	SAFETY INFORMATION SHEET	Date of issue: Date of revision:
	Trade Name: Carbon dioxide	Date of printing:

1. Composition/Identification of the responsible on the market

Product name: Carbon dioxide
 Chemical formula: CO₂
 Article-No.:

2. Composition/Product identification:

Substance / preparation: Substance
 Components / impurities: Contains no other components or impurities which influence the classification of the product
 CASE No.: 07440-37-1
 EEC Nr (from EINECS): 231-147-0

3. Dangers identification:

Hazards identification: Liquefied gas. In high concentrations may cause asphyxiation.

4. FIRST AID INSTRUCTIONS.

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 know extinguishants can be used.
 Specific methods: If possible, stop flow of product. Move away from the container and cool with water from a protected position.
 Special protective equipment for fire fighters: In confined space use self-contained breathing apparatus.

6. MEASURES IN CASE OF ACCIDENTAL OUTLOW

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 work pits, or any place where its accumulation can be dangerous.
 Methods for cleaning/taking up: Ventilate area.

7. HANDLING AND STORAGE


Handling and storage: Suck back of water into the container must be prevented. Do not allow back feed into the container. Use only property 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 CONTROL / INDIVIDUAL PROTECTION

Exposure limit value – TLV (ACGIH): 5000 ppm, (2000 edition)
 Exposure limit value for country: Great Britain: STEL: 15000 ppm; LTEL: 5000ppm (EH 40/97)
 Germany: MAK = 5000 ppm
 Personal protection: Ensure adequate ventilation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Molecular weight: 40
 Melting point: -56.6° C
 Boilin point: -78.5(s)° C
 Critical temperature: 30° C

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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	Colorless gas
Odour	No odor warning properties.
Flammability range	Non-flammable.
Other data	Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10. STABILITY AND REAKTIVITY

Stability and reactivity Stable under normal conditions.

11. TOXICOLOGICAL INFORMATION

General In 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.
Global warming factor 1

13. CONSIDERATIONS CONCERNING DISPOSAL

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 requested.

14. INFORMATION ON TRANSPORT

Proper shipping name	Carbon dioxid
UN Nr	1013
Class / Div.	2.2
ADR / RID Classification code	2.2° A
ADR / RID Hazard Nr	20
Labelling ADE	Label 2: non flammable 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: <ul style="list-style-type: none"> - 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. REGULATIONS INFORMATION

Number in Annex I of Dir. 67/548	Not included in Annex I
EC classification	Not classified as dangerous preparation
EC labelling (Symbols, R & S phrases)	No EC labelling required

16. OTHER INFORMATION

Asphyxiant in high concentrations. Keep container in well-ventilated place. Do not breathe the gas. Contact with liquid may cause cold burns/frost bite. Ensure all national / local regulations are observed. The hazard of asphyxiation is often overlooked and must be stressed during operator training. 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. This safety data sheet has been established in accordance with the applicable European Directives in their national laws. This MSDS is for information purposes only and is subject to change without notice.