Product Name: **LIQUEFIED PETROLEUM GAS (LPG)**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name:	**ELGAS LIMITED (NEW ZEALAND)**
Address:	988 Great South Road, Penrose, Auckland, NEW ZEALAND
Telephone:	0800 435 427
Fax:	09 571 9510
Emergency:	0800 4 35 427(NZ only)
Email:	info@elgas.co.nz
Web Site:	http://www.elgas.co.nz/

Synonym(s): • BOC HANDIGAS LPG • BOC LIQUEFIED PETROLEUM GAS (LPG) • FORKLIFT GAS • LPG • ELGAS LPG• TWINPAK • ELGAS EASY GAS

Use(s) FUEL

SDS Issue Date: 20th May 2014

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO HAZARDOUS SUBSTANCES [CLASSIFICATION] REGULATIONS 2001

HSNO CLASSIFICATION
2.1.1A Flammable gases: high hazard.

HAZARD STATEMENT
H220 Extremely flammable gas.

PREVENTION STATEMENT
P103 Read label before use (applies only where the substance is available to the general public).
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

RESPONSE STATEMENT
P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 Eliminate all ignition sources if safe to do so.

STORAGE STATEMENT
P403 Store in a well-ventilated place.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient CAS No.	Content (Typical)
BUTANES (n-Butane) 106-97-8 (i-Butane) 75-28-5	20-50% (Ratio of n-Butane/ i-Butane approx 50/50)
PROPANE 74-98-6	80-50%
ETHANE 74-84-0	<5%
PROPYLENE 115-07-1	<5%
UNSATURATED HYDROCARBONS OTHER THAN PROPYLENE	Not Available <0.3%
ADDITIVE(S)	Not Available <0.1%
UNSATURATED HYDROCARBONS OTHER THAN BUTADIENE	Not Available <0.1%
ANTI-ICING AGENTS	Not Available Not Available
ODOURANT (Ethyl Mercaptan) 75-28-1	approx 17ppm

4. FIRST AID MEASURES

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 If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Be aware of possible explosive atmospheres. Apply artificial respiration if not breathing. Give oxygen if available.

Skin Cold burns: Remove contaminated clothing and gently flush affected areas with cold water for 15 minutes. Apply sterile dressing and treat as for a thermal burn. For large burns, immerse in cold water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention.

Ingestion For advice, contact a Poison Information Centre on 0800 764 766 (0800 POISON) or +643 479 7248 (New Zealand) or a doctor (at once). Due to product form and application, ingestion is considered unlikely.

Advice to Doctor If frozen tissue has thawed since exposure do not re-warm but apply sterile dressing with loose bandaging. To thaw frozen tissue, place in a warm (41-45℃) water bath for 15 to 60 minutes, or until the skin turns pink or red. Analgesia will be necessary during thawing. For massive exposure, general body temperature may be depressed and patient must be immediately re-warmed by whole-body immersion in a warm (41-45℃) water bath. Shock may occur during re-warming. When thawed, treat as with heat burns.

First Aid Facilities Eye wash facilities and safety shower should be available.

5. FIRE FIGHTING MEASURES

Flammability Highly flammable. Heating to decomposition produces acrid smoke and irritating fumes such as carbon monoxide and other unidentifiable organic compounds. Product will add fuel to a fire. Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, heaters, naked lights, pilot lights etc. when handling.

Fire and Explosion Highly flammable. Temperatures in a fire may cause cylinders to rupture and internal pressure relief devices to be activated. Call fire brigade. This product will add fuel to a fire. Cool cylinders or containers exposed to fire by applying water from a protected location. Do not approach cylinders or containers suspected of being hot.

Extinguishing Stop flow of gas if safe to do so, such as slowly closing the cylinder valve. If the gas source cannot be isolated, do not extinguish the flame, since re-ignition and explosion could occur. Await arrival of emergency services or manufacturer's advisor. Drench and cool cylinders 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. Emergency personnel should wear full protective clothing including full-face air supplied or self-contained breathing apparatus, coveralls, thermal insulated gloves, splash-proof goggles and non-sparking boots.

Hazchem Code 2YE

6. ACCIDENTAL RELEASE MEASURES

Spillage Pressurised liquid leaks will immediately vaporise at normal air pressures. Avoid breathing gas. Avoid contact of the liquid with skin and eyes. Clear area of all unprotected personnel. Extinguish or remove all sources of ignition. Switch off power suppliers. Shut off leak if safe to do so. Contact emergency authorities and advise of nature of hazard. For bulk containers, evacuate personnel and remove fire sources to beyond those at which the gas detector indicates a gas concentration less than 5% of the lower explosion limit. Regular monitoring is to be carried out until the area is free of dispersed gas. Determine safe distance by use of a combustible gas detector, or at least 50 metres away. For cylinders, inform manufacturer/supplier of leak. Do not attempt to repair leaking valve or cylinder safety devices.

7. STORAGE AND HANDLING

Storage Do not store near sources of ignition or incompatible materials. Cylinders should be stored below 45°C in a secure area, upright and restrained to prevent cylinders from falling. Cylinders should also be stored in a dry, well ventilated area constructed of non-combustible material with firm level floor (preferably concrete), away from areas of heavy traffic and emergency exits. Also store removed from nickel carbonyl and oxygen, barium peroxide and chlorine dioxide.

Handling Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

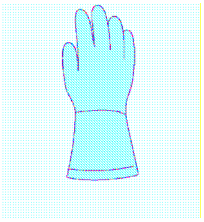
Exposure Standards

BUTANES	ES-TWA: 800 ppm (Butane) WES-TWA: Simple asphyxiant - may present an explosion hazard
ETHANE	ES-TWA: Asphyxiant WES-TWA: Simple asphyxiant - may present an explosion hazard
PROPANE	ES-TWA: Asphyxiant WES-TWA: Simple asphyxiant - may present an explosion hazard
PROPYLENE	ES-TWA: Asphyxiant WES-TWA: Asphyxiant

Engineering Controls Maintain adequate ventilation. Confined areas (eg. tanks) should be adequately ventilated or gas tested. Local exhaust ventilation is usually required. Provide explosion proof ventilation system. Performance of ventilation system should be

regularly monitored. If air contaminant levels exceed exposure standard, respiratory protection will be required.

PPE Wear splash-proof goggles, leather or insulated gloves and safety boots. To prevent the possibility of splashes of LPG on skin it is recommended that clothing that covers arms and legs, i.e. long sleeves and long trousers, is worn when handling LPG. Wherever possible clothing should be anti-static. Where an inhalation risk exists, wear self Contained Breathing Apparatus (SCBA) or an Air-line respirator.


9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	COLOURLESS GAS	**Solubility (Water)**	SLIGHTLY SOLUBLE
Odour:	CHARACTERISTIC ODOUR	**Specific Gravity**	0.532
pH	NOT RELEVANT	**% Volatiles**	NOT AVAILABLE
Vapour Pressure	580 kPa @ 15℃	**Flammability**	HIGHLY FLAMMABLE
Vapour Density	1.4 (Air = 1)	**Flash Point**	NOT AVAILABLE
Boiling Point	-42℃ (Propane); 0℃ (Butane)	**Upper Explosion Limit**	10 %
Melting Point	NOT AVAILABLE	**Lower Explosion Limit**	1 %
Evaporation Rate	NOT AVAILABLE		
Autoignition Temperature	430℃ (Butane); 486℃ (Propane)		

10.STABILITY AND REACTIVITY

Material to Avoid Incompatible with oxidising agents (eg. Hypo-chlorites, peroxides), acids (eg. nitric acid), heat and ignition sources. Do not use natural rubber flexible hoses. Also incompatible (potentially violently) with oxygen, halogens and metal halides. Also incompatible with nickel carbonyl and oxygen (explodes at 20-40℃), barium peroxide (violent exothermic reaction) and chlorine dioxide (spontaneous explosion).

Decomposition Heating to decomposition produces acrid smoke and irritating fumes such as carbon monoxide and other unidentifiable organic compounds.

11.TOXICOLOGICAL INFORMATION

Health Hazard Asphyxiant. Symptoms of exposure are directly related to displacement of oxygen from air. As the amount of

Summary oxygen inhaled is reduced from 21-14% volume, the pulse rate will accelerate and the rate and volume of breathing will increase. The ability to maintain attention and think clearly is diminished, muscular co-ordination is somewhat disturbed. As oxygen decreases from 14-10% volume, judgement becomes faulty, severe injuries may cause no pain. Muscular effort lead to rapid fatigue. Further reduction to 6% may cause nausea and vomiting. Ability to move may be lost. Permanent brain damage may result even after resuscitation from exposure to this low level of oxygen. Below 6% breathing is in gasps and convulsions may occur. Inhalation of a mixture containing no oxygen may result in unconsciousness from the first breath and death will follow in minutes.

Eye Non irritant. However, direct contact with evaporating liquid may result in severe cold burns with possible permanent damage.

Inhalation	Non irritating - Asphyxiant. Effects are proportional to oxygen displacement. May cause somnolence and narcosis. May also lead to headaches and dullness.
Skin	Non irritant. Contact with evaporating liquid (eg. cold vessels or pipes containing low pressure liquid) may result in frost-bite with severe tissue damage.
Ingestion	Ingestion is considered unlikely due to product form.
Toxicity Data	No LD50 data available for this product.

12. ECOLOGICAL INFORMATION

Environment No known ecological damage is caused by this product.

13. DISPOSAL CONSIDERATIONS

Waste Disposal	Cylinders should be returned to the manufacturer or supplier for disposal of contents. Disposal of released gas: Water spray should be used to disperse the gas. LPG is heavier than air. Do not allow gas to collect in sewers or drains. Emergency personnel should remain upwind of a gas cloud at all times.
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

Transport Ensure cylinder is separated from driver and that outlet of relief device is not obstructed.

CLASSIFIED AS A DANGEROUS GOOD ACCORDING TO LAND TRANSPORT RULE:DANGEROUS GOODS 2005; NZS 5433:2007, UN, IMDG OR IATA

Shipping Name	PETROLEUM GASES, LIQUEFIED				
UN No.	1075	**DG Class**	**2.1**	**Subsidiary Risk(s)**	None Allocated
Packing Group	None Allocated	**Hazchem Code**	**2YE**	**EPG**	2A2

IATA

Shipping Name	PETROLEUM GASES, LIQUEFIED				
UN No.	**1075**	**DG Class**	**2.1**	**Subsidiary Risk(s)**	None Allocated
Packing Group	**None Allocated**				

IMDG

Shipping Name	PETROLEUM GASES, LIQUEFIED				
UN No.	**1075**	**DG Class**	**2.1**	**Subsidiary Risk(s)**	None Allocated
Packing Group	**None Allocated**				

15. REGULATORY INFORMATION

Approval Code HSR001009
Product Name LPG (Liquefied Petroleum Gas)

HSNO (Class 1-5) Controls Regulations (2001) AND Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended) prescribe Requirements for Locations, handling and storage.

HSNO Personnel Qualifications Regulations (2001) prescribe Approved Handler requirements; see Regulations 4 - 6 for more information

HSNO (Compressed Gases) Regulations (2004) prescribe a number of controls relating to compressed gases including aerosols and gas cylinders.

Refer to the EPA website for more information: www.epa.govt.nz

16. OTHER INFORMATION

Additional Information Ingredient description: A mixture of hydrocarbon gases liquefied by application of a few atmospheres pressure and/or refrigeration below their boiling points. The mixture consists of predominantly C3 and C4 hydrocarbons (propane and butanes) with small amounts of other hydrocarbons in the C1 to C7 range and additives, subject to the limits in section 3. Composition is per the New Zealand Standard Specification for LPG, NZS 5435.

APPLICATION METHOD: Gas regulator of suitable pressure and flow rating fitted to cylinder or manifold with low pressure gas distribution to equipment.

ABBREVIATIONS:
ADB - Air-Dry Basis.
BEI - Biological Exposure Indice(s)
CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.
CNS - Central Nervous System.
EINECS - European Inventory of Existing Commercial chemical Substances.
IARC - International Agency for Research on Cancer.
M - moles per litre, a unit of concentration.
mg/m3 - Milligrams per cubic metre.
NOS - Not Otherwise Specified.
NTP - National Toxicology Program.
OSHA - Occupational Safety and Health Administration.
pH - relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm - Parts Per Million.
RTECS - Registry of Toxic Effects of Chemical Substances.
TWA/ES - Time Weighted Average or Exposure Standard.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a Safety Data Sheet which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this Safety Data Sheet is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.