1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier
Product name: CARBON DIOXIDE (CYLINDER)
Synonym(s): NSN: XXXX-66-136-1826
               CARBON DIOXIDE, COMPRESSED • SUPAGAS CARBON DIOXIDE

1.2 Uses and uses advised against
Use(s): CALIBRATION • CARBONATING/ PRESSURE DISPENSING • FIRE FIGHTING • FOOD PACKAGING • WELDING

1.3 Details of the supplier of the safety data sheet
Supplier name: SUPAGAS PTY LTD
Address: 23 Commercial Drive, Dandenong South, VIC, Australia, 3175
Telephone: (03) 9706 6262
Fax: (03) 9706 4787
Email: Not supplied
Website: http://www.supagas.com.au

1.4 Emergency telephone number(s)
Emergency: 1300 275 021

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
CLASSIFIED AS HAZARDOUS (GHS ONLY) ACCORDING TO SAFE WORK AUSTRALIA CRITERIA
GHS Classification(s): Gases Under Pressure: Liquefied gas
                      Aquatic Toxicity (Chronic): Category 4

2.2 Label elements
Signal word: WARNING
Pictograms:
Hazard statement(s):
H280: Contains gas under pressure; may explode if heated.
H413: May cause long lasting harmful effects to aquatic life.
Prevention statement(s):
P273: Avoid release to the environment.
Storage statement(s):
P410 + P403: Protect from sunlight. Store in a well-ventilated place.
Disposal statement(s):
P501: Dispose of contents/container in accordance with relevant regulations.

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

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 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
Product name: CARBON DIOXIDE (CYLINDER)

4.1 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. 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**
No information provided.

4.2 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.

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

5. FIREFIGHTING MEASURES

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

5.2 Special hazards arising from the substance or mixture
Non flammable.

5.3 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.

5.4 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

6.1 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.

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

6.3 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.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.
7. HANDLING AND STORAGE

7.1 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.

7.2 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.

7.3 Specific end use(s)
No information provided.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Control parameters

<table>
<thead>
<tr>
<th>Substance</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>

No biological limit values have been entered for this product.

8.2 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.
- **Hand**: 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

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>COLOURLESS GAS (LIQUEFIED UNDER PRESSURE)</td>
</tr>
<tr>
<td>Odour</td>
<td>ODOURLESS</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Flammability</td>
<td>NON FLAMMABLE</td>
</tr>
<tr>
<td>Flash Point</td>
<td>NOT RELEVANT</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Melting Point</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>IMMEDIATE</td>
</tr>
<tr>
<td>pH</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.02</td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>SLIGHTLY SOLUBLE</td>
</tr>
<tr>
<td>Vapour Density</td>
<td>1.53 (Air = 1)</td>
</tr>
</tbody>
</table>
Product name | CARBON DIOXIDE (CYLINDER)
--- | ---
Vapour Pressure | 6,300 kPa @ 25°C
Upper Explosion Limit | NOT RELEVANT
Lower Explosion Limit | NOT RELEVANT
Partition Coefficient | NOT AVAILABLE
Autoignition Temperature | NOT AVAILABLE
Decomposition Temperature | NOT AVAILABLE
Viscosity | NOT AVAILABLE
Explosive Properties | NOT AVAILABLE
Oxidising Properties | NOT AVAILABLE

9.2 Other information
% Volatiles | 100 %

10. STABILITY AND REACTIVITY

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

10.2 Chemical stability
Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions
Polymerization will not occur.

10.4 Conditions to avoid
Avoid contact with incompatible substances.

10.5 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).

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

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Health Hazard
Summary
No information provided.

No information provided.
No information provided.
No information provided.
No information provided.

CARBON DIOXIDE (124-38-9)
LC50 (Inhalation): 470000 ppm/30M (rat)
LCLo (Inhalation): 9 pph/5M (human)
Product name: CARBON DIOXIDE (CYLINDER)

12. ECOLOGICAL INFORMATION

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

12.2 Persistence and degradability
No information provided.

12.3 Bioaccumulative potential
No information provided.

12.4 Mobility in soil
No information provided.

12.5 Results of PBT and vPvB assessment
No information provided.

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

13. DISPOSAL CONSIDERATIONS

13.1 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. TRANSPORT INFORMATION

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

<table>
<thead>
<tr>
<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>
</tr>
<tr>
<td>14.2 UN proper shipping name</td>
<td>CARBON DIOXIDE</td>
<td></td>
</tr>
<tr>
<td>14.3 Transport hazard classes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DG division</td>
<td>2.2</td>
<td>2.2</td>
</tr>
<tr>
<td>Subsidiary risk(s)</td>
<td>None Allocated</td>
<td>2.2</td>
</tr>
<tr>
<td>14.4 Packing group</td>
<td>None Allocated</td>
<td></td>
</tr>
<tr>
<td>14.5 Environmental hazards</td>
<td>None Allocated</td>
<td></td>
</tr>
<tr>
<td>14.6 Special precautions for user</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazchem Code</td>
<td>2TE</td>
<td></td>
</tr>
<tr>
<td>EMS</td>
<td>F-C, S-V</td>
<td></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

15.1 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
None allocated
Product name: CARBON DIOXIDE (CYLINDER)

Risk phrases: None allocated

Safety phrases: None allocated

Inventory listing(s): AUSTRALIA: AICS (Australian Inventory of Chemical Substances)
All components are listed on AICS, or are exempt.

15.2 Chemical safety assessment
No information provided.

16. OTHER INFORMATION

Additional information: HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: 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 ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as 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.

Abbreviations:

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

Report Status:

This ChemAlert report has been independently compiled by RMT's scientific department utilising the original Safety Data Sheet ('SDS') for the product provided to RMT by the manufacturer. The information is based on the latest chemical and toxicological research and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. It is an independent collation by RMT of information obtained from the original SDS for this product. Its content has not been authorised or verified by the manufacturer / distributor of the chemical to which it relates.

This ChemAlert report does not constitute the manufacturer's original SDS and is not intended to be a replacement for same. It is provided to subscribers of ChemAlert as a reference tool only, not all-inclusive.
CHEMICAL REPORT

Product name

CARBON DIOXIDE (CYLINDER)

and does not represent any guarantee as to the properties of the product. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

While RMT has taken all due care to include accurate and up-to-date information in this ChemAlert report, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this ChemAlert report.

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Last Reviewed: 17 Feb 2016
Date Printed: 10 Nov 2016
Based on SDS dated: 17 Feb 2016

End of Report