

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 and a 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 Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 5% Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 5%
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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 a dangerous good according to criteria in New Zealand Standard 5433:2007 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	Read label before use. 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.

Section 2. Hazards identification

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

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
Ethyl mercaptan (Stench.)	<0.005	75-08-1

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. Fire-fighting 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	Not available.
Special precautions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. 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 materials 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.

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
butane	NZ OSH (New Zealand). WES-TWA: 1900 mg/m ³ 8 hours. Issued/Revised: 1/1994 WES-TWA: 800 ppm 8 hours. Issued/Revised: 1/1994
isobutane	ACGIH TLV (United States). STEL: 1000 ppm 15 minutes. Issued/Revised: 6/2013
propylene	ACGIH TLV (United States). TWA: 500 ppm 8 hours. Issued/Revised: 12/2005
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.

Section 8. Exposure controls/personal protection

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.

Eye protection

Recommended: face shield and splash goggles.

Hand protection

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

Skin protection

Recommended: overall

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

600 kPa (4512 mm Hg)

Vapour density

Not available.

Density

532 kg/m³ (0.532 g/cm³)

Solubility

Very slightly soluble in water

Explosive properties

Extremely explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.
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.

Hazardous decomposition products

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

Section 11. Toxicological information

Information on the 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
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

Eye contact Not applicable.

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

Product/ingredient name	Test	Experiment	Result	Remarks
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	Negative	Based on LPG

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Section 11. Toxicological information

Subject: Unspecified
Cell: Somatic

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
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.

Other adverse symptoms High vapour concentrations can cause headaches, dizziness, drowsiness and nausea and may lead to unconsciousness. Exposure to vapour at high concentrations may have the following effects: heartbeat irregularity (arrhythmia)

Section 12. Ecological information

Ecotoxicity No known significant effects or critical hazards.

Aquatic and terrestrial toxicity

Product/ingredient name	Species	Result/Test	Exposure	Effects	Remarks
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.

Bioaccumulative potential

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

Product/ingredient name	LogP _{ow}	BCF	Potential
isobutane	2.8	-	low
butane	2.89	-	low
propylene	1.77	-	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		Proper shipping name	Classes	PG*	Label	Additional information
New Zealand Class	UN1075	Petroleum gases, liquefied, or Liquefied petroleum gas	2.1	-		Hazchem code 2YE
ADG Class	UN1075	Petroleum gases, liquefied, or Liquefied petroleum gas	2.1	-		Hazchem code 2YE Initial emergency response guide 04
IATA Class	UN1075	Petroleum gases, liquefied, or Liquefied petroleum gas	2.1	-		-
IMDG Class	UN1075	Petroleum gases, liquefied, or Liquefied petroleum gas	2.1	-		Emergency schedules (EmS) 2-07

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.

Section 16. Other information

History

Date of issue/Date of revision	5 August 2014
Date of previous issue	No previous validation.
Version	1

Notice to reader

✔ **Indicates information that has changed from previously issued version.**

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from us.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken.