

# Material safety data sheet

## Material Safety Data Sheet (MSDS)

<b>Trade Name</b> On gas Limited	<b>Address</b> On gas Limited 44 The Terrace Wellington	<b>Phone</b> Emergency 0800 84 12 12 Enquiries 0800 84 12 12
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### Liquefied Petroleum Gas (LPG)

Chemical Name:	Liquefied Petroleum Gas (LPG)
Chemical Formula:	Predominantly C <sub>3</sub> H <sub>8</sub> Propane and / or C <sub>4</sub> H <sub>10</sub> Butane
UN Number:	LPG 1075, Propane 1978, Butane 1011
NZ Dangerous Good Class:	2(d)
Hazachem Number:	2WE
IMO/MDG: Class:	2.1 Chemical family Hydrocarbon
IATA Class:	2(d)

#### Composition:

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'.

#### Physical Characteristics

As a vapour, LPG is a colourless gas with a 'rotting cabbage' smell like town gas. LPG can also exist as a clear liquid that boils and vapourises rapidly on release. LPG vapour being heavier than air will spread readily along the ground and collect in low lying areas, eg drains.

#### 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.

		<i>Propane (C<sub>3</sub>H<sub>8</sub>)</i>	<i>Butane (C<sub>4</sub>H<sub>10</sub>)</i>	<i>Mix (60/40)</i>
<b>Boiling point (atmos press)</b>	C	-42	0	Na
<b>Vapour pressure</b>	0	388	40	292
	10	552	95	424
	30	1004	266 Kpa	796
<b>Specific Gravity</b>		0.507	0.580	0.532
<b>Flash Point</b>		-105 c	-60 c	
<b>Flammability limits</b>		2.2-9.5%	1.5-9.0%	2-10%
<b>Auto ignition temperature</b>		468	430	450
<b>Vapour density (air=1)</b>		1.58	2.06	1.73

## Health Hazard Information

<b>Liquid in eyes</b>	<b>Effects</b> Tissue damage due to low temperature, redness, pain, blurred vision	<b>First Aid</b> Do Not Delay – flush eye gently with fresh water. Continue washing for at least 15 minutes. Obtain medical aid as soon as possible.
<b>Liquid on skin</b>	Frostbite, tissue damage due to low temperature, redness, pain, blisters, wounds	Do Not Delay – Handle patient gently. Remove contaminated clothing. Immerse affected area in cold water. Obtain medical aid as soon as possible.
<b>Vapour</b>	Possible tissue damage due to low temperature asphyxiation, headaches, dizziness, drowsiness	Remove victim to fresh air. If breathing has stopped or irregular apply artificial respiration.
<b>Toxicity</b>	LPG is not toxic, but is unpleasant, and may cause nausea if ingested in large quantities.	Remove victim to fresh air.

## Precautions for Use

<b>Exposure Limits</b>	Workplace Exposure Standard, DOL 1992 Simple asphyxiant TWA 800ppm, 1900mg/m <sup>3</sup>
<b>Odour Threshold</b>	LPG is odourised with ethyl mercaptan to assist in detection, and is readily detectable at below 20% of LEL by a 'rotting cabbage' odour.
<b>Personal Protection</b>	Thermal insulated gloves, goggles and full body cover against accidental release of pressurised liquid or gas while handling liquid LPG.

## Safe Handling Information

<b>Storage and Transport</b>	Details contained in the Dangerous Good (Class 2 Gases) Regulation 1980 NZS 5433: 1988, Code of Practice for the Transport of Hazardous Substances on Land, and AS/NZS 1596 Storage and Handling of LPG. Keep containers in an upright position, keep away from heat sources, and keep valves closed when not in use.
<b>Leak Detection</b>	Liquid LPG leaks often cause a visible vapour cloud to form, as the cold liquid condenses water vapour in the air. All LPG leaks can be detected by application of a soap and water solution, with bubbles forming where leaks are present. Leaks are easily detected by odour, and can be seen in still conditions as a shimmer in the air.
<b>Disposal</b>	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.

## LPG Spills and Emergencies

<b>Spills</b>	Fire Explosion Hazard
<b>For all emergencies</b>	No smoking or naked lights within 50 meters. Move people from immediate area, keep upwind. Contact fire service.
<b>Spill or Leaks, no fire</b>	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 as this may increase leakage. Prevent spillage from spreading or entering underground drains by blocking with sand and earth.
<b>Fire</b>	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, CO2 or BCF extinguishers can be used.