1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier name: BOC LIMITED (AUSTRALIA)
Address: 10 Julius Avenue, North Ryde, NSW, 2113, AUSTRALIA
Telephone: 131 262, (02) 8874 4400
Fax: 132 427 (24 hours)
Emergency: 1800 653 572 (24/7) (Australia only)
Synonym(s): 0080 - MSDS NUMBER • PRODUCT CODE: 196
Use(s): PESTICIDE • SPACE SPRAY
SDS date: 09 July 2013

2. HAZARDS IDENTIFICATION

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

RISK PHRASES
None allocated

SAFETY PHRASES
None allocated

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

<table>
<thead>
<tr>
<th>UN number</th>
<th>Packing group</th>
<th>DG division</th>
<th>Subsidiary risk(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968</td>
<td>None Allocated</td>
<td>2.2</td>
<td>None Allocated</td>
</tr>
</tbody>
</table>

3. COMPOSITION/ INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Identification</th>
<th>Classification</th>
<th>Content (v/v)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISTILLATES (PETROLEUM), HYDROTREATED LIGHT</td>
<td>CAS: 64742-47-8 EC: 265-149-8</td>
<td>Xn;R65</td>
<td>10%</td>
</tr>
<tr>
<td>PYRETHRUM</td>
<td>CAS: 8003-34-7 EC: 232-319-8</td>
<td>Not Available</td>
<td>0.4%</td>
</tr>
<tr>
<td>CARBON DIOXIDE</td>
<td>CAS: 124-38-9 EC: 204-696-9</td>
<td>Not Available</td>
<td>87.6%</td>
</tr>
<tr>
<td>PIPERONYL BUTOXIDE</td>
<td>CAS: 51-03-6 EC: 200-076-7</td>
<td>Not Available</td>
<td>2%</td>
</tr>
</tbody>
</table>

4. 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
Remove from exposure area immediately. If assisting a victim, avoid becoming a casualty, wear an Air-line respirator or Self Contained Breathing Apparatus (SCBA). If victim is not breathing apply artificial respiration and seek urgent medical attention. G
PESTIGAS

**Product Name**

**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.

**Advice to doctor**
Treat for asphyxia and cold burns.

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**5. FIRE FIGHTING MEASURES**

**Flammability**
Non flammable. Exposure to fire may cause containers to rupture/explode. This material will not evolve hazardous products on decomposition.

**Fire and explosion**
Temperatures in a fire may cause cylinders to rupture. Cool cylinders exposed to fire by applying water from a protected location. Do not approach cylinders suspected of being hot. Remove cool cylinders from the path of the fire.

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

**Hazchem code**
2TE
- 2 Water Fog (or fine water spray if fog unavailable)
- T Self Contained Breathing apparatus and protective gloves.
- E Evacuation of people in the vicinity of the incident should be considered.

---

**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions**
If the cylinder is leaking, evacuate area of personnel. Inform manufacturer/supplier of leak. Use personal protective equipment as detailed in Section 8 of this SDS.

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

**Methods of cleaning up**
Carefully move material to a well ventilated remote area, then allow to discharge if safe to do so. Do not attempt to repair leaking valve or cylinder safety devices.

**References**
See Sections 8 and 13 for exposure controls and disposal.

---

**7. STORAGE AND HANDLING**

**Storage**
Do not store near incompatible materials. Cylinders should be stored below 45°C in a secure area, upright and restrained to prevent cylinders from falling. Cylinders should also be stored 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.

**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. The uncontrolled release of any gas under pressure may cause physical harm. Do not drop, roll or drag cylinders. Use a suitable hand truck for cylinder movement.

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**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**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>
<tr>
<td>Mineral Oil Mist</td>
<td>SWA (AUS)</td>
<td>--</td>
<td>5</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Pyrethrum</td>
<td>SWA (AUS)</td>
<td>--</td>
<td>5</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

**Biological limits**
No biological limit allocated.

**Engineering controls**
In poorly ventilated areas, mechanical extraction ventilation is recommended. Maintain vapour levels below the recommended exposure standard. Hand held applications should commence at the furthest point from the exit and continue as the operator moves away from the spray drift towards the exit. Entry should be barred to areas in which fixed nozzle spraying occurs during spraying.
PESTIGAS

Product Name

PPE

- **Eye / Face**: Wear safety glasses.
- **Hands**: Wear leather or cotton gloves.
- **Body**: Wear coveralls and safety boots.
- **Respiratory**: Wear a Type A-Class P2 (Organic gases/vapours and Particulate) respirator. Where an inhalation risk exists, wear Self Contained Breathing Apparatus (SCBA) or an Air-line respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**: COLOURLESS GAS (LIQUEFIED UNDER PRESSURE)
- **Odour**: CHRYSANTHEMUM-LIKE ODOUR
- **Flammability**: NON FLAMMABLE
- **Flash point**: NOT APPLICABLE
- **Boiling point**: NOT AVAILABLE
- **Melting point**: NOT AVAILABLE
- **Evaporation rate**: NOT APPLICABLE
- **pH**: NOT AVAILABLE
- **Vapour density**: NOT AVAILABLE
- **Specific gravity**: 0.759 cm³/cm³ (Carbon dioxide)
- **Solubility (water)**: 6300 kPa @ 25°C (Approximately)
- **Vapour pressure**: NOT AVAILABLE
- **Upper explosion limit**: NOT APPLICABLE
- **Lower explosion limit**: NOT APPLICABLE
- **Autoignition temperature**: NOT AVAILABLE
- **Decomposition temperature**: NOT AVAILABLE
- **Viscosity**: NOT AVAILABLE
- **Partition coefficient**: 100 %

10. STABILITY AND REACTIVITY

- **Chemical stability**: Stable under recommended conditions of storage.
- **Conditions to avoid**: Avoid shock, friction, heavy impact, heat, sparks, open flames and other ignition sources.
- **Hazardous Decomposition Products**: This material will not decompose to form hazardous products other than that already present.
- **Hazardous Reactions**: Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

- **Health Hazard Summary**: Asphyxiant gas. Severe frost-bite burns may result from exposure to cold vapour or liquid. Carbon dioxide concentrations of 3-5% in air cause increased respiration and headache. Concentrations of 8-15% cause headache, nausea and vomiting which may lead to unconsciousness if not moved to open air and given oxygen. Inhalation of a mixture containing no oxygen may result in unconsciousness from the first breath and death will follow in a few minutes. Adverse health effects to long term exposure to carbon dioxide have not been reported. Escaping liquid from the cylinder can form a dry ice powder like snow and leave a liquid residue.
- **Eye**: Direct contact with evaporating liquid may result in cold burns, similar to frostbite injury, with possible permanent damage. Non irritating. Eye contact with dry ice powder could result in cold burns.
- **Inhalation**: Asphyxiant. Effects are proportional to oxygen displacement. Acts as a simple asphyxiant by displacing oxygen in the lungs thereby diminishing the supply of oxygen to the blood and tissues. Inhalation of tetrahydrofuran vapours during processing may result in anaesthesia and have adverse effects on the central nervous system.
- **Skin**: Non irritating. Contact with evaporating liquid (eg. cold vessels or pipes containing low pressure liquid) may result in cold burns with severe tissue damage. Skin contact with dry ice powder could result in cold burns.
Ingestion

Ingestion is considered unlikely due to product form.

Toxicity data

CARBON DIOXIDE (124-38-9)
- LC50 (inhalation): 470000 ppm/30M (rat)
- LCLo (inhalation): 9 ppm/5M (human)

PIPERONYL BUTOXIDE (51-03-6)
- LD50 (ingestion): 2600 mg/kg (mouse)
- LD50 (skin): 200 mg/kg (rabbit)
- LDLo (intraperitoneal): 1000 mg/kg (mouse)
- TDLo (intraperitoneal): 200 mg/kg (mouse; male; effects on fertility)

12. ECOLOGICAL INFORMATION

Toxicity

When discharged to the atmosphere in large quantities, carbon dioxide may contribute to the greenhouse effect.

Persistence and degradability

Not applicable.

Bioaccumulative potential

Not applicable.

Mobility in soil

Not applicable.

Other adverse effects

Increases in the atmospheric carbon dioxide levels have been linked with global warming, and hence emission of carbon dioxide into the atmosphere should be minimised as far as possible. Piperonyl butoxide is toxic to terrestrial invertebrates and aquatic organisms.

13. DISPOSAL CONSIDERATIONS

Waste disposal

Cylinders should be returned to the manufacturer or supplier for disposal of contents.

Legislation

Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

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

LAND TRANSPORT (ADG)  SEA TRANSPORT (IMDG / IMO)  AIR TRANSPORT (IATA / ICAO)

UN number  1968  -  -
Proper shipping name  INSECTICIDE GAS, N.O.S.  -  -
DG class/ Division  2.2  -  -
Subsidiary risk(s)  None Allocated  -  -
Packing group  None Allocated  -  -
GTEPG  2C2  -  -
Hazchem code  2TE  -  -
Other information  Ensure cylinder is separated from driver and foodstuffs, and that outlet of relief device is not obstructed.

15. REGULATORY INFORMATION

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).

Inventory Listing(s)

AUSTRALIA: AICS (Australian Inventory of Chemical Substances)
All components are listed on AICS, or are exempt.
16. OTHER INFORMATION

Additional information

The storage of significant quantities of gas cylinders must comply with AS4332. The storage and handling of gases in cylinders. This product is used as a space spray for control of cockroaches, flies, mosquitoes and fleas. It is registered in Australia as an Agricultural Chemical for use by licensed pest controllers. APVMA Approval Number: 32661/6/0307.

APPLICATION METHOD: Cylinder positioned vertically with valve at top. Portable cylinders connected to hand held spray gun or manifolded cylinders connected to fixed pipework distribution system with spray nozzles and controlled release.

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.

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.

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>GHS</td>
<td>Globally Harmonized System</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</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>PEL</td>
<td>Permissible 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>REACH</td>
<td>Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals</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>TLV</td>
<td>Threshold Limit Value</td>
</tr>
<tr>
<td>TWA/OEL</td>
<td>Time Weighted Average or Occupational Exposure Limit</td>
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Revision history

<table>
<thead>
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<th>Revision</th>
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<tbody>
<tr>
<td>2.1</td>
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<tr>
<td>2.0</td>
<td>Standard SDS Review.</td>
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<td>1.0</td>
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Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources 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. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, 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 SDS.
End of SDS