



# Liquefied Petroleum Gas (LPG) Safety Data Sheet (SDS)

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## 1 Product and Company Details

1.1 Product Identifier	
Product Name	Liquefied Petroleum Gas
Proper Shipping Name	Petroleum Gases Liquefied
Other Names	LPG, LP Gas, Commercial Propane, Propane, Butane
1.2 Recommended use and restrictions on use	
Use(s)	As fuel in domestic, commercial, industrial and automotive applications. Packaged in cylinders
Restrictions	Not to be concentrated and intentionally inhaled.
1.3 Supplier details	
Company	KLM GAS PTY LTD 203 Pikes Road Glass House Mountains QLD 4518 Website: <a href="http://www.klmgas.com.au">www.klmgas.com.au</a> (07) 5493 0493
Enquiries	General and Technical Information 133 LPG (133 574) Origin Energy LPG Limited
Emergency Telephone	0408 877885 all hours

## 2 Hazards identification

2.1 Classification of the substance or mixture	
LPG as supplied by Origin contains less than 0.1% of 1,3 Butadiene. LPG is classified as a Dangerous Good by the Australian Dangerous Goods Code.	
GHS Classification	Flammable Gases: Category 1 Gases under pressure: Liquefied gas
2.2 Label Elements	
Signal word	Danger
Pictogram	
Hazard statement(s)	H220 Extremely flammable gas H280 Contains gas under pressure, may explode if heated
Prevention Statements(s)	P210 Keep away from heat / sparks / open flames / hot surfaces. No smoking
Response Statement(s)	P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely P381 Eliminate all ignition sources if safe to do so.

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Storage statement	P410 + P403 Protect from sunlight. Store in a well-ventilated place.
Disposal Statement	None allocated
<b>2.3 Other Hazards</b>	
Asphyxiant. Effects are proportional to oxygen displacement. Smell: People with poor or no sense of smell should be made aware of the risk in the event of a gas leak.	

### 3 Composition and Information on Ingredients

<b>3.1 Substance / Mixtures</b>				
Ingredient	CAS Number	Content v/v		Notes
		Propane	Butane	
LP Gas	68476-85-7			
Propane	0074-98-6	45-99%	<5%	
Propylene (Propene)	115-07-1	<.50%	<2%	
Butane (mixture of "n" and "iso" isomers)	106-97-8 75-28-5	<7.5%	91 – 99%	
Ethane	74-84	<2%	<2%	
1,3 Butadiene	106-99-0			
Ethyl Mercaptan (Odorant)	75-08-1			
Alternative Names		UN Number		
Propane		1978		
LP Gas, or LPG		1075		
Butane		1011		

### 4 First Aid

<b>4.1 Description of first aid measures</b>	
Eye	Cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart for 15 minutes. Seek medical attention.
Inhalation	If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained \Breathing Apparatus (SCBA). Be aware of possible explosive atmospheres. Apply artificial respiration if not breathing. Give oxygen if available. For advice, contact a Poison Information Centre on 131126 (Australia Wide) or a doctor.
Skin	Cold burns: Remove contaminated clothing and gently flush the affected areas with warm water (30°C) for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention.
Ingestion	Due to product form and application, ingestion is considered unlikely.
First aid facilities	Eye wash facilities and / or safety shower should be available. This will depend upon the nature of use and associated risks.

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<b>4.2 Most important symptoms and effects, both acute and delayed</b>
In high concentrations, may cause asphyxiation. Direct contact with the liquefied material or escaping compressed gas may cause frostbite injury.
<b>4.3 Immediate material attention and special treatment needed</b>
Treat symptomatically

## 5 Fire Fighting measures

<b>5.1 Extinguishing media</b>
Stop flow of gas if safe to do so, such as by slowly closing the cylinder or tank valve as appropriate to the event.
<b>5.2 Special hazards arising from the substance or mixture</b>
Extremely flammable. Eliminate all ignition sources including cigarettes, open flames, spark producing switches / tool, heaters, naked lights, pilot lights, mobile phones etc. when handling.
<b>5.3 Advice for fire-fighters</b>
Temperatures in a fire may cause cylinders to rupture and internal pressure relief devices to be activated. Cool cylinders or containers exposed to fire by applying water from a protected location. Do not extinguish flame if resulting escape gas poses greater risk. Do not approach cylinder or containers suspected of being hot. This material is capable of forming explosive mixtures in air.
<b>5.4 Hazchem code</b>
2YE 2 Fine Water Spray Y Risk of violent reaction or explosion. Wear full kit and breathing apparatus. Contain spill and run-off. E Evacuation of people in and around the immediate vicinity of the incident should be considered.

## 6 Accidental Release Measures

<b>6.1 Personal precautions, protective equipment and emergency procedures</b>
If the cylinder is leaking, evacuate area of personnel. Inform manufacturer / supplier of leak. Use Personal Protective Equipment (PPE) as detailed in Section 8 of the SDS. Ventilate area where possible and eliminate ignition sources.
<b>6.2 Environmental precautions</b>
Prevent from entering sewers, basements and work pits, or any place where its accumulation can be dangerous.
<b>6.3 Methods of cleaning up</b>
Stop the flow of material, if it is without risk. If the leak is irreparable, move the cylinder to a safe and well-ventilated area, and allow to discharge. Keep the area evacuated and free from ignition sources until any leaked or spilled liquid has evaporated.
<b>6.4 Reference to other sections</b>
See section 8 and 13 for exposure controls and disposal

## 7 Handling and Storage

<b>7.1 Precautions for safe handling</b>
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, prohibit eating, drinking and smoking in contaminated areas.
<b>7.2 Conditions for safe storage, including and incompatibilities</b>
Do not store near incompatible substances and sources of ignition. Cylinders should be stored: Upright, prevented from falling, in a secure area: below 45°C 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.
<b>7.3 Specific end use(s)</b>
No information provided

## 8 Exposure Controls and Personal Protection

<b>8.1 Control parameters</b>			
Exposure Standards			
Ingredient	Reference	TWA	
Propane	ACGIH	1000 ppm 8 hours	Asphyxiant
Butane	NOHSC	800 ppm 8 hours	Asphyxiant
Propylene	ACGIH	500 ppm 8 hours	Asphyxiant
Ethane	ACGIH	1000 ppm 8 hours	Asphyxiant

Biological limits: No biological limits have been entered for this product

<b>8.2 Exposure Controls</b>	
Engineering Controls	Avoid inhalation. Use in well-ventilated areas. Where an inhalation risk exists, mechanical explosion proof extraction ventilation is recommended.
PPE – Eye / Face	Wear safety glasses
PPE – Hands	Wear insulated or leather gloves
PPE – Body	Wear non-static long sleeved shirts and trousers, or coveralls

## 9 Physical and Chemical Properties

<b>9.1 Physical Description / Properties</b>	
Appearance	Colourless gas
Odour	Normally an odourless gas. Ethyl Mercaptan is added at prescribed quantities to give a distinctive odour to warn of the presence of gas.
Flammability	Extremely flammable
Boiling Point	-42 to 0°C (depending upon composition)
Flash Point	-80°C approx. (increased with increasing concentration of n-butane)
Melting Point	-188°C to -135°C (depending upon composition)
Auto Ignition Temperature	450°C - 540°C (depending upon composition)
Evaporation Rate	Not applicable
pH	Not applicable

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Specific Gravity Liquid	0.51 to 0.58 (water = 1)
Relative Vapour Density	1.55 to 2 (Air = 1)
Solubility (water)	Slightly soluble
Partition coefficient	Not available
Vapour Pressure (at 40°C)	1275 kPa max (propane); 280 kPa (butane)
Upper explosive limit	9.6%
Lower explosive limit	1.8%
Decomposition temperature	Not available
Viscosity	Not available
Oxidising Properties	Not available
Odour threshold	Not available
<b>9.2 Other Information</b>	
% Volatiles	100%

## 10 Stability and Reactivity

<b>10.1 Reactivity</b>
Carefully review all information provided in sections 10.2 to 10.6
<b>10.2 Reactivity</b>
Stable under recommended conditions of storage
<b>10.3 Possibility of hazardous reactions</b>
Polymerization will not occur
<b>10.4 Conditions to avoid</b>
Avoid heat, sparks, open flames and other ignition sources
<b>10.5 Incompatible materials</b>
Incompatible with oxidising agents (e.g. hypochlorite), acids, (e.g. Nitric acid), heat and ignition sources. DO NOT use natural rubber flexible hoses. Also, incompatible (potentially violently) with oxygen, halogens and metal halides. Compatible with most common metals.
<b>10.4 Hazardous decomposition products</b>
This material will not decompose to form hazardous products other than that already present.

## 11 Toxicological Information

<b>11.1 Information on toxicological effects</b>	
Acute toxicity	No known toxicological effects from this product. Based on available data, the classification criteria are not met.
Skin	Not classified as a skin irritant. Contact with the liquefied material or escaping compressed gas may cause frostbite injury.
Eyes	Not classified as an irritant to the eyes. Contact with the liquefied material or escaping compressed gas may cause frostbite injury.
Sensitisation	Not classified as causing skin or respiratory sensitisation. Not classed as a mutagen.
Mutagenicity	
Carcinogenicity	Not classified as a carcinogen.
Reproductive	Not classified as a reproductive toxin

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STOT – single exposure	Asphyxiant. Effects are proportional to oxygen displacement. Over exposure may result in dizziness, drowsiness, weakness, fatigue, breathing difficulties and unconsciousness.
Aspiration	Not classified as causing aspiration


## 12 Ecological Information

<b>12.1 Toxicity</b>
No information provided
<b>12.2 Persistence and degradability</b>
No information provided
<b>12.3 Bio-accumulative potential</b>
No information provided
<b>12.4 Mobility in soil</b>
No information provided
<b>12.5 Other adverse effects</b>
No known ecological damage is caused by this product

## 13 Disposal Considerations

<b>13.1 Waste treatment methods</b>	
Waste disposal	Cylinders should be returned to the supplier for disposal of contents. Small customers owned cylinders should be made safe at a Gas Cylinder Test Station prior to disposal. LPG cylinders should be returned to the owning organisation stamped on the cylinder when no longer required. Contact Origin for disposal of LPG from tanks.
Legislation	Dispose of in accordance with the relevant local legislation.

## 14 Transportation Information

Classified as a Dangerous Good by the criteria of the ADG code			
	Land Transport (ADG)	Sea Transport (IMDG / IMO)	Air Transport (IATA / ICAO)
<b>14.1 UN Number</b>	1075	1075	1075

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<b>14.2 Proper Shipping Name</b>	Petroleum Gas, Liquefied	Petroleum Gas, Liquefied	Petroleum Gas, Liquefied
<b>14.3 Transport Hazard Class</b>	2.1	2.1	2.1
<b>14.4 Packing Group</b>	None allocated	None allocated	None allocated
<b>Alternative Names</b>			
Petroleum Gases, Liquefied; LPG; LP Gas; Propane; Commercial Propane; Butane			
<b>14.5 Environmental hazards</b>			
No Information provided			
<b>14.6 Special precautions for user</b>			
Hazchem Code	2YE.		
GTEPG	2A2.		
EMS	F-D, S-U		
Other Information	Ensure cylinders is separated from driver and that outlet of relief valve device is not obstructed. Cylinders must be secured in an upright position for transport. Transport in accordance with the requirements of ADG Code and the Load Restraint Guide.		

**15 Regulatory Information**

<b>15.1 Safety, health and environmental regulations / legislation specific for the substance or mixture</b>	
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).
Classifications	SafeWork Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals. The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)]
Hazard Codes	F+ Extremely flammable
Safety phrases	S9 Keep container in a well-ventilated place S16 Keep away from sources of ignition – No smoking
Inventory listing(s)	AUSTRALIA: AICS (Australian Inventory of Chemical Substances). All components are listed on AICS or are exempt

## 16 Other Information

**16.1 Additional Information**

The storage of significant quantities of gas cylinders must comply with AS4332. The storage and handling of gases in cylinders, and AS/NZS 1596. The storage and handling of LP Gas.

Asphyxiants (1)	When present in the atmosphere in high concentrations, asphyxiants reduce the oxygen concentration by displacement. Atmospheres deficient in oxygen do not provide sensory warning of danger and most simple asphyxiants are odourless. Therefore, it is not appropriate to recommend an exposure standard for each asphyxiant, but to maintain oxygen concentrations. However, some asphyxiants may be given an exposure standard due to the potential for narcotic effects at high concentrations or an explosion hazard.
Asphyxiants (2)	There is a significant hazard associated with workers entering poorly ventilated areas (e.g. tanks) where oxygen may be deficient. An air supplied breathing apparatus may be required if adequate ventilation is not ensured.
Personal protective equipment guidelines	The recommendation for protective equipment contained within this SDS is provided as a guide only. Factors such as methods 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 upon 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 report which would encompass all possible scenarios, it is anticipated that users will assess the risk and apply control methods where appropriate.

**16.2 Abbreviations**

ACGIH	American Conference of Governmental Industrial Hygienists
CAS#	Chemical Abstract Service number – used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonised System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer

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LC50	Lethal Dose, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
Mg/m <sup>3</sup>	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	Related to hydrogen ion concentration using a scale of 0 (highly acidic) to 14 (highly alkaline)
ppm	Parts Per Million
STEL	Short Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average