



# Material Safety Data Sheet (MSDS)

**Product Name** Liquid Petroleum Gas (LPG)

## 1. Identification of material and supplier

<b>Supplier Name</b>	Genesis Energy
<b>Address</b>	118 Newton Street, Mount Manganui
<b>Telephone</b>	0800 300 400
<b>Emergency</b>	0800 436 020
<b>Synonym(s)</b>	LP Gas • L.P.G. • Petroleum gas liquefied
<b>Use(s)</b>	Fuel • Heating
<b>Date of issue</b>	August 2017

## 2. Hazard identification

Classified as hazardous according to 'Hazardous Substances [Classification] Regulations: 2001'.

<b>HSNO Classification</b>	2.1.1A Flammable gases: high hazard
<b>Hazard Statement</b>	H220 Extremely flammable gas
<b>Prevention Statement</b>	P103 Read label before use (applies only where the substance is available to the general public). P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
<b>Response Statement</b>	P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 Eliminate all ignition sources if safe to do so.
<b>Storage Statement</b>	P403 Store in a well-ventilated place.

Classified as a Dangerous Good according to Land Transport Rule: Dangerous Goods 2005; NZS 5433:2007, UN, IMDG OR IATA

<b>UN No.</b>	1075
<b>DG Class</b>	2.1
<b>Subsidiary Risk(s)</b>	None Allocated.
<b>Packing Group</b>	None Allocated.

### 3. Composition and information on ingredients

<u>Product</u>	<u>CAS No.</u>	<u>Concentration</u>
LPG*	68476-85-7	100%

\* Composition in accordance with NZS 5435: 1996. Major ingredients are typically:

<u>Ingredient</u>	<u>CAS No.</u>	<u>Concentration</u>
Propane	74-98-6	25 – 99 %
Butane	106-97-8	0 – 50 %
Ethane	74-84-0	< 5%
Pentane	109-66-0	< 2%
Ethyl Mercaptan (odorant)	75-08-1	< 0.1%

### 4. First aid measures

<b>Eye</b>	Irritation and possible if liquid enters the eye. Immediately flush eye(s) gently with tepid water for at least 15 minutes. Seek medical attention.
<b>Skin</b>	Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30 °C) for 15 minutes. Apply sterile dressing and treat as for a thermal burn. For large burns, immerse in warm water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention.
<b>Inhalation</b>	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. Seek medical help immediately.
<b>Ingestion</b>	Not considered a potential route of exposure.
<b>Advice to Doctor</b>	Treat symptomatically.
<b>First Aid Facilities</b>	Eye wash facilities and sterile dressings should be available.

### 5. Fire fighting measures

<b>Flammability</b>	Highly flammable gas - potentially explosive. May form explosive mixtures with air. Combustion products include carbon dioxide, carbon monoxide, and water vapour.
<b>Fire and Explosion</b>	Temperatures in a fire may cause cylinders/gas pipes to rupture and pressure relief devices to be activated. Cool cylinders/gas pipeline or containers exposed to fire by applying water from a protected location. Do not approach cylinders/gas pipeline or containers suspected of being hot.

This material is capable of forming explosive mixtures in air. Its vapours are heavier than air and will concentrate in lower areas e.g. drains, sumps etc. A hazard of re-ignition or explosion exists if flame is extinguished without stopping gas flow. Evacuate personnel upwind of gas source.

#### **Extinguishing**

Stop flow of gas if safe to do so, such as by slowly closing the cylinder valve. If the gas source cannot be isolated, do not extinguish the flame, since re-ignition and explosion could occur. Await arrival of emergency services or manufacturer's advisor. Drench and cool cylinders with water spray from protected area at a safe distance.

Do not move cylinders for at least 24 hours. Avoid shock and bumps to cylinders. If it is absolutely necessary to extinguish the flame, use dry chemical, foam or water (for pipeline fires dry powder is preferable). Water may be ineffective on flames but useful for other purposes, including cooling.

#### **Hazchem Code**

2YE

### **6. Accidental release measures**

#### **Release**

If the cylinder or gas pipe is leaking, eliminate all potential ignition sources and evacuate area of personnel. Move impacted personnel upwind. Prevent spreading of vapours through drains and ventilation systems. Inform manufacturer/supplier of leak. Use personal protective equipment. For cylinders, carefully move material to a well-ventilated remote area and then allow discharging to atmosphere. Do not attempt to repair leaking valve or cylinder safety devices.

#### **Environmental Precautions**

Do not discharge gas into any place where its accumulation could be dangerous. Wherever possible gas should not be released into the environment.

### **7. Storage, handling and identification**

#### **Storage**

Do not store near sources of ignition, oxidising agents, poisons, flammable liquids or combustible materials.

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.

#### **Handling**

Before use, carefully read the product label. Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, heaters, naked lights, pilot lights, mobile phones etc. when handling. 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, smoking and the use of non-intrinsically safe

equipment in contaminated areas.

#### LPG Cylinder Colour

Colour coding should not be used for content identification.

## 8. Exposure controls and personal protection

### Exposure Standards

Ingredient	Reference	TWA		STEL	
Ethyl mercaptan	WES (NZ)	0.5 ppm	1.3 mg/m <sup>3</sup>	-	-
LPG	WES (NZ)	1,000 ppm	1,800 mg/m <sup>3</sup>		

### Engineering Controls

Avoid inhalation. Use in well ventilated areas. Generally no vapour hazard exists unless accidental discharge occurs. Gas is lighter than air and will disperse readily in well ventilated areas. Use explosion proof extraction ventilation where required. Maintain vapour levels below the recommended exposure standard.

### PPE

When handling gas cylinders, the wearing of appropriate hand, eye and foot protection is recommended. Where an inhalation risk exists, wear: Self Contained Breathing Apparatus (SCBA) or an air-line respirator.



## 9. Physical and chemical properties

<b>Appearance</b>	Colourless gas	<b>Solubility (water)</b>	Very slight (0.039% vol./vol.)
<b>Odour</b>	Mercaptan odour when odourised unpleasant smell resembling that of rotten eggs or garlic (otherwise odourless)	<b>Specific Gravity</b>	Not applicable
<b>pH</b>	Not applicable	<b>% Volatiles</b>	100 %
<b>Vapour Pressure</b>	1050 kPa @ 25 °C (Propane)	<b>Flammability</b>	Highly flammable
<b>Vapour Density</b>	1.53 to 2.00 (Air = 1)	<b>Flash Point</b>	-105 °C (Propane)
<b>Boiling Point</b>	-42.1 °C (Propane)	<b>Upper Explosion Limit</b>	9.5 %
<b>Melting Point</b>	-187.7 °C (Propane)	<b>Lower Explosion Limit</b>	1.8 %
<b>Evaporation Rate</b>	Not applicable	<b>Auto ignition Temperature</b>	460 °C (approx.)

## 10. Stability and reactivity

<b>Chemical Stability</b>	Stable under recommended conditions of storage.
<b>Conditions to Avoid</b>	Avoid heat, sparks, open flames and other ignition sources.
<b>Materials to Avoid</b>	Incompatible with oxidising agents (e.g. hypochlorites, peroxides), 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.
<b>Hazardous Decomposition Products</b>	May evolve carbon dioxide and carbon monoxide. Under normal conditions of storage hazardous decomposition products should not be produced.
<b>Polymerization</b>	Polymerization will not occur.

## 11. Toxicological information

<b>Health Hazard (Short term – acute exposure)</b>	Asphyxiant. Symptoms of exposure are directly related to displacement of oxygen. As the amount of oxygen inhaled is reduced from 21-14% volume, the pulse rate may accelerate and the rate and volume of breathing may increase. The ability to maintain attention and think clearly is diminished, muscular co-ordination is somewhat disturbed. As oxygen decreases from 14-10% volume, judgement becomes faulty, severe injuries may result in no pain. Muscular effort may lead to rapid fatigue. Further reduction to 6% may result in nausea and vomiting. Ability to move may be lost. Permanent brain damage may result even after resuscitation from exposure to this low level of oxygen. Below 6% breathing is in gasps and convulsions may occur. Inhalation of a mixture containing no oxygen may result in unconsciousness from the first breath and death may follow in minutes.
<b>Eye</b>	Non-irritant.
<b>Inhalation</b>	Non-irritant - Asphyxiant. Effects are proportional to oxygen displacement.
<b>Skin</b>	Non-irritant.
<b>Ingestion</b>	Exposure is considered unlikely.
<b>Health Hazard (Long term – chronic exposure)</b>	None known
<b>Toxicity Data</b>	Ethyl Mercaptan (75-08-1) LC50 (Inhalation): 2770 ppm/4 hours (mouse) LD50 (Ingestion): 682 mg/kg (rat) LD50 (Intraperitoneal): 226 mg/kg (rat)
<b>Sensitisation</b>	Not a skin sensitiser

## 12. Ecological information

<b>Environment</b>	No known adverse ecological damage is caused by this product.
<b>Aquatic toxicity</b>	Not expected to be harmful to aquatic organisms.

## 13. Disposal considerations

<b>Waste Disposal</b>	Cylinders should be returned to the manufacturer or supplier for disposal of contents. DO NOT incinerate LPG cylinders.
<b>Legislation</b>	Dispose of in accordance with relevant local legislation.

## 14. Transport information

**Classified as a Dangerous Good according to Land Transport Rule: Dangerous Goods 2005; NZS 5433:2007, UN, IMDG OR IATA**

Shipping Name	Methane, Compressed or Natural Gas, Compressed with high methane content				
UN No.	1075	DG Class	2.1	Subsidiary Risk(s)	None Allocated
Packing Group	None Allocated	Hazchem Code	2YE		
IATA					
Shipping Name	Methane, Compressed or Natural Gas, Compressed with high methane content				
UN No.	1075	DG Class	2.1	Subsidiary Risk(s)	None Allocated
Packing Group	None Allocated				
IMDG					
Shipping Name	Methane, Compressed or Natural Gas, Compressed with high methane content				
UN No.	1075	DG Class	2.1	Subsidiary Risk(s)	None Allocated
Packing Group	None Allocated				



## 15. Regulatory information

<b>Group Name</b>	LPG • Liquid Petroleum Gas
<b>Approval Code</b>	HSR001009
<b>HSNO Controls</b>	Refer to the EPA website for more information: <a href="http://www.epa.govt.nz">www.epa.govt.nz</a>

## 16. Other information

<b>Additional Information</b>	<p>Abbreviations:</p> <p>ACGIH - American Conference of Industrial Hygienists.</p> <p>ADG - Australian Dangerous Goods.</p> <p>BEI - Biological Exposure Indice(s).</p> <p>CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.</p> <p>CNS - Central Nervous System.</p> <p>EC No - European Community Number.</p> <p>HSNO - Hazardous Substances and New Organisms.</p> <p>IARC - International Agency for Research on Cancer.</p> <p>mg/m<sup>3</sup> - Milligrams per Cubic Metre.</p> <p>NOS - Not Otherwise Specified.</p> <p>pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).</p> <p>ppm - Parts Per Million.</p> <p>RTECS - Registry of Toxic Effects of Chemical Substances.</p> <p>STEL - Short Term Exposure Limit.</p> <p>TWA - Time Weighted Average.</p> <p>WES (NZ) – Workplace Exposure Standards (2011)</p>
-------------------------------	--

### Health effects from exposure:

It should be noted that the effects from exposure to this product will depend on 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 Safety Data Sheet that would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

### Personal protective equipment guidelines:

The recommendation for protective equipment contained within this Safety Data Sheet is provided as a guide only. Factors such as method 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.

*While all due care to include accurate and up-to-date information in this Safety Data Sheet, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, Genesis Energy accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this Safety Data Sheet.*