SAFETY DATA SHEET

Liquid Petroleum Gas (LPG)

Section 1. Identification

Product name	Liquid Petroleum Gas (LPG)
Product code	0000003098
SDS no.	0000003098
Historic SDS no.	YSUY7
Use of the substance/mixture	Fuel for internal combustion engines. Fuel for domestic cooking and heating. For specific application advice see appropriate Technical Data Sheet or consult our company representative.
Product type	Liquefied gas.
Supplier	BP Oil New Zealand Limited Ground floor and 1st floor Watercare House 73 Remuera Road Newmarket Auckland New Zealand Phone 09 969 9300
Emergency telephone number	Tel: 0800 805 111
New Zealand National Poisons Centre	0800 764 766
OTHER PRODUCT INFORMATION	Technical Helpline 09 623 9451

Section 2. Hazards identification

HSNO Classification 2.1.1 - FLAMMABLE GASES - Category A

This material is classified as hazardous according to criteria in the Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001 and has been classified according to the Hazardous Substances (Classifications) Regulations 2001.

This material is classified as DANGEROUS GOODS according to criteria in New Zealand Standard 5433:2012 Transport of Dangerous Goods on Land.

Routes of entry Dermal contact. Eye contact. Inhalation.

GHS label elements

Signal word Danger

Hazard statements Extremely flammable gas.

Precautionary statements

Prevention Keep away from ignition sources such as heat/sparks/open flame. - No smoking.

Response Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage Store in a well-ventilated place.

Disposal Not applicable.

Symbol

Other hazards which do not result in classification This material is an asphyxiant. Asphyxiants may reduce the oxygen concentration in the air to dangerous levels. Symptoms of lack of oxygen include increased depth and frequency of breathing, air hunger, dizziness, headache, nausea or loss of consciousness.
Cold burns (frostbite) will result from skin/ eye contact with liquid.

Section 3. Composition/information on ingredients

Substance/mixture Mixture

Petroleum gas. A small quantity (typically up to 50 ppm) of ethyl mercaptan (stenching agent) is commonly added to assist in leak detection.

Ingredient name	%	CAS number
Propane	55 - 70	74-98-6
Isobutane	18 - 28	75-28-5
Butane	10 - 16	106-97-8
propylene	0 - 5	115-07-1
Ethane	< 2	74-84-0
Butylene	0.1 - 0.5	25167-67-3

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Inhalation If inhaled, remove to fresh air. Get medical attention if symptoms occur.

Ingestion As this product rapidly becomes a gas when released, refer to the inhalation section. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. Move exposed person to fresh air. Keep person warm and at rest. Get medical attention if adverse health effects persist or are severe.

Skin contact Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse. Do not use hot water. Do not apply ointment or powders. DO NOT rub or compress the burnt area of skin. DO NOT attempt to remove portions of clothing glued to the skin, but cut round them. Drench contaminated clothing with water before removing. This is necessary to avoid the risk of sparks from static electricity that could ignite contaminated clothing. Contaminated clothing is a fire hazard. Contaminated leather, particularly footwear, must be discarded. Get medical attention if symptoms occur.

Eye contact In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Check for and remove any contact lenses. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention if irritation occurs. Do not use hot water.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician Treatment should in general be symptomatic and directed to relieving any effects.

Protection of first-aiders No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Section 5. Firefighting measures

Extinguishing media

Suitable If gas has ignited, do not attempt to extinguish but stop gas flow and allow to burn out. Use water spray to cool heat-exposed containers, and to protect surrounding areas and personnel effecting shut-off.

Not suitable Do not use water jet.

Specific hazards arising from the chemical Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Hazardous combustion products Combustion products may include the following:
carbon oxides (CO, CO_2) (carbon monoxide, carbon dioxide)

Hazchem code 2YE

Section 5. Firefighting measures

Special precautions for fire-fighters

No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. In case of fire, allow gas to burn if flow cannot be shut off immediately. Apply water from a safe distance to cool container and protect surrounding areas. Every precaution must be taken to keep containers cool to avoid the possibility of a boiling liquid expanding vapour explosion (BLEVE). Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

Remark

May form explosive mixtures with air.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Immediately contact emergency personnel. Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Eliminate all ignition sources. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Floors may be slippery; use care to avoid falling. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Put on appropriate personal protective equipment (see Section 8).

For emergency responders

Do not enter a vapour cloud except for rescue; self-contained breathing apparatus must be worn. A gas detector or instrument to detect explosive atmospheres (explosimeter) can be used to check for combustible gas or vapour in an atmosphere, but it needs care and training to be used safely. Use suitable protective equipment. Liquid leaks generate large volumes of extremely flammable gas. See also the information in "For non-emergency personnel".

Environmental precautions

Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Small spill

Eliminate all ignition sources. Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill

Eliminate all ignition sources. Immediately contact emergency personnel. Stop leak if without risk. Dike spill area and do not allow product to reach sewage system and surface or ground water. Use spark-proof tools and explosion-proof equipment. The method and equipment used must be in conformance with appropriate regulations and industry practice on explosive atmospheres.

Section 7. Handling and storage

Precautions for safe handling

Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Do not puncture or incinerate container. Use only with adequate ventilation. Do not enter storage areas and confined spaces unless adequately ventilated. Wear appropriate respirator when ventilation is inadequate. Wash thoroughly after handling. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Remove contaminated clothing and protective equipment before entering eating areas. Workers should wash hands and face before eating, drinking and smoking. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. See also Section 8 for additional information on hygiene measures.

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Keep away from heat and direct sunlight. Keep container tightly closed and sealed until ready for use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Propane	**NZ HSWA 2015 (New Zealand). Oxygen Depletion [Asphyxiant].**
Isobutane	**ACGIH TLV (United States).** STEL: 1000 ppm 15 minutes. Issued/ Revised: 6/2013
Butane	**NZ HSWA 2015 (New Zealand).** WES-TWA: 1900 mg/m³ 8 hours. Issued/ Revised: 1/1994 WES-TWA: 800 ppm 8 hours. Issued/ Revised: 1/1994
propylene	**NZ HSWA 2015 (New Zealand). Oxygen Depletion [Asphyxiant].**
Ethane	**NZ HSWA 2015 (New Zealand). Oxygen Depletion [Asphyxiant].**
Butylene	**ACGIH TLV (United States).** TWA: 250 ppm 8 hours. Issued/Revised: 1/2008

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Appropriate engineering controls

Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained.
Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards. The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

Eye protection — **Recommended:** face shield and splash goggles.

Hand protection — **Recommended:** To prevent cold burns and frostbite wear cold resistant and impervious gauntlets/gloves. Nitrile gloves.

Skin protection — Use of protective clothing is good industrial practice. When handling cylinders wear protective footwear and suitable gloves. Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required. Wear suitable protective clothing. Footwear highly resistant to chemicals. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For greatest effectiveness against static electricity, overalls, boots and gloves should all be anti-static. When there is a risk of ignition wear inherently fire resistant protective clothes and gloves. Work clothing / overalls should be laundered on a regular basis. Laundering of contaminated work clothing should only be done by professional cleaners who have been told about the hazards of the contamination. Always keep contaminated work clothing away from uncontaminated work clothing and uncontaminated personal clothes. When the risk of skin exposure is high (from experience this could apply to the following tasks: cleaning work, maintenance and service, filling and transfer, taking samples and cleaning up spillages) then a chemical protective suit and boots will be required. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection — **Recommended:** Approved air-supplied breathing apparatus must be worn where there is a risk of oxygen deficiency (i.e. low oxygen concentration).

Thermal hazards — If there is a risk of contact with the liquid, all protective equipment worn should be suitable for use with extremely low temperature materials.

Section 9. Physical and chemical properties

Appearance

Physical state — Liquefied gas.

Colour — Colourless.

Odour — Kerosene Rancid

pH — Not available.

Melting point — Not available.

Boiling point — -45 to -0.5°C (-49 to 31.1°F)

Drop Point — Not available.

Flash point — Closed cup: -105°C (-157°F) [Pensky-Martens.]

Lower and upper explosive (flammable) limits — Lower: 2%
Upper: 9.5%

Vapour pressure — 601.6 kPa (4512 mm Hg)

Vapour density — Not available.

Density — 532 kg/m³ (0.532 g/cm³)

Solubility — Very slightly soluble in water

Explosive properties — May form explosive mixtures with air.

Section 10. Stability and reactivity

Chemical stability — The product is stable.

Possibility of hazardous reactions — Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerisation will not occur.

Conditions to avoid — Avoid all possible sources of ignition (spark or flame). Air/vapour mixtures may be explosive. Hot containers may explode. Do not allow gas to accumulate in low or confined areas.

Incompatible materials — Reactive or incompatible with the following materials: oxidising materials.

Section 10. Stability and reactivity

Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on likely routes of exposure

Inhalation At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.

Ingestion Ingestion of liquid can cause burns similar to frostbite.

Skin contact Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Eye contact Liquid can cause burns similar to frostbite.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Ingestion Adverse symptoms may include the following:
frostbite

Skin contact Adverse symptoms may include the following:
frostbite

Eye contact Adverse symptoms may include the following:
frostbite

Acute toxicity

Product/ingredient name	Test	Species	Result	Exposure	Remarks
Propane	LC50 Inhalation Gas.	Rat	>800000 ppm	15 minutes	-
Butane	LC50 Inhalation Gas.	Mouse - Male	520400 ppm	2 hours	Based on isobutane

Conclusion/Summary Not available.

Potential chronic health effects

General No known significant effects or critical hazards.

Inhalation Vapour, mist or fume may irritate the nose, mouth and respiratory tract. Solvent "sniffing" (abuse) or intentional overexposure to vapours can produce serious central nervous system effects, including unconsciousness, and possibly death.

Ingestion If swallowed, may irritate the mouth, throat and digestive system. If swallowed, may cause abdominal pain, stomach cramps, nausea, vomiting, diarrhoea, dizziness and drowsiness.

Skin contact No known significant effects or critical hazards.

Eye contact Vapour, mist or fume may cause eye irritation. Exposure to vapour, mist or fume may cause stinging, redness and watering of the eyes.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Teratogenicity No known significant effects or critical hazards.

Developmental effects No known significant effects or critical hazards.

Fertility effects No known significant effects or critical hazards.

Mutagenicity

Section 11. Toxicological information

Product/ingredient name	Test	Experiment	Result	Remarks
Propane	OECD 471	Experiment: In vitro Subject: Non-mammalian species	Negative	-
	OECD 474	Experiment: In vivo Subject: Unspecified Cell: Somatic	Negative	Based on LPG
Butane	OECD 473	Experiment: In vitro Subject: Mammal - species unspecified Cell: Somatic	Negative	Based on Butane
	OECD 471	Experiment: In vitro Subject: Non-mammalian species	Negative	Based on isobutane
	OECD 471	Experiment: In vitro Subject: Non-mammalian species	Negative	Based on Butane
	OECD 474	Experiment: In vivo Subject: Unspecified Cell: Somatic	Negative	Based on LPG

Conclusion/Summary Not classified. Based on available data, the classification criteria are not met.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Developmental toxin	Species	Result	Exposure
Propane	-	-	Negative	Rat	Inhalation	14 days
	-	Negative	Negative	Rat	Inhalation	42 days
	-	Negative	-	Rat	Inhalation	90 days
Butane	-	Negative	Negative	Rat	Inhalation	42 days
	-	Negative	Negative	Rat	Inhalation	42 days
	-	-	Negative	Rat	Inhalation	14 days
	-	Negative	-	Rat	Inhalation	90 days

Conclusion/Summary Development: Not classified. Based on available data, the classification criteria are not met.
Fertility: Not classified. Based on available data, the classification criteria are not met.
Effects on or via lactation: Not classified. Based on available data, the classification criteria are not met.

Section 12. Ecological information

Ecotoxicity No known significant effects or critical hazards.

Aquatic and terrestrial toxicity

Section 12. Ecological information

Product/ingredient name	Species	Result/Test	Exposure	Effects	Remarks
Propane	Algae	Acute EC50 11.89 mg/l	96 hours	-	-
	Daphnia	Acute LC50 27.14 mg/l	48 hours	-	-
	Fish	Acute LC50 49.9 mg/l	96 hours	-	-
Butane	Algae	EC50 7.71 mg/l Fresh water	96 days	-	-
	Daphnia	LC50 14.22 mg/l Fresh water	48 hours	-	-
	Fish	LC50 24.11 mg/l Fresh water	96 hours	-	-

Persistence and degradability

Not available.

Product/ingredient name	Test	Result	Remarks
Propane	Modelled data	50 % - Readily - 3 days	-

Bioaccumulative potential

This product is not expected to bioaccumulate through food chains in the environment.

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Propane	1.09	-	low
Isobutane	2.8	-	low
Butane	2.89	-	low
propylene	1.77	-	low
Ethane	1.09	-	low
Butylene	2.31 to 2.4	-	low

Mobility in soil

Mobility The product is volatile / gaseous. If released to water the product will rapidly evaporate into the atmosphere. If released to soil the product will rapidly evaporate into the atmosphere. Spillages are unlikely to penetrate the soil.

Soil/water partition coefficient (K_{OC}) Not available.

Other ecological information Unlikely to cause long term effects in the aquatic environment.

Section 13. Disposal considerations

Disposal methods The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty pressure vessels should be returned to the supplier. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
New Zealand Class	UN1075	Petroleum gases, liquefied	2.1	-		**Hazchem code** 2YE
ADG Class	UN1075	Petroleum gases, liquefied	2.1	-		**Hazchem code** 2YE **Initial emergency response guide** 04
IATA Class	UN1075	Petroleum gases, liquefied	2.1	-		**Quantity limitation** Passenger and Cargo Aircraft: Forbidden. Cargo Aircraft Only: 150 kg. Limited Quantities - Passenger Aircraft: Forbidden.
IMDG Class	UN1075	Petroleum gases, liquefied	2.1	-		**Emergency schedules** F-D, S-U

PG* : Packing group

Section 15. Regulatory information

New Zealand Regulatory Information

HSNO Approval Number	HSR001009
HSNO Group Standard	LPG Liquefied petroleum gas
HSNO Classification	2.1.1 - FLAMMABLE GASES - Category A

Regulation according to other foreign laws

REACH Status	For the REACH status of this product please consult your company contact, as identified in Section 1.
United States inventory (TSCA 8b)	All components are listed or exempted.
Australia inventory (AICS)	All components are listed or exempted.
Canada inventory status	All components are listed or exempted.
China inventory (IECSC)	All components are listed or exempted.
Japan inventory (ENCS)	All components are listed or exempted.
Korea inventory (KECI)	All components are listed or exempted.
Philippines inventory (PICCS)	All components are listed or exempted.
Taiwan Chemical Substances Inventory (TCSI)	All components are listed or exempted.

Section 16. Other information

History

Date of issue/Date of revision	8 February 2019
Date of previous issue	5 August 2014.
Version	2
Prepared by	Not available.

Section 16. Other information

Key to abbreviations

Varies = may contain one or more of the following 64741-88-4, 64741-89-5, 64741-95-3, 64741-96-4, 64742-01-4, 64742-44-5, 64742-45-6, 64742-52-5, 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-57-0, 64742-58-1, 64742-62-7, 64742-63-8, 64742-65-0, 64742-70-7, 72623-85-9, 72623-86-0, 72623-87-1

Notice to reader

Indicates information that has changed from previously issued version.

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