

AUSTRALIAN EMERGENCY NUMBER: 1800 093 336

WESTERN AUSTRALIA

Campus Drive (off Murdoch Drive), MURDOCH WA 6150
Tel: (08) 9312 9333 Fax: (08) 9312 9833

NEW SOUTH WALES

Site 11 – 6 Grand Avenue, CAMELLIA NSW 2142
Tel: (02) 8846 1800 Fax: (02) 9638 5534

VICTORIA

333 Keilor Road, NIDDRIE VIC 3042
Tel: (03) 9375 8888 Fax: 1300 650 687

QUEENSLAND

305 Tingira Street, PINKENBA QLD 4008
Tel: (07) 3260 1115 Fax: (07) 3260 1231

SOUTH AUSTRALIA

30 Waldaree Road, GEPPS CROSS SA 5094
Tel: (08) 8262 5411 Fax: (08) 8359 4331

NORTHERN TERRITORY

1769 Winnellie Road, WINNELLIE NT 0820
Tel: (08) 8984 0000 Fax: (08) 8984 0084

TASMANIA

333 Keilor Road, NIDDRIE VIC 3042
Tel: (03) 9375 8888 Fax: 1300 650 687

MATERIAL SAFETY DATA SHEET

Commercial Butane

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product (Material) Name	Commercial Butane
Other Names	Butane
Recommended Use	Used as a fuel in commercial and industrial applications.
Supplier Name	Wesfarmers Kleenheat Gas Pty Ltd (ABN 40 008 679 543)
Address	Campus Drive (off Murdoch Drive) Murdoch, Western Australia, 6150
Telephone No.	132 180
Australian Emergency Contact No.	1800 093 336 (24 hours, 7 days)

2. HAZARDS INFORMATION

Hazard Classification	Classified as a highly flammable, liquefied gas for transport (ADG, UN, IATA/ICAO):
UN Number	1011, Petroleum Gases Liquefied.
Class	2.1 Flammable Gas
Subsidiary Risk	Nil
Packaging Group	N/A
HAZCHEM Code	2YE (in accordance with 7 th Edition ADG code) Forbidden for transport on passenger aircraft.
Proper Shipping Name	PETROLEUM GASES, LIQUEFIED
Packaging Method	5.9.2RT2
EPG Number	2.1.001
IERG Number	04
EC DG Directive 67/548/EEC	F+, R 12 (extremely flammable)
Seveso Categories	0 (named substance), 8 (extremely flammable)
Risk Phrase(s)	R7 – May cause fire. R9 – Keep container in a well ventilated place. R12 - Extremely flammable. R18 – In use, may form flammable – explosive vapour air mixture. R21 – Harmful in contact with skin.
Safety Phrase(s)	S2 – Keep out of the reach of children S9 – Keep containers in a well ventilated place. S16 – Keep away from sources of ignition – no smoking. S18 – Handle and open bulk tank with care. 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. COMPOSITION / INFORMATION ON INGREDIENTS

Pure Substances	C ₄ H ₁₀ (butane)
Common Name	Butane
CAS Number	106-97-8 (Butane) May contain IsoButane (78-28-5)
EC Number	200-448-7 (Butane) 200-857-2 (Isobutane)
Mixtures or Composite Materials	N/A
Chemical Identity of the Substance(s):	C ₄ H ₁₀ (butane)
Specification	In accordance with AS4670:2006 for heating purposes.

Hydrocarbon mixture predominantly, butane and butene (butylene). A small quantity (typically up to 50 ppm) of ethyl mercaptan (stenching agent) is commonly added to assist in leak detection.

Contains	<0.1% 1,3-butadiene
Hazardous Components	No component is present at sufficient concentration to require a hazardous classification.
Proportion of Ingredients	Butane
Confidentiality Provisions	N/A
Disclosure of Ingredients	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 MEASURES

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 and 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

2YE (in accordance with 7th edition of ADG code)

Additional Information

Butane is delivered, stored and used at temperatures above it's 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).

Pressurised 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.
When handling commercial butane wear protective footwear and suitable gloves.
Avoid contact with the eyes.

Conditions for Safe Storage

Store and use only in containers designed for use with this product.
Store and dispense only in well ventilated areas away from heat and sources of ignition.
Do not enter bulk storage tanks. If entry to tanks is necessary, contact the supplier.
Bulk storage must be properly labelled. Do not remove warning labels from bulk tanks.

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 commercial 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 / PERSONAL PROTECTION

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 800 ppm 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; keep valves closed when not in use. Where relief valves are fitted to bulk vessels or pipework, protection by rain caps or grease plugs must be provided at all times. 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 manufacturers' 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 imperious gloves, safety goggles or face shield. When handling cylinders wear protective footwear.

9. PHYSICAL AND CHEMICAL PROPERTIES

Odour	Sulphurous/distinctive when stench
Boiling Point	-2°C – test method ASTM D 86 (-0°C)
Vapour Pressure	520 kPa @ 40°C
Solubility in Water @ 20°C	<200ppm
Physical State	Liquid (gas at ambient pressure)
Colour	Colourless
Density	Liquid 0.58 (water = 1) Vapour 2.01 (air = 1)
Flash Point	- 60°C
Autoignition Temperature	482°C - 538°C
Flammable Limits LEL	1.8% (in air v/v)
Flammable Limits UEL	8.6% (in air v/v)
Ratio of Expansion (liquid to vapour)	Butane 1; 238
Odourant	Ethyl Mercaptan @ dose rate of 25 parts per million in liquid.
Molecular Weight	60

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 and 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. Do not attempt to clean, as residue is difficult to remove. Containers should be returned to the owning organisation when no longer required. Small customer owned cylinders should be made safe at a Gas Cylinder Test Station before disposal. Check with local Council re acceptance for disposal to landfill. Do not incinerate LP Gas cylinders.

14. TRANSPORT INFORMATION

Refer to Section 2.

Transport of LP Gas is controlled in accordance with the requirements of the Australian Dangerous Goods Code.

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.
- Always ensure that cylinders are within test date (10 year maximum), are fit for use and are leak checked prior to use.
- Do not fill excessively dented, gouged or rusty containers (refer AS2337.1)
- Only fill containers to 80% fill level (ullage tube via decanting or mass via mechanical filling).
- MSDS Sheet prepared and last revised August 2008.

Symbol(s)



References

ALPGA Specification for Liquefied Petroleum Gas for Automotive use 2004.

AS4670:2006 - Commercial Propane and Commercial Butane for Heating Purposes

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

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

Dangerous Substances Directive 67/548/EEC – classification of Propane and Butane

Seveso classification for Propane and Butane

Australian Dangerous Goods Transport Code – 7th Edition