

SAFETY DATA SHEET

FOR

Liquefied Petroleum Gas (LPGas)

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name	Elgas Ltd, A.C.N. 002 749 260
Address	10 Julius Avenue, North Ryde NSW 2113 PO Box 1336, Chatswood NSW 2067 AUSTRALIA
Telephone	(02) 8094 3200
Fax	(02) 9018 0146
Emergency	1800 819 783 (24 hours)
Other Names	Propane, butane, propene or a combination of these products
Uses	As an energy source in the residential, commercial and automotive markets, a feedstock by the petrochemical industry, a propellant for aerosol spray cans, foam blowing applications and a 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
Main Components	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
Minor Components	Isobutane		75 – 28 – 5
	Ethane		74 – 84 – 0
	1,3-Butadiene	<0.1%	106 – 99 – 0
	Odourant: Ethylmercaptan	Approx 25ppm	75 – 08 – 1

4. FIRST AID MEASURES

In all cases seek medical attention and see the Elgas Super Cold Contact Injuries Hospital Information Sheet for further information and procedures.	
Eye	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.
Inhalation	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.
Skin	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.
Ingestion	For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor. Ingestion is considered unlikely due to product form.
Advice to Doctor	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. 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 ₂) 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	<p>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.</p> <p>Ensure good ventilation.</p> <p>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.</p> <p>Vapour may collect in any confined space.</p>
Gas Cylinders	<p>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.</p> <p>For vessels operate the Emergency Shutdown System (where fitted) and proceed as above.</p>

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 excessively 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 good regulations.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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.	
Exposure Standards	Ingredient Name	Occupational Exposure Limits
	LP Gas	NOHSC TWA: 1000 ppm 8 hour(s)
	Butane	NOHSC TWA: 1900 mg/m ³ 8 hour(s) TWA: 800 ppm 8 hour(s)
	Propane	ACGIH TLV TWA: 1000 ppm 8 hour(s)
	Propylene	ACGIH TLV 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	
Appearance	Colourless Gas		Colourless Gas	
Odour	Characteristic Odour		Characteristic Odour	
Chemical Formula	C₃H₈		C₄H₁₀	
Molecular Weight	44.1		58.1	
Boiling Point	-42^oC		-0.5^oC	
	Liquid at 15 ^o C	Gas at 101 kPa & 15 ^o C	Liquid at 15 ^o C	Gas at 101 kPa & 15 ^o C
Density (kg/m ³)	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 ³ /tonne	1.961	536	1.760	405
m ³ /m ³ of liquid	1.000	274	1.000	235
Specific heat of liquid (kJ/kg ^o C)	2.512		2.386	
Latent heat of vapourisation (MJ/m ³) (MJ/kg = GJ/t)	232 0.358		239 0.372	
Heat combustion (MJ/m ³) (MJ/kg = GJ/t)	25000 50.1	93.3 50.1	28800 49.47	121.9 49.47
Volume of air (m ³) needed to burn 1m ³ of gas		23.7		31.0
Flash point Ignition temp.		-104 ^o C 493-549 ^o C		-60 ^o C 482-538 ^o C
Max. flame temp.		1970 ^o C		1990 ^o C
Limits of flammability in air (% by vol): upper % lower %		9.6 2.4		8.6 1.9
Other Properties:	Solubility (water): 0.07cm ³ / cm ³			
Other name/numbers:	LPGas	UN 1075		
	Propane	UN 1978		
	Butane	UN 1011		
	IsoButane	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 22 Holbeche Road
Blacktown Blacktown NSW 2148
 Phone: (02) 9672 0777
 Fax: (02) 9672 1481

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

ACT 9 Lithgow Street
Canberra Fyshwick ACT 2609
 Phone: (02) 6280 6355
 Fax: (02) 6280 4217

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

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

SA 1 Newfield Road
Adelaide Para Hills West SA 5096
 Phone: (08) 8349 5050
 Fax: (08) 8349 4624

Swap 'n' Go 9-13 Dunheved Crescent
 St Mary's NSW 2760
 Phone: (02) 9833 4501
 Fax: (02) 9833 4512

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