

SAFETY DATA SHEET
Carbon dioxide, solid

Date: 05.05.2002
replaces version dated: 18.10.2001

MSDS-Nr.: 9390/4-Eng
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1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product name

Carbon dioxide, solid

Chemical formula: CO₂

Company identification

Linde AG, Gas and Engineering, Linde Gas Division

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 No.: 00124-38-9

EEC No. (from EINECS): 204-696-9

3 HAZARDS IDENTIFICATION

Hazards identification

Carbon dioxide in solid state. Contact with product may cause cold burns or frostbite. In high concentrations may cause asphyxiation. Evaporation of solid carbon dioxide may cause in gas tight boxes a pressure rise with the risk of bursting.

4 FIRST AID MEASURES

Inhalation

In high gaseous 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 of solid carbon dioxide must be avoided, because product may cause cold burns or frostbite.

5 FIRE FIGHTING MEASURES

Specific hazards

Non flammable.

Hazardous combustion products

None.

Suitable extinguishing media

All known extinguishants can be used.

Specific methods

None.

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

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

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 handling instructions. Keep in non gas tight containers in a well ventilated place.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit value TLV(ACGIH)

5000 ppm (1994-1995 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

General

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

12 ECOLOGICAL INFORMATION

General

Can cause frost damage to vegetation. 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

ADR / RID: According to chapter 2.2.9.1.14 the ADR/RID provisions doesn't apply to UN 1845 Carbon dioxide, solid.

IMDG: Class 9

IATA: Class 9

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UN number and Proper shipping name:

UN 1845 Kohlendioxid, fest (Trockeneis)
UN 1845 Carbon dioxide, solid
UN 1845 Dry ice

Packing Instruction IMDG: P003

Packing Instruction IATA: P904

Packing Group IMDG / IATA: III

Labelling according to IMDG / IATA:

Label 9: Miscellaneous

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.

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