protection

Protective goggles according to EN 166, in case of increased risk add protective face shield.

! Other protection measures

Safety shoes with steel toe.

Body covering work clothing, or chemical resistant suit at increased risk.

! Appropriate engineering controls

Transfer and handle only in enclosed systems.

! SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

compressed liquified gas

Colour

colourless

Odour

odourless

Odour threshold

Product is imperceptible by smell.

Important health, safety and environmental information

	Value	Temperature	at	Method	Remark
pH value	not applicable				
boiling point	-78,5 °C		1013 hPa		
melting point	-56,6 °C				under pressure
Flash point	not applicable				
Vapourisation rate	not determined				
Flammable (solid)	not applicable				
Flammability (gas)	no				
Ignition temperature	no				
Self ignition temperature	no				
Lower explosion limit	no				
Upper explosion limit	no				
Vapour pressure	57,3 bar	20 °C			
Relative density	1,9767 kg/m ³	0 °C	1013 mbar		
Vapour density	1,53				

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	Value	Temperature	at	Method	Remark
Solubility in water	2 g/l	20 °C	1013 hPa		Soluble in Water.
Solubility/other	not determined				
Partition coefficient n-octanol/water (log P O/W)	0,83				
Decomposition temperature	not applicable				
Viscosity dynamic	not applicable				

Oxidising properties

no

Explosive properties

no

9.2. Other information

Vapours are heavier than air.

! SECTION 10: Stability and reactivity

10.1. Reactivity

See section "Possibility of hazardous reactions".

10.2. Chemical stability

Stable under recommended conditions of use and storage (see section 7).

10.3. Possibility of hazardous reactions

Reactions with strong alkalies.
Reactions with alkali metals.
Reactions with metals in powder form.
Reactions with peroxides.
Reactions with amines.

10.4. Conditions to avoid

Heat sources / heat - risk of bursting.

10.5. Incompatible materials

! Substances to avoid

Alkali (lye), concentrated
Amines
Ammonia
Peroxide
Powdered metals
Alkali metals.

10.6. Hazardous decomposition products

When handled and stored appropriately, no dangerous decomposition products are known.

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! SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity/Irritation/Sensitization

	Value/Validation	Species	Method	Remark
LD50 acute oral	not applicable			
LD50 acute dermal	not applicable			
LC50 acute inhalation	No data available			
Skin irritation	no			
Eye irritation	no			
Skin sensitization	No effects from this product are known.			
Sensitization respiratory system	No effects from this product are known.			

Subacute Toxicity - Carcinogenicity

	Value	Species	Method	Validation
Mutagenicity				No effects from this product are known.
Reproduction-Toxicity				No effects from this product are known.
Carcinogenicity				No effects from this product are known.

! Specific target organ toxicity (single exposure)

Substance or mixture is not classified in GHS-criteria as specific target organ toxic with single exposure.

! Specific target organ toxicity (repeated exposure)

Substance or mixture is not classified in GHS-criteria as specific target organ toxic with repeated exposure.

! Aspiration hazard

Not applicable for gases and gas mixtures

Experiences made from practice

Gases have a suffocating effect.

! SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicological effects

Value	Species	Method	Validation
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Value	Species	Method	Validation
Fish			The product does not cause any environmental damage.
12.2. Persistence and degradability No information available.			
12.3. Bioaccumulative potential Does not bioaccumulate. The product does not cause any environmental damage			
12.4. Mobility in soil Adsorption in the soil is not likely. The product does not cause any environmental damage			
12.5. Results of PBT and vPvB assessment This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.			
12.6. Other adverse effects ODP: 0 GWP: 1			
! General regulation The product does not cause any environmental damage			

! SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste code No.	Name of waste
16 05 05	gases in pressure containers other than those mentioned in 16 05 04

! Recommendations for the product

Dispose of in accordance with the local official regulations.
Return to manufacturer.

Recommendations for packaging

Transportable pressure equipment (empty, residual pressure): Return to supplier / manufacturer.

! SECTION 14: Transport information

	ADR/RID	IMDG	IATA-DGR
14.1. UN number	1013	1013	1013
14.2. UN proper shipping name	CARBON DIOXIDE	CARBON DIOXIDE	Carbon dioxide
14.3. Transport hazard class(es)	2.2	2.2	2.2
14.4. Packing group	-	-	-
14.5. Environmental hazards	No	No	No

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14.6. Special precautions for user

No information available.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not applicable

No transport as bulk according IBC - Code.

Land and inland navigation transport ADR/RID

Hazard label(s) 2.2

tunnel restriction code C/E

Classification code 2A

! SECTION 15: Regulatory information

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

No information available.

15.2. Chemical Safety Assessment

For this substance a chemical safety assessment is not required.

The protective measures listed in Sections 6, 7 and 8 of the Safety Data Sheet have to be considered.

For this substance a chemical safety assessment has not been carried out.

! SECTION 16: Other information

Recommended uses and restrictions

National and local regulations concerning chemicals shall be observed.

Further information

All declarations of safety-data-sheet refer to pure substance.

The information contained herein is based on the state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.

Indication of changes: "!" = Data changed compared with the previous version. Previous version: 6.0

! Sources of key data used

For the preparation of this safety data sheet, information from our suppliers as well as data from the "database of registered substances" of the European Chemicals Agency (ECHA) were used.