



Safety Data Sheet

Document No: SOXAL/SDS/14
Revision No: Rev. 2
Revision Date: 01 Jan. 08
Issue/Print Date:

LIQUID CARBON DIOXIDE

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Product name Liquid Carbon Dioxide
Chemical name/formula Carbon Dioxide / CO₂
Company identification See header and footer
Emergency phone no. See 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 No. 124-38-9

3. HAZARDS IDENTIFICATION

General

- Non-flammable and 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 or consciousness. Victim may not be aware of asphyxiation.
- Low concentrations of CO₂ may 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 or explode.

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.
- If leaking, do not spray water into container.

Specific methods

- Water surrounding area (from protected position) to contain fire.

Special protective equipment (for fire fighters)

- In confined space, use a 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 work pits or any place where its accumulation can be dangerous.

Clean up methods

- Ventilate area.

7. HANDLING & STORAGE

General

- Containers, which contain or have contained flammable or explosive substances, must not be inerted with liquid CO₂.
- Potential production of solid CO₂ particles must not be ruled out.
- To rule out potential electrostatic discharge production, the system must be adequately grounded.
- Suck back of water into the container must be prevented. Do not allow back-feed into the container.
- Use only properly specified equipment, which is suitable for this product, its supply pressure and temperature.
- Keep container below 50°C in a well-ventilated place.
- Contact SOXAL if in doubt.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

Exposure limit value

- 5,000 ppm PEL Short Term
- 30,000 ppm PEL Long Term (Singapore Factories Order 1996)

Personal protection

- Ensure adequate ventilation.
- Use appropriate PPE to protect eyes, face and skin from liquid splashes.

9. PHYSICAL & CHEMICAL PROPERTIES

Molecular weight 44
Melting point - 56.6°C
Boiling point - 78.5°C
Critical temperature 30°C
Relative density, gas 1.52 (air = 1)
Relative density, liquid 1.03 (water = 1)

For product and/or safety enquiry, please send, call, fax or log on to:

SINGAPORE OXYGEN AIR LIQUIDE PTE LTD
16, Jalan Buroh, Singapore 619475.

Tel: (65) 6265 3788 or 6265 4555 Fax: (65) 6265 1441 or 6268 8403 Website: www.soxal.com Business Registration No: 197001157D



Safety Data Sheet

Document No: SOXAL/SDS/14
Revision No: Rev. 2
Revision Date: 01 Jan. 08
Issue/Print Date:

LIQUID CARBON DIOXIDE

9. PHYSICAL & CHEMICAL PROPERTIES (continue)

Vapour pressure @ 20°C	57.3 Bar
Solubility mg/l water	2000 mg/l
Appearance/Colour	Colourless gas
Odour	No odour warning properties
Auto-ignition temperature	Not applicable
Flammability range	Not flammable
Others	Gas or vapour is heavier than air. May accumulate in confined space, particularly at or below ground level.

10. STABILITY & REACTIVITY

General	<ul style="list-style-type: none">Stable under normal conditions.Liquid spillages can cause embrittlement of structural materials.
---------	---

11. TOXICOLOGICAL INFORMATION

General	<ul style="list-style-type: none">Low concentrations cause rapid circulatory insufficiency. Symptoms are headache, nausea and vomiting, which may lead to unconsciousness.CO₂ is mildly toxic, with no cumulative effects.
---------	--

12. ECOLOGICAL INFORMATION

General	<ul style="list-style-type: none">When discharge in large quantities, may contribute to greenhouse effect.May cause frost damage to vegetation.
---------	--

13. DISPOSAL CONSIDERATIONS

General	<ul style="list-style-type: none">Do not discharge into any place where its accumulation could be dangerous.Vent to atmosphere in a well ventilated place.Contact SOXAL if guidance is required.
---------	--

14. TRANSPORT INFORMATION

UN No.	2187
Class/Division	2.2 (Non-Flammable Gas)
Subsidiary risk	None
UN proper shipping name	Carbon Dioxide, refrigerated liquid
IMO/IATA shipping label	



Disclaimer:

The information, recommendations and data contained in this document are intended to be used by properly trained and qualified personnel only and at their sole risks and discretion. The information, recommendations and data herein contained are derived from sources which we believe to be reliable. However, SOXAL makes no representation and gives no warranty of any kind whatsoever with respect to their accuracy or completeness and assumes no liability for damages or loss arising directly or indirectly from their use, whether proper or improper.

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:
 - compliance with applicable regulations; and
 - there is adequate ventilation.

15. REGULATORY INFORMATION

General

- Singapore's Factories Act 2000, Sections 14, 34, 44 & 60A.
- Singapore Standards:
 - CP 12:2000 Part 1
 - CP 98:2003
 - SS 152:2003
 - SS 286:1984 Part 1 to Part 5

Risk and safety phrases

- S39 – Wear eye or face protection.
- S51 – Use only in well ventilated area.

16. OTHER INFORMATION

General

- Ensure all local regulations or legislations are observed.
- Asphyxiant in high concentrations. Keep container in a well-ventilated place. Do not breathe gas.
- The hazard of asphyxiation is often overlooked and must be stressed before use.
- May cause cold burn or frostbite.
- Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

----- End of Document -----

For product and/or safety enquiry, please send, call, fax or log on to:

SINGAPORE OXYGEN AIR LIQUIDE PTE LTD

16, Jalan Buroh, Singapore 619475.

Tel: (65) 6265 3788 or 6265 4555 Fax: (65) 6265 1441 or 6268 8403 Website: www.soxal.com Business Registration No: 197001157D