



MATERIAL SAFETY DATA SHEET

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Revised edition no : 3

Date : 6 / 10 / 2009

Supersedes : 2 / 2 / 2009

Carbon dioxide (solid)

AL066

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Trade name : Carbon dioxide (solid)
MSDS Nr : AL066
Use : Freezing applications. Medical applications. Scientific applications. Special effects.
Chemical formula : CO₂
Company identification : Air Liquide
Level 9, 380 St.Kilda Road
3004 Melbourne AUSTRALIA
Emergency phone nr : 1800 812 588

2 HAZARDS IDENTIFICATION

Hazard classification : Not classified as hazardous according to NOHSC criteria.
Classified as a dangerous good by the criteria of the ADG code.
Hazards identification : Refrigerated solidified gas. Contact with product may cause cold burns or frostbite.
In high concentrations may cause asphyxiation.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Preparation : Substance.

Substance name	Contents	CAS No	EC No	Annex No	Classification
Carbon dioxide (solid)	100 %	124-38-9	204-696-9	-----	

Contains no other components or impurities which will influence the classification of the product.

4 FIRST AID MEASURES

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 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** : 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.
Hazardous combustion products : None.
Extinguishing media
- **Suitable extinguishing media** : All known extinguishants can be used.
Special protective equipment for fire fighters : In confined space use 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

Air Liquide

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Carbon dioxide (solid)**AL066****6 ACCIDENTAL RELEASE MEASURES (continued)**

- Environmental precautions** : proved to be safe.
Ensure adequate air ventilation.
- Clean up methods** : 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

- Storage** : Keep container below 50°C in a well ventilated place.
- Handling** : 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.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

- Personal protection** : Ensure adequate ventilation.
Protect eyes, face and skin from contact with product.
- Occupational Exposure Limits** : Carbon dioxide (solid) : ILV (EU) - 8 H - [mg/m³] : 9000
Carbon dioxide (solid) : ILV (EU) - 8 H - [ppm] : 5000
Carbon dioxide (solid) : TLV[©] -TWA [ppm] : 5000
Carbon dioxide (solid) : TLV[©] -STEL [ppm] : 30000

9 PHYSICAL AND CHEMICAL PROPERTIES

- Physical state at 20 °C** : Gas.
- Physical state** : Refrigerated solidified gas.
- Colour** : Colourless.
- Odour** : No odour warning properties.
- Molecular weight** : 44
- Melting point [°C]** : -56.6
- Boiling point [°C]** : -78.5 (s)
- Critical temperature [°C]** : 30
- Vapour pressure [20°C]** : 57.3 bar
- Relative density, gas (air=1)** : 1.52
- Relative density, liquid (water=1)** : 1.03
- Solubility in water [mg/l]** : 2000
- Flammability range [vol% in air]** : Non flammable.
- 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.

Carbon dioxide (solid)**AL066****11 TOXICOLOGICAL INFORMATION**

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

12 ECOLOGICAL INFORMATION

Ecological effects information : When discharged in large quantities may contribute to the greenhouse effect. Can cause frost damage to vegetation.

Global warming potential [CO2=1] : 1

13 DISPOSAL CONSIDERATIONS

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

14 TRANSPORT INFORMATION

UN No. : 1845
H.I. nr : --
Proper shipping name : CARBON DIOXIDE, SOLID
HAZCHEM - Emergency Action Code : 2T
: 2 = *Fine water spray.*
: *T = Recommended personal protective equipment : Full fire kit and breathing apparatus.*
: *Appropriate measures : dilute.*

- ADG Class : 9
- ADG Classification code : M11 III
- ADR Packing group : III

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 containers are firmly secured.
- Ensure there is adequate ventilation.
- Compliance with applicable regulations.

15 REGULATORY INFORMATION

EC Classification : Not included in Annex I.
Not classified as dangerous preparation/substance.

EC Labelling : No EC labelling required.

Symbol(s) : None.

R Phrase(s) : None.

S Phrase(s) : None.

16 OTHER INFORMATION

Asphyxiant in high concentrations.
May cause frostbite.
Keep container in a well-ventilated place.
Do not breathe the gas.



AIR LIQUIDE

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16 OTHER INFORMATION (continued)

Ensure all national/local regulations are observed.

The hazard of asphyxiation is often overlooked and must be stressed during operator training.

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.

DISCLAIMER OF LIABILITY

: 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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