Section 1. Identification of the substance/mixture and of the Company

Product Name: CARBON DIOXIDE, Solid (Dry Ice)
Chemical formula: CO_2
Uses: Industrial and Professional. Perform risk assessment prior to use.
Cooling.
Blast cleaning.
Metal cooling.
Contact Supplier for more information.
Uses advised against: In beverage or food for fogging effect, because of risk of ingestion.

Company Identification:
Gaz Carbonique Ltée
Lot 1, Ground Floor, Le Hub,
DBM Industrial Zone, Phoenix
Mauritius - Indian Ocean
Tel: (230) 603 2992
Fax: (230) 696 5973
Email: contact@gazcarbo.mu

Contact Person:
Mr. Arnaud Rougier Lagane
Chief Operating Manager

Section 2. Hazards Identification

Other Hazards
Asphyxiant in high concentrations.
Refrigerated solidified gas.
Contact with product may cause cold burns or frostbite.

Section 3. Composition/Information on Ingredients

Substance/Mixture: Substance
Substance Name: Carbon Dioxide (solid).
CAS NO.: 124-38-9
Index-Nr.: ----
EC No: 204-696-9

Contains no other components or impurities which will influence the classification of the product.
REACH Registration Number: Listed in Annex IV/V REACH, exempted from registration.
Registration deadline not expired
Registration not required: Substance manufactured or imported < 1t/y
Full text of R-phrases see chapter 16. Full text of H-statements see chapter 16

Section 4. First Aid measures

Inhalation
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. Immediately flush eyes thoroughly with water for at least 15 minutes.
Ingestion
Get immediate medical attention.

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Section 4. First Aid measures (continued)

Most Important symptoms and effects, both acute and delayed
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.

Section 5. Fire Fighting Measures

Extinguishing media
- Suitable extinguishing media: Water spray or fog
- Unsuitable extinguishing media: Do not use water jet to extinguish

Specific Hazards
None.
Hazardous combustion products
None.

Advice for fire-fighters
Specific methods
Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture.
Cool endangered receptacles with water spray jet from a protected position.
Prevent water used in emergency cases from entering sewers and drainage systems.
Use water spray or fog to knock down fire fumes if possible.
Special protective equipment for fire fighters
Use self-contained breathing apparatus.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures
Evacuate area.
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
Use protective clothing.
Ensure adequate air ventilation.
Act in accordance with local emergency plan.
Stay upwind.
Environmental precautions
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
Clean up methods
Ventilate area.

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Section 7. Handling and Storage

Safe Use of the product
The product must be handled in accordance with good industrial hygiene and safety procedures.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature.
Handle with appropriate protective equipments (adequate gloves for low temperature)
Contact your gas supplier if in doubt.

Conditions for safe storage
Keep container in a well-ventilated place.
Do not store dry ice in air-tight containers.
Observe all regulations and local requirements regarding storage of containers.

Section 8. Exposure Controls/Personal Protection

Exposure controls
Appropriate engineering control
Provide adequate general and local exhaust ventilation.
Ensure exposure is below occupational exposure limits (where available).
Oxygen detectors should be used when asphyxiating gases may be released.
Consider work permit system e.g. for maintenance activities.
Personal protection
Conduct and document risk assessment in each work area to assess the risks related to the use of the product and to select the appropriate PPEs. The following recommendations should be considered:
PPE compliant to the recommended EN/ISO standards

- Eye/face protection:	Wear safety glasses with side shields.
- Skin protection:	Wear working gloves when handling gas containers (adequate gloves for low ` temperature) Wear safety shoes while handling containers
- Respiratory protection:	Self-contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.
- Thermal hazards:	Wear cold insulating gloves.

Environmental exposure controls
None.

Section 9. Physical and Chemical Properties

General Information
Appearance

- Physical state at 20◦C / 101.3 kPa:	Gas.
- Physical state:	Refrigerated solidified gas
- Colour:	White
Odour:	No odour warning properties.
Odour threshold:	Odour threshold is subjective and inadequate to warn for overexposure.
Molar mass:	44 g/mol
Melting point (◦C):	-78,5
Boiling point (◦C):	-56.6
Critical temperature (◦C):	30
Flash point (◦C):	Not applicable for gases and gas-mixtures
Evaporation rate (ether=1):	Not applicable for gases and gas-mixtures
Auto-ignition temperature (◦C):	Not applicable

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Flammability range (vol% in air):	Non-flammable
Vapour pressure (20◦):	57.3 bar
Relative density, gas (air=1):	1.52
Relative density, liquid (water=1):	1.03
Solubility in water (mg/l):	2000 completely soluble.
Partition coefficient n-octanol/water:	0.83

Other data:
Gas/vapour heavier than air.
May accumulate in confined spaces, particularly at or below ground level.

Section 10. Stability and reactivity

Reactivity
None.
Chemical stability
Stable under normal conditions.
Possibility of hazardous reactions
None
Conditions to avoid
None under recommended storage and handling conditions.
Hazardous decomposition products
None

Section 11. Toxicological Information

General
No known effects of this product.

Acute toxicity
In high concentrations cause rapid circulatory insufficiency.
Symptoms are headache, nausea and vomiting, which may lead to unconsciousness.
Unlike simple asphyxiant, carbon dioxide has the ability to cause death even when normal oxygen levels (20-21%) are maintained. 5% CO2 has been found to act synergistically to increase the toxicity of certain other gases (CO, NO2).

Section 12. Ecological Information

General
When discharged in large quantities may contribute to the greenhouse effect.

Section 13. Disposal Considerations

General
Consult supplier for specific recommendations.
Discharge to atmosphere in large quantities should be avoided.
Do not discharge into any place where its accumulation could be dangerous.

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Section 14. Transport Information

UN Number : 1845
UN proper shipping name:
Land transport: Not regulated
Air transport: CARBON DIOXIDE, SOLID
Sea Transport: CARBON DIOXIDE, SOLID (DRY ICE)

Labelling ADR, IMDG, IATA:

9: Miscellaneous dangerous goods

Land Transport (ADR/RID)
Transport hazard class(es): 9
Classification code: M11

Sea Transport (IMDG)
Class / Div. (Sub.risk(s)): 9
Emergency Schedule (EmS) Fire: F-C
Emergency Schedule (EmS) Spillage: S-V

Air Transport (IATA-DGR, ICAO-TI)
Class / Div. (Sub.risk(s)): 9

Packing Group: Not applicable
Environmental hazards: None

Special precautions for user
Packing Instructions:
Air Transport (IATA-DGR, ICAO-TI)
Passenger and Cargo Aircraft: 954
Cargo Aircraft only: 954
Sea Transport (IMDG): P003
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 there is adequate ventilation.
- Ensure that they are firmly secured.
- Ensure compliance with applicable regulations.

Section 15. Regulatory Information

National legislation: Ensure all national/local regulations are observed.

Section 16. Other Information

DISCLAIMER OF LIABILITY: 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. Details given in this document are believed to be correct at the time of going to press. Before using this product, a thorough material compatibility and safety study should be carried out. This MSDS was prepared and is to used only for this product.

End of document.

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