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## MATERIAL SAFETY DATA SHEET

ISSUED DATE: June 2011

REVISION: 1

### 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: JACKEROO PACK 4 BUTANE CARTRIDGES  
ITEM CODE: 41418383

### 2. HAZARDS IDENTIFICATION

<b>Hazard Classification</b>	Classified as a highly flammable, liquefied gas for transport (ADG). Hazardous according to Work Safe Victoria.
<b>Proper Shipping Name</b>	RECEPTACLES, SMALL, CONTAINING GAS, (GAS CARTRIDGES) without a release device, non-refillable
<b>Packaging Method</b>	3.8.2 RT2
<b>Risk Phrase(s)</b>	R12 - Extremely flammable R18 - In use, may form flammable – explosive vapour air mixture R21 - Harmful in contact with skin
<b>Safety Phrase(s)</b>	S9 - Keep containers in a well ventilated place S16 - Keep away from sources of ignition – no smoking S23(2) – Do not breath gas or fumes S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice S33 - Take precautionary measures against static discharges S43 - In case of fire, use dry chemical type extinguisher or water

### 3. CHEMICAL COMPOSITION / INGREDIENTS INFORMATION

<b>Pure Substances</b>	C <sub>4</sub> H <sub>10</sub> (Butane) C <sub>3</sub> H <sub>8</sub> (Propane)
<b>Common Name</b>	Butane Gas
<b>CAS Number</b>	Butane 106-97-8 Propane 74-98-6
<b>Mixtures or Composite Materials</b>	N/A
<b>Chemical Identity of the Substance(s)</b>	C <sub>4</sub> H <sub>10</sub> (Butane) C <sub>3</sub> H <sub>8</sub> (Propane)
<b>Contains</b>	<0.1% 1,3 – butadiene
<b>Hazardous Components</b>	No component is present at sufficient concentration to require a hazardous classification
<b>Proportion of Ingredients</b>	Butane 80 – 95% Propane 5 – 20 %
<b>Confidentiality Provisions</b>	N/A
<b>Disclosure of Ingredients</b>	N/A



#### 4. FIRST AID MEASURES

##### **Inhalation:**

If exposure to vapour, mists or fumes causes drowsiness, headache, blurred vision or irritation of the eyes, nose or throat, remove immediately to fresh air. Keep patient warm and at rest. If any symptoms persist, obtain medical advice.

Unconscious casualties must be placed in the recovery position. Monitor breathing and pulse rate and if breathing has failed, or is deemed inadequate, respiration must be assisted, preferable by the mouth to mouth method. Administer external cardiac massage if necessary. Seek medical attention immediately.

##### **Skin**

If cold burns are present drench with water and obtain immediate medical advice. Keep contaminated clothes away from ignition sources.

##### **Eye**

Wash eye thoroughly with copious quantities of luke warm water. Obtain **immediate** medical attention.

##### **Advice to Doctor**

Treatment should in general be symptomatic and directed to relieving any effects

##### **Additional Information**

N/A

#### 5. FIRE FIGHTING

##### **Suitable Extinguishing Media**

Smaller LP Gas fires may be extinguished using dry chemical powder type extinguishers. Larger LP Gas fires are controlled with use of water via hose reel, hydrants or automated deluge type systems.

##### **Hazards from Combustion Products**

Carbon Dioxide, Water Vapour, traces of Carbon Monoxide and Nitrogen Oxides. Fumes, smoke Carbon Monoxide and Aldehydes can be formed during incomplete combustion. Fire fighters may need self contained breathing apparatus.

##### **Precautions for Fire Fighters & Special Protective Equipment**

Evacuate area, remove ignition sources. Cut off gas supply if safe to do so – do not endanger life. **DO NOT EXTINGUISH FIRE** – allow gas to burn out. Use a water mist to keep the container cool. **NOTE:** if ignition has occurred and water is not available, the storage container metal may weaken from the heat and may result in an explosion. The area should be evacuated immediately. From a safe location, notify emergency services.

##### **Hazchem Code**

2WE (in accordance with 7<sup>th</sup> edition of ADG code)

##### **Additional Information**

Butane is delivered, stored and used at temperatures above its flash point. Avoid all naked flames, sparks, cigarettes etc.

In case of fire, immediately alert the fire brigade.

Ensure an escape path is always available from any fire. Fires in confined spaces should be dealt with by trained personnel wearing approved breathing apparatus.

If gas has ignited, do not attempt to extinguish but stop gas flow and allow to burn out. Use water spray to cool heat-exposed bulk tanks, and to protect surrounding areas and personnel effecting shut-off. **DO NOT USE** water jets.



Every precaution must be taken to keep containers cool to avoid the possibility of a boiling liquid expanding vapour explosion (BLEVE).

Pressured bulk tanks are liable to explode violently when subjected to high temperatures.

## 6. ACCIDENTAL RELEASE MEASURES

### Emergency Procedures

- As this product has a very low flash point any spillage or leak is a severe fire and/or explosion hazard. If a leak has not ignited, stop gas flow, isolate sources of ignition and evacuate personnel
- Ensure good ventilation
- Liquid leaks generate large volumes of flammable vapour which is heavier than air, this may travel to remote sources of ignition (eg along drainage systems). Where appropriate, use water spray to disperse the gas or vapour and to protect personnel attempting to stop leakage
- Vapour may collect in any confined space

### Methods and Materials for containment and clean up procedures

If spillage has occurred in a confined space, ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry.

Do not enter a vapour cloud except for rescue; self contained breathing apparatus must be worn. Wear protective clothing. See Exposure Controls/Personal Protection (section 8) of the Safety Data Sheet. In the event of a leak, contact the appropriate authorities. Small quantities of spilled liquid may be allowed to evaporate. Vapour should be dispersed by effective ventilation.

## 7. HANDLING AND STORAGE

### Precautions for Safe Handling

- Ensure good ventilation
- Avoid inhalation of vapour
- Avoid contact with liquid
- Avoid contact with eyes.

### Safe Handling Information

Classified as a 2.1 (flammable gas) Dangerous Substance for the purpose of transport. Refer to relevant regulations for storage and transport requirements. Not to be loaded with explosives (Class 1), flammable liquids (Class 3) in bulk, flammable solids (Class 4), oxidising agents (Class 5), or radioactive substances (Class 7).

Usually stored as liquid under pressure. Store in a cool place and out of direct sunlight. Store in a well ventilated area. Store away from sources of heat or ignition, oxidising agents and combustible materials. Keep containers closed at all times – check regularly for leaks.

### Spills

Clear area of all unprotected personnel. Wear protective equipment to prevent skin and eye contamination and inhalation of vapours. Shut off all possible sources of ignition. Increase ventilation. Stop leaks if possible. Separate leaking container and stand so that only gas escapes. Use water spray to disperse gas clouds but avoid spraying water directly on leaking container as this will increase leakage. Contain using sand and soil – prevent run off into drains or waterways. If contamination of sewers or waterways has occurred advise the local emergency services.



## Bulk Storage

If the quantity exceeds 100kg net, it is recommended that they be kept either:

- In groups of not more than 100kg net and at least 6m from each other.
- In, or directly ventilated to, the open air and separated by at least 3m from any combustible material.
- In an enclosure preventing the projection of containers if involved in a fire.
- At least 5m from any other Class of dangerous goods or any combustible material.
- At least 3m from any fixed ignition source (other than electric ceiling lighting).

## Fire/Explosion Hazard

Highly flammable liquid and explosive gas. Evacuate area. Attempt to cut off source of gas rather than put out fire. If safe to do so, remove containers from path of fire. Keep containers cool with water spray.

## Other Information

Fire Prevention –

Where appropriate, ensure equipment is electrically bonded and earthed to prevent static accumulation.

Explosive air/vapour mixtures may form at ambient temperature. Note: product spilt on clothing may give rise to delayed evaporation and subsequent fire hazard.

Storage and handling of butane is controlled via the requirements of AS/NZS1596 (Storage and Handling of LP Gas). Please refer to Australian State and Territory Dangerous Goods Regulations.

## 8. EXPOSURE CONTROLS/PPE

### National Exposure Standards

Ensure adequate ventilation. Avoid, as far as reasonably practicable, inhalation of vapour generated during use. The vapour is an asphyxiant at high concentrations. If vapour is generated, its concentration in the workplace should be controlled to the lowest reasonably practicable level. WorkSafe Australia recommends an Exposure Standard of 800ppm for butane for an 8 hour time-weighted average (TWA).

### Biological Limit Values

N/A

### Engineering Controls

Store containers in an upright position (even when empty); keep away from heat sources; do not drop. Store away from oxidising substances (eg pool chlorine). Containers must be secured in an upright position for transport, as per ADG Code.

### Respiratory Protection

If operations are such that exposure to vapour, mist or fume may be anticipated, then suitable approved respiratory equipment should be worn. The use of **respiratory** equipment must be strictly in accordance with the manufacturer's instructions and any statutory requirements governing its selection and use.

### Body Protection

Wear suitable gloves and overalls to prevent cold burns and frostbite. In filling operations wear protective clothing including gloves, safety goggles or face shield. When handling cylinders wear protective gear.

## 9. PHYSICAL AND CHEMICAL PROPERTIES (Lotion)

<b>Odour</b>	Sulphurous/distinctive when stench
<b>Boiling Point</b>	-2°C – tested method ASTM D 86 (-0°C)
<b>Vapour Pressure</b>	520 kPa @ 40°C
<b>Solubility in Water @ 20°C</b>	<200ppm
<b>Physical State</b>	Liquid (gas at ambient pressure)



<b>Appearance</b>	Colourless gas
<b>Density</b>	Liquid 0.51 - 0.58 (water = 1) Vapour 1.52 - 2.01 (air = 1)
<b>Flash Point</b>	-60°C
<b>Autoignition Temperature</b>	482°C - 538°C
<b>Flammable Limits LEL</b>	1.8% (in air v/v)
<b>Flammable Limits UEL</b>	8.6% (in air v/v)
<b>Ratio of Expansion (liquid to vapour)</b>	Butane 1 ; 238 Propane 1 ; 273
<b>Odorant</b>	Ethyl Mercaptan @dose rate of 25 parts per million in liquid
<b>Molecular Weight</b>	60
<b>pH</b>	Not available
<b>Freezing point</b>	- 135°C

## 10. STABILITY AND REACTIVITY

### Chemical Stability

Stable at ambient temperatures.

### Hazardous Reactions

Hazardous polymerisation reactions will not occur.

### Conditions to Avoid/Incompatible Materials

Avoid contact with strong oxidizing agents (ie Chlorine, Pool chlorine, Nitric Acid, etc).

### Hazardous Decomposition Products

Incomplete combustion will generate hazardous gases, including carbon monoxide.

## 11. TOXICOLOGICAL INFORMATION

### Acute & Chronic Health Effects

None.

### Possible Routes of Exposure/Range of Effects following exposure

- **Inhalation**

Low vapour concentrations may cause nausea, dizziness, headaches and drowsiness. May have a narcotic effect if high concentrations of vapour are inhaled. High vapour concentrations may produce symptoms of oxygen deficiency which, coupled with central nervous system depression, may lead to rapid loss of consciousness.

- **Abuse**

Under normal conditions of use the product is not hazardous, however, abuse involving deliberate inhalation of very high concentrations of vapour, even for short periods, can produce unconsciousness and/or result in a sudden fatality.

- **Skin**

Will cause cold burns and frostbite if skin contact with liquid occurs

- **Eye**

Will present a risk of serious damage to the eyes if contact with liquid occurs

### Dose, Concentration or Conditions of Exposure likely to cause injury

- Saturated concentration of atmosphere may cause asphyxia

### Delayed Effects

N/A



## 12. ECOLOGICAL INFORMATION

### Eco Toxicity

Not toxic to flora, fauna or soil organisms. Will not cause long term adverse effects in the environment and is not dangerous to ozone layer. Unlikely to cause long term effects in the aquatic environment.

### Mobility

Spillages are unlikely to penetrate the soil. The product is volatile/gaseous and will partition to the air phase.

### Persistence/Degradability

Unlikely to cause long term adverse effects in the environment.

### Bioaccumulative Potential

This material is not expected to bioaccumulate.

## 13. DISPOSAL CONSIDERATIONS

'EMPTY' container warning: 'empty' containers retain residue (liquid and/or vapour) and can be dangerous.

DO NOT PRESSURISE CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, AND OTHER SOURCES OF IGNITION, **THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.** Refer to State And Waste Management Authority.

## 14. TRANSPORT INFORMATION

### UN Numbers

2037 RECEPTACLES, SMALL, CONTAINING GAS, (GAS CARTRIDGES) without a release device, non-refillable

### Class

2.1 Flammable Gas

### Subsidiary Risk

Nil

### Packaging Group

N/A

### HAZCHEM Code

2WE (in accordance with 7<sup>th</sup> Edition ADG code)  
Forbidden for transport on passenger aircraft

## 15. REGULATORY INFORMATION

Not classified using the criteria in the Standard Uniform Scheduling of Drugs and Poisons.

## 16. OTHER INFORMATION

- Ensure users and operators understand the flammability and potential explosive hazards associated with the storage and handling of liquefied petroleum gas
- Contact with liquid may cause cold burns and/or frostbite
- This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It does not constitute a guarantee for any specific property of the product.

## References

NOHSC – Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)] 3<sup>rd</sup> Edition.

NOHSC – National Code of Practice for the Preparation of Material Safety Data Sheets [NOHSC:2011 (2003)] 2<sup>nd</sup> Edition

A.D.G Code – 7<sup>th</sup> Edition

