1. PRODUCT IDENTIFICATION

Product identifier
Product Name  Carbon Dioxide (Cylinder)
Synonyms  Carbon Dioxide, Compressed, Supagas Carbon Dioxide

Uses and uses advised against
Uses  CALIBRATION ● CARBONATING/ PRESSURE DISPENSING ● FIRE FIGHTING ● FOOD PACKAGING ● WELDING

Supplier
Fire Protection Technologies
1/251 Ferntree Gully Road
Mount Waverley  VIC 3149
Phone 1300 742 296
Fax (03) 9543 9109

Emergency telephone numbers  1300 742 296

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture
CLASSIFIED AS HAZARDOUS (GHS ONLY) ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

GHS classifications
Gases Under Pressure: Liquefied gas Aquatic Toxicity (Chronic): Category 4

GHS Label elements
Signal word  WARNING

Pictograms

Hazard statements
H280  Contains gas under pressure, may explode if heated.
H413  May cause long lasting harmful effects to aquatic life.

Prevention statements
P273  Avoid release to the environment

Response statements
None allocated.
Storage statements
P410 + P403  
Protect from sunlight. Store in a well ventilated place.

Disposal Statement
P501  
Dispose of contents/container in accordance with relevant regulations.

Other hazards
In high concentrations may cause asphyxiation. Contact with liquid may cause cold burns/frostbite

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances / Mixtures

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>EC Number</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>CARBON DIOXIDE</td>
<td>124-38-9</td>
<td>204-696-9</td>
<td>&gt;99.9%</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Description of first aid measures

Eye  
Cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention

Inhalation  
If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self-Contained Breathing Apparatus (SCBA). Apply artificial respiration if not breathing. Give oxygen if available.

Skin  
Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30°C) for 15 minutes. It is recommended that warm water is applied to clothing before removing it so as to prevent further skin damage. Apply sterile dressing and treat as for a thermal burn. For large burns, immerse in warm water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention

Ingestion  
Ingestion is not considered a potential route of exposure

First aid facilities  
Non allocated

Most important symptoms and effects, both acute and delayed
In high concentrations may cause asphyxiation. Direct contact with the liquefied material or escaping compressed gas may cause frostbite injury. Low concentrations of CO2 cause increased respiration and headache.

Immediate medical attention and special treatment needed
Treat for asphyxia and cold burns.

5. FIRE FIGHTING MEASURES

Extinguishing media
Use water fog to cool containers from protected area.

Special hazards arising from the substance or mixture
Non flammable
Advice for firefighters

Temperatures in a fire may cause liquid vessels and related equipment to rupture. Storage vessels may contain fine particle insulation materials or foam products which may be hazardous or release hazardous decomposition products in a fire. Cool vessels exposed to fire by applying water from a protected location. Do not approach vessels suspected of being hot. Evacuate area if unable to keep vessels cool.

Hazchem code

2TE
2 Fine Water Spray.
T Wear full fire kit and breathing apparatus. Dilute spill and run-off.
E Evacuation of people in and around the immediate vicinity of the incident should be considered.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

If the cylinder is leaking, evacuate area of personnel. Inform manufacturer/supplier of leak. Use Personal Protective Equipment (PPE) as detailed in Section 8 of the SDS. Ventilate area where possible and eliminate ignition sources.

Environmental precautions

Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

Methods of cleaning up

Stop the flow of material, if this is without risk. If the leak is irreparable, move the cylinder to a safe and well ventilated area, and allow to discharge. Keep area evacuated and free from ignition sources until any leaked or spilled liquid has evaporated.

Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

Conditions for safe storage, including any incompatibilities

Refer to vessel operating instructions. Do not store near incompatible substances, heat or ignition sources and foodstuffs. Portable liquid containers should be stored: upright, prevented from falling, in a secure area; below 45°C, in a dry, well ventilated area constructed of non-combustible material with firm level floor (preferably concrete), away from areas of heavy traffic and emergency exits.

Specific end uses

No information provided.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters Exposure standards

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Reference</th>
<th>TWA ppm</th>
<th>TWA mg/m³</th>
<th>STEL ppm</th>
<th>STEL mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon dioxide</td>
<td>SWA (AUS)</td>
<td>5000</td>
<td>9000</td>
<td>30000</td>
<td>54000</td>
</tr>
<tr>
<td>Carbon dioxide in coal mines</td>
<td>SWA (AUS)</td>
<td>12500</td>
<td>22500</td>
<td>30000</td>
<td>54000</td>
</tr>
</tbody>
</table>

Biological limits
No biological limit values have been entered for this product.

Exposure controls

Engineering controls
Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain vapour levels below the recommended exposure standard.

PPE

Eye / Face Wear safety glasses.
Hands Wear leather or insulated gloves
Body Wear coveralls
Respiratory Where an inhalation risk exists, wear Self Contained Breathing Apparatus (SCBA) or an Air-line respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance COLOURLESS GAS (LIQUEFIED UNDER PRESSURE)
Odour ODOURLESS
Flammability NON FLAMMABLE
Flash point NOT RELEVANT
Boiling point NOT AVAILABLE
Melting point NOT AVAILABLE
Evaporation rate IMMEDIATE
PH NOT AVAILABLE
Vapour density 1.53 (Air = 1)
Specific gravity 1.02
Solubility (water) SLIGHTLY SOLUBLE
Vapour pressure 6,300 kPa @ 25°C
Upper explosion limit NOT RELEVANT
Lower explosion limit NOT RELEVANT
Partition coefficient NOT AVAILABLE
Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autoignition temperature</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Viscosity</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>NOT AVAILABLE</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity
Carefully review all information provided in sections 10.2 to 10.6.

Chemical stability
Stable under recommended conditions of storage.

Possibility of hazardous reactions
Polymerization will not occur.

Conditions to avoid
Avoid contact with incompatible substances.

Incompatible materials
Moist carbon dioxide is corrosive, hence acid resistant materials are required (e.g. stainless steel). Certain properties of some plastics and rubbers may be affected by carbon dioxide (i.e. embrittlement, leaching of plasticisers, etc).

Hazardous decomposition products
May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

- **Acute toxicity**
  Based on available data, the classification criteria are not met. Low concentrations of carbon dioxide cause increased respiration and headache.

- **Skin**
  Not classified as a skin irritant. Contact with dry ice powder may cause frostbite injury or cold burns.

- **Eye**
  Not classified as an eye irritant. Contact with dry ice powder may cause frostbite injury or cold burns.

- **Sensitisation**
  Not classified as causing skin or respiratory sensitization.

- **Mutagenicity**
  Not classified as a mutagen

- **Carcinogenicity**
  Not classified as a carcinogen

- **Reproductive**
  Not classified as a reproductive toxin.

- **STOT - single exposure**
  Asphyxiant. Effects are proportional to oxygen displacement. Over exposure may result in
dizziness, drowsiness, weakness, fatigue, breathing difficulties and unconsciousness. Not classified as causing organ damage from repeated exposure.

Aspiration
Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

Toxicity
May cause long-term adverse effects in the environment.

Persistence and degradability
Not expected to be persistent in the aquatic environment.

Bioaccumulative potential
Bioaccumulation is not expected

Mobility in soil
The substance is a gas, not applicable.

Other adverse effects
When discharged to the atmosphere, carbon dioxide may contribute to the greenhouse effect.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste disposal
Ensure all liquid and gas supply valves are shut. Notify the manufacturer that you will be returning the portable liquid container. Residual product will be disposed of under the manufacturer's supervision.

Legislation
Dispose of in accordance with relevant local legislation

14. TRANSPORTATION INFORMATION

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

<table>
<thead>
<tr>
<th></th>
<th>LAND TRANSPORT (ADG)</th>
<th>SEA TRANSPORT (IMDG / IMO)</th>
<th>AIR TRANSPORT (IATA / ICAO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1 UN Number</td>
<td>1013</td>
<td>1013</td>
<td>1013</td>
</tr>
<tr>
<td>14.2 Proper Shipping Name</td>
<td>CARBON DIOXIDE</td>
<td>CARBON DIOXIDE</td>
<td>CARBON DIOXIDE</td>
</tr>
<tr>
<td>14.3 Transport hazard class</td>
<td>2.2</td>
<td>2.2</td>
<td>2.2</td>
</tr>
<tr>
<td>14.4 Packing Group</td>
<td>None allocated.</td>
<td>None allocated.</td>
<td>None allocated.</td>
</tr>
</tbody>
</table>
Environmental hazards
No information provided.

Special precautions for user

<table>
<thead>
<tr>
<th>Hazchem code</th>
<th>2TE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GTEPG</td>
<td>2C2</td>
</tr>
<tr>
<td>EMS</td>
<td>F-C, S-V</td>
</tr>
</tbody>
</table>

Other information: Transport on open top vehicles in accordance with Australian Code for the Transport of Dangerous Goods

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule
A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications
Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals
The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

Hazard codes  N  Dangerous for the environment
Risk phrases  R58  May cause long term adverse effects in the environment
Safety phrases  S2  Keep out of reach of children
              3 S3  Keep in a cool place
              9 S9  Keep container in a well ventilated place
              36 S36 Wear suitable protective clothing.
              38 S38 In case of insufficient ventilation, wear suitable respiratory equipment.

Inventory listings
AUSTRALIA: AICS (Australia Inventory of Chemical Substances)
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information
PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.
Abbreviations

ACGIH  American Conference of Governmental Industrial Hygienists
CAS #  Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS    Central Nervous System
EC No.  EC No - European Community Number
EMS    Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS    Globally Harmonized System
GTEPG  Group Text Emergency Procedure Guide IARC
        International Agency for Research on Cancer
LC50   Lethal Concentration, 50% / Median Lethal Concentration
LD50   Lethal Dose, 50% / Median Lethal Dose
mg/m³  Milligrams per Cubic Metre OEL
        Occupational Exposure Limit
pH     relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm    Parts Per Million
STEL   Short-Term Exposure Limit
STOT-RE Specific target organ toxicity (repeated exposure)
STOT-SE Specific target organ toxicity (single exposure)
SUSMP  Standard for the Uniform Scheduling of Medicines and Poisons
SWA    Safe Work Australia
TLV    Threshold Limit Value
TWA    Time Weighted Average