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

March 2020

1. Product And Company Details		
Product name	Liquefied Petroleum Gas (LPG) (unodorised and odorised)	
Other names	LPG, LP Gas, Propane, Butane, Rockgas	
Use	Automotive, residential and commercial fuel	
Company	Rockgas Limited, c/o Gas Service NZ, 42 Connett Rd West, Bell Block, New Plymouth 4312	
Telephone	0800 762 542	
Emergency telephone	**Fire Service: 111**	
	Rockgas: 0800 427 345	
Fax	03 373 6443	
2. Hazards Identification		
UN Number	Liquefied Petroleum Gas (LPG):	1075
	Propane:	1978
	Butane:	1011
Hazchem Code	2YE	
Dangerous Goods (HSNO) Class	2.1.1A	
GHS Classification	Category: Flammable Gas Category 1	
	Signal Word: Danger	
	Hazard Statement: Extremely flammable gas	
3. Composition/Information on Ingredients		
Chemical Entity	**CAS Number**	**Proportion**
LPG	68476-85-7	100% maximum
Propane	74-98-6	100% maximum
Butane	106-97-8	100% maximum
Ethyl Mercaptan	75-08-1	0.0017% minimum (odorised LPG)
4. First Aid Measures		
Swallowed	Due to high volatility of product, this is not likely to occur.	
Eyes	▪ **Do not delay** – flood eyes gently with **clean tepid** water (not hot) for at least 15 minutes, or flush eyes for as long as possible with **sterile** saline solution. ▪ Seek medical attention.	
Skin	▪ **I**mmediately bathe the area with large quantities of water (preferably tepid) for at least 15 minutes. ▪ If possible, remove any clothing splashed with liquid LPG that is not sticking to the skin. ▪ Place the injured person in a warm area and gradually rewarm the affected areas to normal body temperature. ▪ **Do not** apply any form of direct heat. ▪ Keep the person warm and comfortable. ▪ Loosen restrictive clothing. ▪ Gently cover the affected area with glad wrap or a wet, (not fibrous) material, ensuring that circulation is not restricted.	

	▪ Do not give anything to eat or drink. ▪ Never leave the injured person unattended. ▪ Keep contaminated clothing away from ignition sources as some gas may be given off during thawing. ▪ Seek medical attention.
Inhaled	▪ Remove victim to fresh air. ▪ If breathing has stopped, or irregular, apply artificial respiration. ▪ Seek medical attention.
Advice to doctor	Treat symptomatically.
5. Fire Fighting Measures	
Fire/Explosion hazard	▪ Evacuate area if required and remove ignition sources. ▪ Cut off gas supply if safe to do so – **do not** endanger life. ▪ **Do not** extinguish an LPG fire – allow gas to burn out. ▪ Drench and cool the LPG tank or cylinder with water spray from a safe distance. ▪ Wait for Emergency Services at a safe distance. **Note:** If ignition has occurred and water is not available or can't be sprayed on the tank or cylinder safely, the metal may weaken from the heat and explode. The potential affected area should be evacuated immediately, and emergency services notified from a safe location. **Note:** If it is essential to extinguish the fire then use only dry chemical powder extinguishers.
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. **Note:** Fire fighters may need self-contained breathing apparatus.
Advice to Firefighters	▪ Temperatures in a fire may cause the tank or cylinder(s) pressure relief devices to open and release gas, or eventually rupture. ▪ Cool the tank or cylinder(s) exposed to fire by applying water spray from a protected location.
6. Accidental Release Measures	
Personal precautions, protective equipment and emergency procedures	▪ Evacuate area if required and remove ignition sources. ▪ Stop flow of gas/liquid if safe to do so – **do not** endanger life. ▪ Move people from potential affected area, keep up-wind. ▪ Notify emergency services. ▪ Stop flow of gas/liquid if safe to do so. ▪ Spray water mist to disperse the 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 wetted cloths, sand or earth.
7. Handling and Storage	
Safe handling	▪ Use of safe work practices are recommended to avoid eye or skin contact. ▪ Do not drag, drop or roll cylinders. ▪ The uncontrolled release of a gas under pressure may cause physical harm.
Conditions for safe storage	▪ Do not store near sources of ignition or incompatible materials. ▪ Cylinders should be stored upright, on a firm and stable surface. ▪ Cylinders should be stored in an accessible, well-ventilated area.

Additional details	▪ Health and Safety at Work (Hazardous Substances) Regulations 2017 ▪ Hazardous Substances and New Organisms Act (HSNO) 1996 ▪ NZS 5433 Transport of Dangerous Goods on Land 2012 ▪ Relevant LPGA Codes of Practice ▪ AS/NZS 1596 Storage and Handling of LP Gas 2014

8. Exposure Controls/Personal Protection

Workplace exposure standard (WorkSafe January 2018):

- Propane is a simple asphyxiant and displaces oxygen from air. It presents an explosion hazard.
- Butane TWA 800 ppm, 1900 mg/m^3
- LPG 1,000 ppm, 1800 mg/m^3

9. Engineering controls

Ignition sources	▪ Provide suitable ventilation to minimise an explosive atmosphere environment. ▪ Do not bring sources of ignition into a potential hazardous area atmosphere. ▪ Use only intrinsically safe electrical equipment. **Do not** bring items such as mobile phones, radios, cameras and other non-intrinsically safe electrical equipment into a potential hazardous area atmosphere ▪ **Only** use appropriate intrinsically safe (certified) tools and equipment in a potential hazardous area atmosphere **Note:** Hazardous area atmosphere zones are not always easy to define or measure, these zone extents may need to be clarified by a competent person.
Ventilation	Maintain adequate ventilation. **Note:** LPG appliances can be hazardous when used in a poorly ventilated room.
Usage	▪ Cylinders other than in-use forklift or automotive cylinders, must be used in the upright position. ▪ Use only equipment approved for LPG installations and installed in accordance with HSNO, Health and Safety at Work (Hazardous Substances) Regulations 2017, relevant LPGA Codes of Practice and, if applicable, AS/NZS 1596:2014 and/or the Gas Act 1992 (as amended).

10. Personal protection

To protect against accidental release of pressurised LPG when there is a possibility of LPG liquid release (eg transferring):

Eyes/face

Wear full wrap-around safety glasses or goggles.

Hands

Wear appropriate thermal insulating gloves.

Body

Wear reduced static full body cover, cotton or other material with equivalent static and flame resistant properties.

Respiratory

Where an inhalation risk exists, wear self-contained breathing apparatus.

Appearance	Colourless gas, liquid under pressure. Typically has an unpleasant odour due to the addition of methyl mercaptan when odorised.			
		Propane	**Butane**	**LPG (typical)**
Boiling Point (at atmospheric pressure)		-42°C	0°C	n/a

Vapour Pressure	-10°C	256 kPa	-4 kPa	185 kPa
	0°C	388 kPa	40 kPa	292 kPa
	10°C	552 kPa	95 kPa	424kPa
	20°C	757kPa	172 kPa	593 kPa
	30°C	1004 kPa	266 kPa	796 kPa
Solubility in Water		75 mg/l	88 mg/l	
Specific Gravity Liquid (Water = 1)		0.508	0.573	0.537
Specific Gravity Gas (Air = 1)		1.58	2.06	1.73
Flash Point		-105°C	-60°C	-81°C
Flammability Limits		2.2 – 9.5%	1.5 – 9.0%	2 – 10%
Auto Ignition Temperature		468°C	430°C	450°C

11. Stability and Reactivity

- Stable under normal ambient conditions of storage and use.
- Avoid heat sources.

Can react violently with oxidising agents – chlorine, pool chlorine or acids (e.g. nitric acid), heat and ignition sources.

12. Toxicological Information

Health effects from acute exposure

Swallowed	Due to high volatility of product, this is not likely to occur.
Eyes	Vaporising liquid will cause severe damage. Vapour will cause irritation.
Skin	Vaporising liquid or liquid contact can result in cold burns.
Inhaled	▪ May cause light-headedness, dizziness and drowsiness. ▪ Excessive exposure may cause unconsciousness or even death, due to asphyxiation (refers to vapour not liquid).

13. Health effects from chronic exposure

No chronic systemic effects reported from industrial exposures.

Carcinogenicity	No known effect.
Mutagenicity	No known effect.
Teratogenicity	No known effect.

14. Ecological Information

Ecotoxicity (aquatic and terrestrial)	LPG will vaporise rapidly when released to atmosphere. There are no known adverse ecological effects.
Persistence and degradability	LPG will vaporise rapidly when released to atmosphere. There are no known adverse ecological effects.
Potential to bioaccumulate	LPG will vaporise rapidly when released to atmosphere. There are no known adverse ecological effects.
Mobility in soil	LPG will vaporise rapidly when released to atmosphere. There are no known adverse ecological effects.

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

15. Disposal Considerations

Get hold of Rockgas if disposal of LPG is required.

- LPG cylinders should be returned to the owning organisation stamped on the cylinder when no longer required.
- Empty containers retain residue (liquid and/or vapour) and can be dangerous. Do not attempt to clean since residue is difficult to remove.
- 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.
- Disposal of material must be carried out in accordance with Hazardous Substances (Disposal) Notice 2017 and the HSNO Act.

16. Transport Information

Transport	Transport of LPG is controlled in accordance with NZS 5433:2012		
Shipping name	**Propane**	**Butane**	**Liquefied Petroleum Gas (LPG)**
UN Number	1978	1011	1075
UN DG Class	2.1	2.1	2.1
Subsidiary Risk(s)	None allocated	None allocated	None allocated
Hazchem code	2YE	2YE	2YE

17. Regulatory Information

	Propane	**Butane**	**LPG**
EPA Approval Numbers	HSR001010	HSR000989	HSR001009
HSNO Group Standard	LPG Liquefied Petroleum Gas		
Poisons schedule number	None allocated		

LPG is a prescribed Hazardous Substance and its storage and handling is covered by various pieces of legislation.

18. Other Information

Acronyms	CAS – Chemical Abstract Service
	EPA – Environmental Protection Authority
	GHS – Globally Harmonized System
	HSNO – Hazardous Substances and New Organisms
	TWA – Time-weighted average
Standards	AS/NZ 1596 – The Storage and Handling of LPG
	NZ 5433 – Transport of Dangerous Goods on Land
	NZS 5435 – Specification for Liquefied Petroleum Gas (LPG)