Material safety data sheet

1. Identification of the material and supplier	
Product name	Liquid Petroleum Gas (LPG)
Product use	Residential and Commercial fuel
Supplier	OnGas Limited 101 Carlton Gore Road Newmarket Auckland 1149 Phone 0800 84 12 12
EMERGENCY NUMBER	**0800 84 12 12**

2. Hazards identification	
UN Number:	LPG 1075 Propane 1978 Butane 1011
H.S.N.O Class:	2.1.1A
Hazchem Number:	2YE
IMO/MDG: Class:	2.1 Chemical family hydrocarbon
IATA Class:	2(d)
Health hazards	LPG acts as a simple asphyxiant and a central nervous system depressant. It can affect the body if it is inhaled or if it comes into contact with the eyes or skin. Over exposure to LPG can cause lightheadedness and drowsiness. Greater exposure may also cause unconsciousness. Contact with liquid may also cause frostbite as well as skin irritation.
Effects and symptoms:	
• Liquid in eyes	Tissue damage due to low temperature, redness, pain, blurred vision.
• Liquid on skin	Frostbite, tissue damage due to low temperature, redness, pain, blisters, wounds.
• Vapour	Possible tissue damage due to low temperature, asphyxiation, headaches, dizziness, drowsiness.
• Toxicity	LPG is not toxic but is unpleasant and may cause nausea if ingested in large quantities.

3. Composition/information on ingredients	
Chemical formula	Propane C3H8 Butane C4H10
Information	LPG is supplied in various grades to suit the application. The most common grade is 'LPG Mix' being a mixture of normally 60% propane and 40% butane. LPG may also be supplied as straight propane or butane. LPG contains traces of other hydrocarbons and substances that naturally occur in the LPG. The specification including full composition is available in NZS 5435: 1996 'Liquefied Petroleum Gas'.

4. First-aid measures	
Liquid in eyes	Do not delay. Flush eye gently with fresh water. Continue washing for at least 15 minutes. Obtain medical aid as soon as possible.
Liquid on skin	Do not delay. Handle patient gently. Remove contaminated clothing. Immerse affected area in cold water. Obtain medical aid as soon as possible.
Vapour	Remove victim to fresh air. If breathing has stopped or irregular apply artificial respiration.
Toxicity	Remove victim to fresh air.

5. Fire-fighting measures	
Flammability	High flammable gas that collects at floor level and readily forms an explosive mixture with air. Concentration of 2 to 10% approximately in air can be ignited and the flame will readily spread back to the source of the leak. For handling of LPG, a closed transfer system is required with ventilation at high and low level, explosive or flameproof electrical equipment and lighting, earth connections and no open flames, sparks and no smoking.
Fire explosion/hazard	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 water to cool cylinders and vessels exposed to fire. Spray onto upper surface.
Extinguishing	If safe, stop the flow of gas by closing valves or by activating Emergency Shutdown Systems. If the gas source cannot be isolated, do not extinguish the flame as re-ignition and explosion could occur. Await arrival of emergency services. Cool cylinders or vessels with water. If it is absolutely necessary to extinguish the flame, use only a dry chemical powder extinguisher. Do not move cylinders for at least 24 hours. Avoid shock and bumps to cylinders. Evacuate the area of persons not fighting the fire. Carbon oxides (CO, CO2) fumes may be produced should burning occur especially within an enclosed space (i.e. causing a deficiency of oxygen).
Fire fighter protection	Fire fighters should wear full protective clothing and may need self-contained breathing apparatus. Be aware of the risk of possible explosion (especially in a confined space).

6. Accidental release measures	
Spills	Fire explosion hazard.
For all emergencies	No smoking or naked lights within 50 meters. Move people from immediate area, keep upwind. Contact fire service.
Spill or leaks, no fire	Carry out action “for all emergencies”. Stop flow of gas/liquid if possible. Spray water to disperse gas cloud but avoid spraying water directly on leaking container.
Fire	Carry out action “for all emergencies”. Shut off supply of gas rather than put out fire. If available, spray water on containers to keep cool. Dry chemical or BCF extinguishers can be used.

7. Handling and storage	
Ignition sources	Use only intrinsically safe equipment and non-sparking tools. Usage: All cylinders should be used in the upright position (with the exception of forklift cylinders) and are approved for use in New Zealand. Installations must be in accordance with HSNO, AS/NZS 1596 2008 and any relevant LPGA Codes of Practice.
Handling	Details contained in the 2.1.1A Controls under Hazardous Substances and New Organisms Act 1996, NZS 5433 1999. Code of Practice for the Transport of Hazardous Substances on Land, and AS/NZS 1596 2008 Storage and Handling of LPG. Keep containers in an upright position, keep away from heat sources, and keep valves closed when not in use.
Storage	Store in well ventilated areas away from heat and sources of ignition. Cylinders and vessels must be correctly labeled. Do not remove warning labels. LPG cylinders shall be stored in accordance with the requirements of HSNO Regulations 2008 and AS/NZS1596 2008 and any relevant LPGA Codes of Practice”. Do not store in basements where vapour may collect. Store cylinders securely in an upright position and keep valves closed.
Disposal	Do not move damaged cylinders until made safe. Empty contents by decant into alternative cylinder or tank. Vapour may be vented under controlled conditions, or disposed by controlled burning.

8. Exposure controls / personal protection

Exposure limits	Workplace Exposure Standard, HS&E Act 1992 Simple asphyxiant TWA 800ppm, 1900mg/m3
Personal protective equipment	Wear thermal insulated gloves and full body cover to prevent cold burns and frostbite. In filling operations wear protective clothing including gloves, safety goggles or face shield. All clothing should be anti-static, low flame type. When handling cylinders wear protective footwear.

9. Physical and chemical properties

		Propane (C3H8)	Butane (C4H10)	Mix (60/40)
Appearance	Colourless gas with an unpleasant odour			
Boiling point (atmospheric pressure)	C	-42	0	N/A
Vapour pressure	0	388	40	292
	10	552	95	424
	30	1004	266 Kpa	796
Specific gravity		0.507	0.580	0.532
Flash point		-105 c	-60 c	
Flammability limits		2.2–9.5%	1.5–9.0%	2.0–10.0%
Auto ignition temperature		468	430	450
Vapour density (air=1)		1.58	2.06	1.73

10. Stability and reactivity

Stability	The product is stable.
Reactivity	Incompatible with strong oxidizing agents like nitric acid.

11. Toxicological information

Eye	Liquid in eyes will cause tissue damage. Vapour may cause irritation.
Inhalation	May cause headaches, drowsiness and dizziness. Excessive exposure may cause unconsciousness or even death, due to asphyxiation (refers to vapour not liquid).
Skin	Liquid may cause frostbite, tissue damage, blisters and wounds.
Ingestion	Due to product form, ingestion is considered highly unlikely.

12. Ecological information

LPG will vaporise rapidly when released to atmosphere. There are no known adverse ecological effects.

13. Disposal considerations

Waste disposal	Cylinders should be returned to the LPG supplier for disposal. Hazard warning labels should not be removed.

14. Transport information

Transport	Transport of LPG is controlled in accordance with the requirements of NZS 5433 2007 and the HSNO Regs 2008.
UN number	LPG 1075, Propane 1978, Butane 1011
HSNO class	2.1.1A
Hazchem Number	2YE
IMO/MDG: Class:	2.1 Chemical family hydrocarbon
IATA class	2(d)

15. Regulatory information

LPG is classified as a hazardous substance under current New Zealand regulations. Its storage and handling is covered by various pieces of legislation.

16. Other information

HSNO	The Hazardous Substances and New Organisms Act and Regulations 2008.
EPA Approval Numbers	Butane – HSR000989 Propane – HSR001010 and LPG – HSR001009