

# SAFETY DATA SHEET

## FOR

# Liquefied Petroleum Gas (LPGas)

### 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

<b>Supplier Name</b>	Elgas Ltd, A.C.N. 002 749 260
<b>Address</b>	10 Julius Avenue, North Ryde NSW 2113 PO Box 1336, Chatswood NSW 2067 AUSTRALIA
<b>Telephone</b>	(02) 8094 3200
<b>Fax</b>	(02) 9018 0146
<b>Emergency</b>	1800 819 783 (24 hours)
<b>Other Names</b>	Propane, butane, propene or a combination of these products
<b>Uses</b>	As an energy source in the residential, commercial and automotive markets. A feedstock for the petrochemical industry and as refrigerant.

### 2. HAZARDS IDENTIFICATION

**NOT CLASSIFIED AS HAZARDOUS ACCORDING TO ASCC (NOHSC) CRITERIA.  
CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE.**

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

			CAS Number
<b>Main Components</b>	LP Gas	Composition in accordance with the appropriate LPG Australia specifications and state regulations	68476 – 85 – 7
	Propane		0074 – 98 – 6
	Propene		115 – 07 – 1
	n-Butane		106 – 97 – 8
<b>Minor Components</b>	Iso-Butane		75 – 28 – 5
	Ethane		74 – 84 – 0
	1,3-Butadiene	<0.1%	106 – 99 – 0
	Odourant: Ethyl Mercaptan	Approx 25ppm	75 – 08 – 1

### 4. FIRST AID MEASURES

<b>In all cases seek medical attention and see the Elgas Super Cold Contact Injuries Hospital Information Sheet for further information and procedures.</b>	
<b>Eye</b>	Treatment for cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.
<b>Inhalation</b>	Remove from area of exposure immediately. Be aware of possible explosive atmospheres. If victim is not breathing apply artificial respiration and seek urgent medical attention. Give oxygen if available. Keep warm and rested.
<b>Skin</b>	Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30 C) for 15 minutes. Apply non-adhesive 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>Ingestion</b>	For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor. Ingestion is considered unlikely due to product form.
<b>Advice to Doctor</b>	Treat symptomatically. Severe inhalation over exposure may sensitise the heart to catecholamine induced arrhythmias. Do not administer catecholamines to an overexposed person.

## 5. FIRE FIGHTING MEASURES

**Flammability** Highly flammable.  
Heating to decomposition produces acrid smoke and irritating fumes.  
Product will add fuel to a fire.  
Eliminate all ignition sources including cigarettes, open flames, spark producing switches / tools, heaters, naked lights, pilot lights, mobile phones etc. when handling.

**Fire and Explosion** Highly flammable.  
Temperatures in a fire may cause cylinders or pressure vessels to rupture and pressure relief devices to be activated (venting).  
Call Fire Brigade. This product will add fuel to a fire.  
Cool cylinders and vessels exposed to fire by applying water from a protected location and with water spray directing spray primarily onto the upper surface.  
Do not approach any LPGas container suspected of being hot.

**Extinguishing** Stop flow of gas if safe to do so, such as by closing valves or by activating Emergency Shutdown Systems. If the gas source cannot be isolated, do not extinguish the flame, since re-ignition and explosion could occur.  
Await arrival of emergency services.

Drench and cool cylinders or vessels with water spray from protected area at a safe distance.

If it is absolutely necessary to extinguish the flame, use only a dry chemical powder extinguisher.

Do not move cylinders for at least 24 hours. Avoid shock and bumps to cylinders. Evacuate the area of persons not fighting the fire.  
Carbon oxides (CO, CO<sub>2</sub>) fumes may be produced should burning occur especially within an enclosed space (ie causing a deficiency of oxygen).  
Fire fighters should wear full protective clothing and be aware of the risk of possible explosion (especially in a confined space). Flashback may occur along vapour trail.  
Where possible, remove cool cylinders from the path of the fire. Do not re-use a fire-exposed vessel or cylinder – seek advice of supplier.

**Hazchem Code** 2YE (as defined in ADG7 published in 2007)  
2WE (as defined in ADG6 published in 1998)

## 6. ACCIDENTAL RELEASE MEASURES

**Spillage** As this product has a very low flash point any spillage or leak is a fire and / or explosion hazard. If a leak has not ignited, stop gas flow, isolate sources of ignition and evacuate personnel.

Ensure good ventilation.

Liquid leaks generate large volumes of heavier than air flammable vapour which may travel to remote sources of ignition (eg along drainage systems).  
Where appropriate, use water spray to disperse the gas or vapour and to protect personnel attempting to stop leakage.

Vapour may collect in any confined space.

**Gas Cylinders** If the cylinder is leaking, eliminate all potential ignition sources and evacuate area of personnel. Inform manufacturer / supplier of leak.  
If safe to enter the area, wear appropriate PPE and carefully move the cylinder to a well ventilated remote area, then allow to discharge.  
Do not attempt to repair leaking valve or cylinder fusible plugs.

For vessels operate the Emergency Shutdown System (where fitted) and proceed as above.

## 7. HANDLING AND STORAGE

**Precautions for Safe Handling** Avoid inhalation of vapour.  
Avoid contact with liquid and cold storage containers.  
When handling cylinders wear protective footwear and suitable gloves.  
Always ensure that cylinders are within test date, are fit for use and are leak checked prior to use.  
Do not fill dented, gouged or rusty containers (refer AS2337.1). Only fill cylinders to 80% fill level (ullage tube via decanting or mass via mechanical filling).  
The maximum fill level for vessels is dependent upon their size and location as detailed in AS / NZS 1596.

Avoid contact with eyes.

Class 2.1 Flammable Gas products may only be loaded in the same vehicle or packed in the same freight container with the classes of products as permitted in the ADG Code (see references).

Cylinders shall only be transported in an upright, secure position in accordance with the National Road Transport Commission Load Restraint Guide and shall not be dropped.

**Conditions for Safe Storage** Store and use only in equipment / containers designed for use with this product.  
Store and dispense only in well ventilated areas away from heat and sources of ignition.

Do not enter storage vessels. If entry to a vessel is necessary, contact the supplier.

Cylinders and vessels must be properly labelled. Do not remove warning labels. LPGas cylinders shall be stored in accordance with the requirements of the ADG Code, AS 4332 and AS/NZS1596.

Do not store in pits and basements where vapour may collect.  
Store cylinders securely in an upright position. Note: forklift cylinders may be stored horizontally.  
Store away from incompatible materials particularly oxidising agents. Check vessels and cylinders are clearly labelled.

Do not contaminate cylinders or vessels with other products.

**Other Information** Product spilt on clothing may give rise to delayed evaporation and subsequent fire hazard.

Check for leaks by sound and smell and by locating with soapy water or with approved detection devices.  
Use only equipment and pipework designed and approved (where applicable) for LPGas applications.

Ensure that cylinders cannot be struck by forklift vehicles or by dropped or rolled objects, etc.

Refer to Australian state and territory Dangerous Goods regulations.

**Ventilation** Maintain adequate ventilation.

Confined areas (eg tanks) should be adequately ventilated and gas tested and must NEVER be entered unless under supervision via a Permit Procedure.

<b>Exposure Standards</b>	<b>Ingredient Name</b>	<b>Occupational Exposure Limits</b>
	LP Gas	<b>NOHSC</b> TWA: 1000 ppm 8 hour(s)
	Butane	<b>NOHSC</b> TWA: 1900 mg/m <sup>3</sup> 8 hour(s) TWA: 800 ppm 8 hour(s)
	Propane	<b>ACGIH TLV</b> TWA: 1000 ppm 8 hour(s)
	Propylene	<b>ACGIH TLV</b> TWA: 500 ppm 8 hour(s)

**PPE** Wear suitable gloves and overalls to prevent cold burns and frostbite.  
In filling operations wear protective clothing including impervious gloves, safety goggles or face shield.

All clothing should be of the anti-static, low flame spread type.  
When handling cylinders wear protective footwear.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

PROPERTY	PROPANE		BUTANE	
<b>Appearance</b>	<b>Colourless Gas</b>		<b>Colourless Gas</b>	
<b>Odour</b>	<b>Characteristic Odour</b>		<b>Characteristic Odour</b>	
<b>Chemical Formula</b>	<b>C<sub>3</sub>H<sub>8</sub></b>		<b>C<sub>4</sub>H<sub>10</sub></b>	
<b>Molecular Weight</b>	<b>44.1</b>		<b>58.1</b>	
<b>Boiling Point</b>	<b>-42<sup>o</sup>C</b>		<b>-0.5<sup>o</sup>C</b>	
	Liquid at 15 <sup>o</sup> C	Gas at 101 kPa & 15 <sup>o</sup> C	Liquid at 15 <sup>o</sup> C	Gas at 101 kPa & 15 <sup>o</sup> C
Density (kg/m <sup>3</sup> )	510	1.86	568	2.47
Relative Density: water = 1.0 air = 1.0	0.510	1.53	0.568	2.00
Litres/tonne	1961	536000	1760	405000
m <sup>3</sup> /tonne	1.961	536	1.760	405
m <sup>3</sup> /m <sup>3</sup> of liquid	1.000	274	1.000	235
Specific heat of liquid (kJ/kg <sup>o</sup> C)	2.512		2.386	
Latent heat of vapourisation (MJ/m <sup>3</sup> ) (MJ/kg = GJ/t)	232 0.358		239 0.372	
Heat combustion (MJ/m <sup>3</sup> ) (MJ/kg = GJ/t)	25000 50.1	93.3 50.1	28800 49.47	121.9 49.47
Volume of air (m <sup>3</sup> ) needed to burn 1m <sup>3</sup> of gas		23.7		31.0
Flash point		-104 <sup>o</sup> C		-60 <sup>o</sup> C
Ignition temp.		493-549 <sup>o</sup> C		482-538 <sup>o</sup> C
Max. flame temp.		1970 <sup>o</sup> C		1990 <sup>o</sup> C
Limits of flammability in air (% by vol): upper % lower %		9.6 2.4		8.6 1.9
<b>Other Properties:</b>	Solubility (water): 0.07cm <sup>3</sup> / cm <sup>3</sup>			
<b>Other name/numbers:</b>	<b>LPGas</b>	UN 1075		
	<b>Propane</b>	UN 1978		
	<b>Butane</b>	UN 1011		
	<b>IsoButane</b>	UN 1969		



### 13. DISPOSAL CONSIDERATIONS

**Waste Disposal** Cylinders should be returned to the manufacturer or supplier for disposal.

Empty cylinders or vessels may contain some remaining product.

Hazard warning labels are a guide to the safe handling of empty packaging and should not be removed. LPGas cylinders or vessels should NEVER be inadvertently disposed of in any land fill facility without being rendered visually and physically unusable before disposal.

'EMPTY' container warning: 'empty' containers can sometimes retain residue (liquid and / or vapour) and can be dangerous.

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. Do not attempt to clean.

**Legislation** Dispose of in accordance with relevant legislation.

### 14. TRANSPORT INFORMATION

**Transport** Transport of LPGas is controlled in accordance with the requirements of the ADG Code and the Load Restraint Guide.

**UN Number** 1075

**Shipping Name** PETROLEUM GASES, LIQUEFIED

**DG Class** 2.1

**Subsidiary Risk(s)** None Allocated

**Packing Group** None Allocated

**Hazchem Code** See Section 5

### 15. REGULATORY INFORMATION

**AICS** All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

**Poison Schedule** A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

**Principal Retail Centres**

**NSW Blacktown** 22 Holbeche Road  
Blacktown NSW 2148  
Phone: (02) 9672 0777  
Fax: (02) 9672 1481

**VIC Mulgrave** 331-347 Police Road  
Mulgrave VIC 3170  
Phone: (03) 9767 7222  
Fax: (03) 9767 7372

**QLD Brisbane** Tanker Street  
Lytton QLD 4178  
Phone: (07) 3396 2769  
Fax: (07) 3893 1495

**SA Adelaide** 1 Newfield Road  
Para Hills West SA 5096  
Phone: (08) 8368 4700  
Fax: (08) 8349 4624

**ACT Canberra** 3-5 Geelong Street  
Fyshwick ACT 2609  
Phone: (02) 6280 6355  
Fax: (02) 6280 4217

**Swap 'n' Go** Contact the principal retail centre in your state or territory

**WA Perth** 2 Uppsala Place  
Canning Vale WA 6155  
Phone: (08) 6465 8561  
Fax: (08) 6254 2893

**Stargas** Contact the principal retail centre in your state or territory

**NT Darwin** 1227 Winnellie Road  
Winnellie NT 0821  
Phone: (08) 8947 4256

**References** ALPGA (now Gas Energy Australia) Specification for Liquefied Petroleum Gas for Automotive use 2004.

ALPGA (now Gas Energy Australia) Specification for Liquefied Petroleum Gas for Heating use 2004.

ACGIH = American Conference of Governmental Industrial Hygienists

CAS Number = Chemical Abstracts Service Registry Number

HAZCHEM Code = Emergency action code of numbers and letters which gives information to emergency services

ICAO = International Civil Aviation Organisation

IATA = International Air Transport Association

IMDG = International Maritime Organisation Rules

NOHSC = National Occupational Health & Safety Commission, Australia

TWA = Time weighted average

STEL = Short term exposure limit

UN Number = United Nations Number, a four digit number assigned by the United Nations Committee of Experts on the Transport of Dangerous Goods Petroleum and Gas Legislation / Queensland: 2004

Australian Standards as detailed within this document

The Australian Code for the Transport of Dangerous Goods by Road and Rail (commonly known as the ADG Code)

The Load Restraint Guide as prepared by the National Transport Commission