Safety Data Sheet

Liquefied Petroleum Gas (LPG) Issued: July 2023

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY

Product name: Easigas Liquefied Petroleum Gas (LPG)

Product code: 1075

Product type: Liquefied Petroleum Gas

Recommended uses: LPG is used as a domestic, commercial, industrial and automotive fuel, a feedstock in chemical processes and as propellant in pressurised aerosol containers. If Shell Commercial Butane is used for other purposes, please contact the supplier as listed below.

Known misuses / abuses: Sniffing from aerosols, lighter refills and cylinders by young people.

Address: Gate 5, Hibiscus Road, Alrode, 1451

Contact numbers:

Telephone: (011) 389 - 7700

Fax: (011) 864 - 9000

Emergency : 0 800 001 504

2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Liquefied Petroleum Gas, LPG

Preparation description: Complex mixture of hydrocarbons consisting predominantly of a 50:50 mixture of Propane and Butane and some other C4 and higher hydrocarbons. Low concentrations of sulphur, hydrogen sulphide and mercaptans may be present. It may also contain one or more of the following additives: odourants (usually ethyl mercaptan), anti-icing agents. 1,3-butadiene, classified as a Category 1 carcinogen and a Category 2 mutagen, may be present at a concentration of less than 0.1 %(m/m).

Dangerous components/constituents:

Component name	EINECS number	Content range	EU hazard	R phrases
Petroleum gases, liquefied	270-704-2	>99 %(m/m)	F+	R12
1,3-butadiene	203-450-8	<0.1 %(m/m)	F+, Carc Cat 1, Muta Cat 2	R12, R45, R46
Ethyl mercaptan	200-837-3	<0.01 %(m/m)	F. Xn, N	R11, R20, R50, R53

Note: CAS numbers for the substances listed above are as follows: Petroleum gases, liquefied - 68476-85-7; 1,3-butadiene - 106-99-0;
Ethyl mercaptan - 75-08-1.

Dangerous Substances Directive, 67/548/EEC, Annex I numbers for the above substances are: Petroleum gases, liquefied - 649-202-00-6;
1,3-butadiene - 601-013-00-X; Ethyl mercaptan - 016-022-00-9.

3. HAZARDS IDENTIFICATION

EU Classification: Extremely flammable

Human health hazards: Prolonged exposure to vapour concentrations may affect the central nervous system. May cause frost burns due to low boiling point.

Safety hazards: Extremely flammable liquefied gas. The vapour is heavier than air, spreads along the ground and distant ignition is possible.

Environmental hazards: No specific hazards under normal use conditions.

4. FIRST AID MEASURES

Symptoms and effects: Liquid may cause skin and eye burns. Prolonged exposure to vapour concentrations above the recommended occupational exposure standard may cause headache, dizziness, weakness, nausea, confusion, blurred vision, asphyxiation, cardiac irregularities, unconsciousness and even death.

Protection of first aiders: Take appropriate steps to avoid fire, explosion and inhalation hazards.

First Aid - Inhalation: Remove to fresh air. Keep warm and at rest. If the casualty is stuporous, some physical restraint may be necessary to prevent injury. If breathing but unconscious, place in the recovery position. If breathing has stopped, apply artificial respiration. If heartbeat absent give external cardiac compression.) Monitor breathing and pulse. OBTAIN MEDICAL ATTENTION IMMEDIATELY.

First Aid - Skin: Drench affected parts with water. Remove contaminated clothing, rings, watches, etc., if possible, but do not attempt to do so if they are adhering to the skin. Do not attempt to reheat the affected parts rapidly - reheat slowly. Cover with a sterile dressing. Do not apply ointments or powders. Note that contaminated clothing may be a fire hazard. Contaminated clothing should be soaked with water before being removed. It must be laundered before reuse.

First Aid - Eye: DO NOT DELAY. Flush eye with copious quantities of water. Cover eye with a sterile dressing. OBTAIN MEDICAL ATTENTION IMMEDIATELY.

First Aid - Ingestion: In the unlikely event of ingestion, obtain medical attention immediately.

Advice to physicians: Treat symptomatically.

5. FIRE FIGHTING MEASURES

Specific hazards: Hazardous combustion products may include: carbon monoxide, oxides of nitrogen, oxides of sulphur, unburnt hydrocarbons. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Sustained fire attack on vessels may result in a Boiling Liquid Expanding Vapour Explosion (BLEVE).

Extinguishing media: Shut off supply. If not possible and no risk to surroundings, let the fire burn itself out. Large fires should only be fought by properly trained fire fighters. Dry powder, carbon dioxide may be used for small fires. Water fog should be used to assist the approach to the source of the fire. All containers subject to fire or to radiant heat should be cooled by spraying with water.

Unsuitable extinguishing media: Water in a jet. Use of Halon extinguishers should be avoided for environmental reasons.

Other information: Keep adjacent containers cool by spraying with water. All storage areas should be provided with adequate fire fighting facilities.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Vapour can travel along the ground for considerable distances. Remove all possible sources of ignition in the surrounding area and evacuate all personnel. Shut off leaks, if possible without personal risk. Do not enter confined spaces. Ventilate contaminated area thoroughly. Do not breathe: vapour. Avoid contact with: skin, eyes and clothing. Take off immediately all contaminated clothing - but do not attempt to do so if clothing adhering to the skin. Contaminated clothing may be a fire hazard and therefore should be soaked with water before being removed.

Personal protection: Wear: monogoggles, chrome leather; neoprene or nitrile rubber gloves, safety shoes or boots.

Environmental precautions: No specific measures.

Clean-up methods - small spillage: Allow to evaporate. Do not disperse liquid using water.

Clean-up methods - large spillage: Attempt to disperse the vapour or to direct its flow to a safe location, for example by using water fog sprays. Otherwise treat as for small spillage.

Other information: Test atmosphere for vapours to ensure safe working conditions before other personnel are allowed into the area. Local authorities should be advised if significant spillage's cannot be contained. Observe all relevant local regulations.

7. HANDLING AND STORAGE

Handling: This product is intended for use in closed systems only. Do not use in confined areas. When using do not eat, drink or smoke. Do not breathe: vapour. Take precautionary measures against static discharges. Use cylinders in the upright position only - unless specially designed for use in other orientations.

Storage: Store only in purpose-designed, appropriately labelled pressure vessels or cylinders. Store outdoors or in adequately ventilated storerooms. Locate pressure vessels or cylinders away from heat and other sources of ignition. Do not store in the vicinity of cylinders containing compressed oxygen or other strong oxidisers. All storage areas should be provided with adequate fire fighting facilities. Keep out of reach of children.

Specific uses: Fuel for use in suitably designed domestic and industrial combustion equipment (e.g. heating, drying), domestic and commercial cooking appliances and motor vehicles. Also used as an aerosol propellant and a feedstock for the petrochemical industry. This product must not be used in applications other than the above without first seeking the advice of the supplier.

Product transfer: Electrostatic charges may be generated during pumping. Ensure electrical continuity by bonding all equipment. Avoid contact with equipment in view of the risk of cold burns. Do not use compressed air for filling, discharging or handling.

Tank cleaning: Cleaning, inspection and maintenance of storage tanks is a specialist operation which requires the implementation of strict procedures and precautions. These include issuing of work permits, gas-freeing of tanks, using a manned harness and lifelines and wearing air-supplied breathing apparatus. Prior to entry and whilst cleaning is underway, the atmosphere within the tank must be monitored using an oxygen meter and/or explosimeter.

Recommended materials: For containers use: mild steel. For seals and gaskets, use: compressed asbestos fibre, or other materials specifically approved for use with this product. Spirally wound metal gaskets are also suitable.

Unsuitable materials: With respect to metals, aluminium should not be used if there is a risk of caustic contamination of the product. Certain forms of cast iron are unsuitable. With respect to non-metallic materials, natural rubbers must not be used. Nitrile rubbers and certain plastics may also be unsuitable, depending on the material specification and intended use.

Other information: Ensure that all local regulations regarding handling and storage facilities are followed. Where large quantities of liquefied petroleum gas are stored, emergency and disaster plans must be developed in conjunction with local authorities.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering control measures: Use only in well ventilated areas. Provide adequate ventilation in storage areas.

Occupational exposure standards: ACGIH threshold limit values are given below. Lower exposure limits may apply locally.

Component name	*Limit type*	*Value*	*Unit*	*Other info*
Liquefied petroleum gas	TWA	2500	ppm	
Butane	TWA	800	ppm	
1,3-butadiene	TWA	2	ppm	
Hydrogen sulphide	TWA	10	ppm	
Hydrogen sulphide	STEL	15	ppm	
Ethyl mercaptan	TWA	0.5	ppm	

Note: ACGIH - 'Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices', American Conference of Governmental Hygienists, Cincinnati, Ohio, 1996 edition.

Respiratory protection: Not normally required. Inhalation of LPG vapours should be minimised. If there is a risk of exposure to high vapour concentrations, respiratory protection / breathing apparatus should be worn.

Hand protection: Wear neoprene or nitrile rubber gloves or chrome leather to EN 374 and EN 420. Gloves must maintain flexibility down to the atmospheric boiling point of this product. It may be necessary to increase frequency of changing gloves if immersion or prolonged contact is likely.

Eye protection: If splashes are likely to occur, wear goggles or full-face visors to EN 166.

Body protection: Protective footwear to EN 345 should be worn when handling cylinders. If splashes are likely to occur, wear long-sleeved overalls made of cotton (100%) or other natural fibres.

Environmental exposure controls: No specific measures. Because of its high volatility, LPG is unlikely to cause ground or water pollution.

Other information: PPE should be certified according to EC examination and be 'CE' marked.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquefied gas
Colour:	Colourless
Odour:	Distinctive and unpleasant if stenched, odourless if unstenched
Boiling point:	circa - 45°C Propane and 0°C Butane
Vapour pressure:	circa 650 kPa at 20°C
Density:	circa 555 kg/m^3 at 15°C
Vapour density (air=1):	circa 1.8 at 15°C
Flash point:	-104°C
Flammability limit - lower:	2.2 %(V/V)
Flammability limit - upper:	10 %(V/V)
Auto-ignition temperature:	> 450°C
Explosive properties:	In use, may form flammable/explosive vapour-air mixture
Oxidising properties:	Not applicable
Solubility in water:	Data not available
n-octanol/water partition coefficient:	log P_{ow} = 2.3 (estimated value)
Evaporation rate:	Data not available

10. STABILITY/REACTIVITY

Stability:	Stable.
Conditions to avoid:	Heat, flames and sparks.
Materials to avoid:	Strong oxidising agents.
Hazardous decomposition products:	The substances arising from the thermal decomposition of these products will largely depend upon the conditions bringing about decomposition. The following substances may be expected from normal combustion: carbon dioxide, carbon monoxide, polycyclic aromatic hydrocarbons, unburnt hydrocarbons, unidentified organic and inorganic compounds, particulate matter, nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

Basis for assessment:	Toxicological data have not been determined specifically for this product. Information given is based on data on the components and the toxicology of similar products.
Acute toxicity - oral:	Data not available.
Acute toxicity - dermal:	Data not available.
Acute toxicity - inhalation:	LC_{50} >5 mg/l (Gas).
Eye irritation:	Not irritating. Liquid causes cold burns.
Skin irritation:	Not irritating. Liquid causes cold burns.
Respiratory irritation:	Not irritating (Gas).
Skin sensitisation:	Not expected to be a skin sensitizer.
Carcinogenicity:	This product has not been evaluated in long-term chronic exposure tests. May contain 1, 3-butadiene, classified as a Category 1 carcinogen at a concentration of less than 0.1% (m/m). Other components are not known to be associated with carcinogenic effects.
Mutagenicity:	This product has not been evaluated in long-term chronic exposure tests. May contain 1, 3-butadiene, classified as a Category 2 mutagen, at a concentration of less than 0.1% (m/m). Other components are not known to be associated with mutagenic effects.
Human effects:	See Section 4 for information regarding acute effects to humans.

12. ECOLOGICAL INFORMATION

Basis for assessment:	Ecotoxicological data have not been determined specifically for this product. Information given is based on data on the components and the toxicology of similar products.
Mobility:	Evaporates extremely rapidly from water or soil surfaces. Disperses rapidly in air.
Persistence/degradability:	Oxidises rapidly by photochemical reactions in air.
Bioaccumulation:	Does not bioaccumulate.
Ecotoxicity:	Low acute toxicity to mammals.
Sewage treatment:	Not applicable.
Other information:	In view of the high rate of loss from solution, the product is unlikely to pose a significant hazard to aquatic life.

13. DISPOSAL CONSIDERATIONS

Precautions:	See Section 8.
Product disposal:	Given the nature and uses of this product, the need for disposal seldom arises. If necessary, dispose by controlled combustion in purpose-designed equipment. If this is not possible, contact the supplier.
Container disposal:	Return part-used or empty cylinders to the supplier.
Local legislation:	(To be provided by the Easigas on request)

14. TRANSPORT INFORMATION

UN Number:	1075
UN Class/Packing Group:	2.1, Packing Group not applicable
UN Proper Shipping Name:	Hydrocarbon Gas Mixture, Liquefied, n.o.s. (Propane Butane Mixture)
UN Number (sea transport, IMO):	1075
IMO Class/Packing Group:	2.1, Packing Group not applicable
IMO Symbol:	Flammable Gas
IMO Marine Pollutant:	No
IMO Proper Shipping Name:	Hydrocarbon Gas Mixture, Liquefied, n.o.s. (Propane Butane Mixture)
ADR/RID Class/Item:	2F
ADR/RID Symbol:	Flammable Gas Shunt With Care (RID only)
ADR/RID Kemler Number:	23-1965
ADR/RID Proper Shipping Name:	Hydrocarbon Gas Mixture, Liquefied, n.o.s. Mixture AO1, Mixture AO2 and Mixture AO (Trade name: butane)
ADNR Class/Item:	(To be provided by the supplier)
UN Number (air transport, ICAO):	1075
IATA/ICAO Class/Packing Group:	2.1, Packing Group not applicable
IATA/ICAO Symbol:	Flammable Gas
IATA/ICAO Proper Shipping Name:	Hydrocarbon Gas Mixtures, Liquefied, n.o.s. (Propane Butane Mixture)
Local regulations:	(To be provided by the supplier)
Other information:	UN Number 1075 is an AEGPL recommendation. Other numbers may be required to be used locally. Transport of this product on passenger aircraft is forbidden.

15. REGULATORY INFORMATION

EC Label name:	Contains propane and butane	
EC Classification:	Extremely Flammable	
EC Symbols:	F+	
EC Risk Phrases:	R12	Extremely flammable
EC Safety Phrases:	S2	Keep out of the reach of children.
	S9	Keep container in a well-ventilated place.
	S16	Keep away from sources of ignition - No Smoking.
EINECS (EC):	All components listed	
National legislation:	SABS 087 Standards	
Other information:	Mobile gas cylinders containing butane, propane or liquid petroleum gas are currently exempt from the health labelling provisions of European Commission Directive 67/548/EEC.	

16. OTHER INFORMATION

Relevant R phrases:	R12 Extremely flammable
Uses and restrictions:	Fuel for use in suitably designed domestic and industrial combustion equipment, domestic cooking appliances and motor vehicles. Also used as an aerosol propellant and a feedstock for the petrochemical industry. This product must not be used in applications other than the above without first seeking the advice of the supplier. Abuse involving repeated and prolonged exposures to high concentrations of vapour ('sniffing') may cause death by either asphyxiation or cardiac arrest. Abuse involving direct ingestion of the liquefied gas may cause death by freezing the larynx and causing the lungs to fill with fluid - an effect similar to drowning.
Technical contact pt.:	Easigas (PTY) Ltd.
Technical contact number:	
Telephone:	(011) 389 7700
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SDS history:	Edition number: 3. First issued: May 24, 1996. Revised: September 24, 1996, 27 January 2003
Revisions highlighted:	Section 2: List of dangerous components added. Section 3 and 7: Editorial changes. Sections 6 and 8: Revised personal protection. Section 12: Estimated Ecotoxicity data deleted. Changes indicated by vertical bar to left of text.
SDS distribution:	This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.
Other information:	The meaning of the Risk phrases quoted in Section 2 of this safety data sheet that relate to the classification of 1,3-butadiene and ethyl mercaptan but that do not apply to the classification of this product are: R20 Harmful by inhalation R45 May cause cancer R46 May cause heritable genetic damage R50 Very toxic to aquatic organisms R53 May cause long-term adverse effects in the aquatic environment
References:	Useful references include the following: The Institute of Petroleum, London, 'Model Code of Safe Practice', Part 9, current edition. The UK LP Gas Association Codes of Practice. CONCAWE, Brussels, 'Liquefied petroleum gas'. Product Dossier No 92/102, 1992.

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not be construed as guaranteeing any specific property of the product.