

Liquid Carbon Dioxide ES

PRODUCT: LIQUID CARBON DIOXIDE ES MSDS NR: 300-00-0048 BOC(A) VERSION: 1.03 DATE: 02/09/2004 PAGE: 1/1

1 IDENTIFICATION OF THE SUBSTANCE/ PREPARATION AND OF THE COMPANY

Product name Liquid Carbon Dioxide ES
Chemical formula CO₂
Company identification see heading and/or footer
Emergency phone Nos see heading and/or 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
E Nr 290

3 HAZARDS IDENTIFICATION

Hazards identification Refrigerated liquefied gas. Contact with product may cause cold burns or frostbite. In high concentrations may cause asphyxiation.

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.

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.

Special protective equipment for fire fighters In confined space use self-contained breathing apparatus.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions Evacuate area. Use protective clothing. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation.

Environmental precautions Try to stop release. 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. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Refer to supplier's container handling instructions. Keep container below 50°C in a well ventilated place.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit value UK: STEL; 15000 ppm, LTEL; 5000 ppm (EH40/2002).

Personal protection Ensure adequate ventilation. Protect eyes, face and skin from liquid splashes.

9 PHYSICAL AND CHEMICAL PROPERTIES

Molecular weight 44
Melting point -56.6°C
Boiling point -78.5(s)°C
Critical temperature 30°C
Relative density, gas 1.52 (air=1)
Relative density, liquid 1.03 (water=1)
Vapour Pressure 20°C 57.3 bar
Solubility mg/l water 2000 mg/l
Appearance/Colour Colourless liquid
Odour No odour warning properties.
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 circumstances. Liquid spillages can cause embrittlement of structural materials.

11 TOXICOLOGICAL INFORMATION

General High concentrations cause rapid circulatory insufficiency. Symptoms are headache, nausea and vomiting, which may lead to unconsciousness.

12 ECOLOGICAL INFORMATION

General When discharged in large quantities may contribute to the greenhouse effect. Can cause frost damage to vegetation.

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 supplier if guidance is required.

14 TRANSPORT INFORMATION

Proper Shipping Name Carbon Dioxide, Refrigerated Liquid
Class Nr 2187
Class/Div 2.2
ADR/RID 3A
Classification Code
ADR/RID Hazard Nr 22
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:
– there is adequate ventilation
– compliance with applicable regulations.

15 REGULATORY INFORMATION

Number in Annex I of Dir 67/548 Not included in Annex I.
EC Classification Not classified as dangerous substance.
Labelling of cylinders
– **Symbols Label** Label 2.2: non flammable non toxic gas.

16 OTHER INFORMATION

Ensure all national/local regulations are observed.
Asphyxiant in high concentrations.
Keep container in well ventilated place.
Do not breathe the gas.
Contact with liquid may cause cold burns/frostbite.
The hazard of asphyxiation is often overlooked and must be stressed during operator training.
Users of breathing apparatus must be trained.
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.
Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.
Advise the CO₂ supplier of any change of use which could introduce a risk of backfeed into the storage container.
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.

Product Specification

	Specification
Carbon Dioxide	99.9 %v/v
Moisture	20
Oxygen	30
Carbon Monoxide	5
NOx (each)	2.5
Ammonia	2.5
Total volatile HCs	50
– incl non-methane HCs	20
Benzene	0.02
Acetaldehyde	0.2
Methanol	10
Total sulphur (as S)	0.1
Non volatile organic residues	5 ppm w/w
Non volatile residues	10 ppm w/w
Acidity	To pass JEFCA test
Taste and odour in water	No foreign

- Note (1) All figures are expressed in parts per million (ppm) by volume unless otherwise stated
(2) This specification conforms with the EIGA guideline specification IGC 70/99/EPD "Carbon Dioxide Source Certification, Quality Standards and Verification"
(3) Analysis methods comply, where applicable, with IGC/70/99 guidelines
(4) The product complies with the requirements (E290) of EC Directive 2000/63/EC on food additives and with European Pharmacopeia.



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