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Liquid Carbon Dioxide
Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY	
PRODUCT NAME	Carbon Dioxide
CHEMICAL FORMULA	CO_2
COMPANY IDENTIFICATION	See end of document
EMERGENCY CONTACT	See end of document
2. COMPOSITION / INFORMATION ON INGREDIENTS	
SUBSTANCE / PREPARATION	Substance
COMPONENTS / IMPURITIES	Contains Liquified Carbon Dioxide EINECS No. 204-696-9 UN No. 1044 CAS No. 00124-38-9 EC No. 204-696-9 (from EINECS)
3. HAZARDS IDENTIFICATION	
HEALTH HAZARDS	In high concentrations may cause asphyxiation
PHYSICAL AND CHECMIAL HAZARDS	Liquified gas. Pressurised gas cylinder
4. FIRST AID MEASURES	
INHALATION	Low concentrations of CO2 cause increased respiration and headache. In high concentrations may cause asphyxiation. Symptoms may include loss of mobility / consciousness. Victim may not be aware of asphyxiation. 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	In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing.
INGESTION	Ingestion is not considered a potential route of exposure.

5. FIRE FIGHTING MEASURES	
SPECIFIC HAZARDS	Non flammable. Exposure to fire may cause containers to rupture or explode.
HAZARDOUS COMBUSTION PRODUCTS	None
EXTINGUISHING MEDIA	All known 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.
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 PROTECTION	Try to stop release. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
CLEANING MEASURES	Ventilate area
7. HANDLING AND STORAGE	
HANDLING	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.
STORAGE	Keep container below 50°C in a well ventilated place
8. EXPOSURE CONTROL AND PERSONAL PROTECTION	
EXPOSURE LIMIT (UK)	Carbon Dioxide - LTEL: 5000ppm / STEL: 15000ppm (EH40/2005)
PERSONAL PROTECTION	Ensure adequate ventilation. Protect eyes, face and skin from contact with product.
9. PHYSICAL AND CHEMICAL PROPERTIES	
MOLECULAR WEIGHT	44
MELTING POINT	-56.6°C
BOILING POINT	-78.5°C (sublimation)
CRITICAL TEMPERATURE	31°C
RELATIVE DENSITY	Gas: 1.52 (air=1) Liquid: 0.77 (water=1)
VAPOUR PRESSURE	57.2bar @ 20°C
SOLUBILITY	2000 mg/l
APPEARANCE	Colourless gas
ODOUR	No odour warning properties
OTHER	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10. STABILITY AND REACTIVITY

Stable under normal conditions of use and storage

11. TOXICOLOGICAL DATA

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

12. ECOLOGICAL DATA

GENERAL	When discharged in large quantities may contribute to the greenhouse effect. Can cause frost damage to vegetation.
OZONE DEPLETION FACTOR	0 (R11=1)
GLOBAL WARMING FACTOR	1 (CO2=1)

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

PROPER SHIPPING NAME	Fire extinguisher with compressed or liquefied gas. Liquefied Carbon Dioxide. Pressurised Carbon Dioxide gas cylinder
UN Nr:	1044
CLASS	2.2
CAS	00124-38-9 EEC204
ADR/RID CLASSIFICATION CODE	2A
ADR/RID HAZZARD Nr	20
PACKING GROUP	None
LABELLING ADR	Label 2.2: non flammable non toxic gas
IMGD EmS CODES	F-C, S-V
IMDG MARINE POLLUTANT	No
IATA PASSENGER PACKIG INSTRUCTION	200
IATA PASSENGER MAX QUANTITY/PACK	75kg
IATA CARGO PACKING INSTRUCTIONS	200
IATA CARGO MAX MAX QUANTITY/PACK	150kg

14. TRANSPORT INFORMATION CONTINUED

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 DIRECTIVE 67/548	Not included in Annex I
EC CLASSIFICATION	Not classified as dangerous preparation
EC LABELLING (SYMBOLS, R&S PHRASES)	No EC labelling required
LABELLING OF CYLINDERS	-Symbols Label 2.2: non flammable non toxic gas

15. OTHER INFORMATION

- Ensure all national/local regulations are observed.
- Asphyxiant in high concentrations.
- Keep container in well ventilated place.
- 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/frost bite.
- 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.
- 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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