

**SAFETY DATA SHEET**

**Carbon dioxide**

Date: 01/07/1997  
replaces version dated: 30.07.2002

Version: 2.0

MSDS-Nr.: 8377/1-Eng  
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**1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY**

**Product name**

Carbon dioxide, liquified.

**Chemical formula:** CO<sub>2</sub>

**Company identification**

Linde AG, Gas und Engineering, Geschäftsbereich Linde Gas  
Seitnerstraße 70, D-82049 Höllriegelskreuth

**Emergency phone number:** 089-7446-0

**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:** 00124-38-9

**EEC Nr (from EINECS):** 204-696-9

**3 HAZARDS IDENTIFICATION**

**Hazards identification**

Liquefied gas.

In high concentrations may cause asphyxiation.

Contact with liquid may cause cold burns/frost bite.

**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 CO<sub>2</sub> 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. 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 TLV(ACGIH)**

5000 ppm (2000 edition)

**Exposure limit value for country**

Germany: MAK:5000 ppm (TRGS 900 3/2002)

**Personal protection**

Ensure adequate ventilation.

**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:** 0.82 (water=1)

**Vapour pressure 20°C:** 57.3 bar

**Solubility mg/l water:** 2000

**Appearance/Colour:** Colourless gas

**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 conditions.

**11 TOXICOLOGICAL INFORMATION**

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**General**

Low 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.

**Global warming factor:** 1

**13 DISPOSAL CONSIDERATIONS**

**General**

Do not discharge into any place where its accumulation could be dangerous. To atmosphere in a well ventilated place. Discharge to atmosphere in large quantities should be avoided. Contact supplier if guidance is required.

**14 TRANSPORT INFORMATION**

**Proper shipping name:**

Carbon dioxide

**UN Nr.:** 1013

**Class/Division:** 2.2

**ADR/RID Item Nr.:** 2, 2 A

**Labelling ADR**

Label 2.2: non flammable non toxic gas

**ADR/RID Hazard Nr.:** 20

**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
- 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:**

Proposed by the industry:

Not classified as dangerous substance.

**Labelling of cylinders**

**-Symbols**

No symbol required.

**-Risk phrases**

RAs Asphyxiant in high concentrations.

**-Safety phrases**

S9 Keep container in well ventilated place.

S23 Do not breathe the gas.

**16 OTHER INFORMATION**

Ensure all national/local regulations are observed. The hazard of asphyxiation is often overlooked and must be stressed during operator training. Contact with liquid may cause cold burns/frost bite. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out. 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.

**End of document**