

Carbon dioxide (Food Fresh)

PRODUCT : CARBON DIOXIDE (FOOD FRESH) MSDS NR : 300-00-0036 BOC VERSION : 1.03 DATE : 29/01/2004 PAGE : 1/2

1 IDENTIFICATION OF THE SUBSTANCE/ PREPARATION AND OF THE COMPANY

Product name	Carbon dioxide
Chemical formula	CO ₂
Company identification	see footer
Emergency phone Nos	see footer

2 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation	Substance
Components/Impurities	Contains no other components or impurities which will influence the classification of the product.
CAS Nr	124-38-9
EEC Nr (from EINECS)	204-696-9
Specifications	99.8% Conforms to BS4105 part 11 and E290

3 HAZARDS IDENTIFICATION

Hazards identification

Liquefied gas under pressure. In high concentrations may cause asphyxiation. When liquid carbon dioxide under pressure is released to atmosphere, the discharge consists of gaseous and solid carbon dioxide only. Slightly corrosive in the presence of moisture. Solid carbon dioxide is white and when in direct contact with the skin will cause acute cold damage to skin – "cold burn". One volume of liquid or solid will give about 500 or 900 volumes of gas, respectively, at ambient conditions. Not classified as a dangerous substance.

4 FIRST AID MEASURES

Inhalation

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Low concentrations of CO₂ cause increased respiration and headache. Remove victim to uncontaminated area wearing self-contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

Skin/eye contact

Immediately flush eyes thoroughly with water for at least 15 minutes. In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.

Ingestion

Ingestion is not considered a potential route of exposure.

5 FIRE FIGHTING MEASURES

Specific hazards

Exposure to fire may cause containers to rupture/explode. Non flammable. Inform Fire Brigade.

Hazardous combustion products

None.

Suitable extinguishing media

All known extinguishants can be used.

Specific methods

If possible, stop flow of product. Move container away or cool with water from a protected position. Inform emergency services of the nature of the product and the possibility of bursting disc rupture (the cylinder is fitted with a bursting disc which will rupture and allow the contents to completely discharge if heat causes the carbon dioxide pressure to exceed the maximum permissible service level). Notify BOC to collect any cylinder(s) involved in a fire. Ensure such cylinders are clearly labelled.

Special protective equipment for fire fighters

In confined space use self-contained breathing apparatus.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions

Evacuate area. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe: check using a carbon dioxide measuring device. Ensure adequate air ventilation. Post warning notices.

Environmental precautions

Try to stop release if safe to do so. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

Clean up methods Ventilate area.

7 HANDLING AND STORAGE

Handling and storage

Suck back of water into the container must be prevented. Do not allow backfeed into the container. Normal materials of construction are suitable for dry gas of ambient temperature. Below -30°C only use low temperature carbon steel, austenitic stainless steels, aluminium, copper and their alloys. If carbon dioxide is dissolved in water, particularly at elevated pressures and in the presence of oxygen, use materials resistant to carbonic acid, eg. stainless steel or Monel. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact BOC if in doubt. Refer to BOC container handling instructions. Keep container below 50°C in a well ventilated place. Do not heat cylinder.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits

Carbon dioxide Occupation Exposure Standard (OES):
 Long Term Exposure Limit (LTEL) 5000ppm
 Short Term Exposure Limit (STEL) 15000ppm

Personal protection

Ensure adequate ventilation. Carbon dioxide monitoring is recommended if used or stored in a confined space.

9 PHYSICAL AND CHEMICAL PROPERTIES

Molecular weight	44
Melting point	-56.6°C
Sublimation point	-78.5°C
Critical temperature	30°C
Relative density, gas	1.52 (air=1)
Relative density, liquid	0.82 (water=1)
Vapour Pressure 20°C	57.3 bar
Solubility mg/l water	2000 mg/l
Appearance/Colour	Colourless gas
Odour	In high concentrations, a sharp smell may become apparent.
Other data	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10 STABILITY AND REACTIVITY

Stability and reactivity	Stable under normal conditions
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11 TOXICOLOGICAL INFORMATION

General	High concentrations cause rapid circulatory insufficiency. Symptoms are headache, nausea and vomiting, which may lead to unconsciousness. Carbon dioxide is mildly toxic, with no cumulative effects.
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12 ECOLOGICAL INFORMATION

General When discharged in large quantities may contribute to the greenhouse effect.

Global warming factor 1

13 DISPOSAL CONSIDERATIONS

General
Do not discharge into any place where its accumulation could be dangerous. Discharge to atmosphere in large quantities should be avoided. Contact BOC if guidance is required.

14 TRANSPORT INFORMATION

Proper Shipping Name Carbon dioxide

UN Nr 1013

Class/Div 2.2

ADR/RID Classification Code 2A

ADR/RID Hazard Nr 20

Labelling ADR Label 2.2: non flammable non toxic gas

Other transport information
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. Before transporting product containers ensure that they are firmly secured and:

- cylinder valve is closed and not leaking.
- valve outlet cap nut or plug (where provided) is correctly fitted.
- valve protection device (where provided) is correctly fitted.
- adequate ventilation.
- compliance with applicable regulations.

15 REGULATORY INFORMATION

Number in Annex I of Dir 67/548 Not included in Annex I.

Designation in Dir 95/2/EC E290

EC Classification Not classified as dangerous substance.

Labelling of cylinders - Symbols Label 2.2: non flammable non toxic gas.

16 OTHER INFORMATION

Ensure all national/local regulations are observed.

Do not breathe the gas.

The hazard of asphyxiation is often overlooked and must be stressed during operator training.

Contact with liquid may cause cold burns and/or frostbite. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out. Do not use any other gas as a substitute for carbon dioxide. Always leak check cylinders when first collected, delivered or used, using an approved leak detection fluid.

Keep container in well ventilated place

This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national laws.

Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

For further safety information please refer to "Safe Under Pressure" and "Safe handling, storage and transport of industrial gas cylinders", both of which are available from your local BOC outlet.

CYLINDER CHARACTERISTICS

Cylinder Size	Maximum Filled Pressure at 15°C (bar)	Approx. Dimensions incl. valve and guard where supplied (mm)	Approx. Full Cylinder weight (kg)	Manifolded Cylinder Pallets (MCPs)	Maximum Filled Pressure at 15°C (bar)	Approx. Dimensions incl. cylinders (mm)	Max. Gross Weight (kg)
VB/LB	50	140 x 940	17.4	TKL	50	840 x 1280 x 1839	1368
VK/LK	50	230 x 1496	99	TKV	50	840 x 1280 x 1839	1368
				WL	50	1280 x 1705 x 830	1368
				WV	50	1280 x 1705 x 830	1368



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