

# SAFETY DATA SHEET

## LIQUEFIED PETROLEUM GAS (LPG) — INDUSTRIAL GRADE

GHS Compliant • Revision 4.0 • Issue Date: 18 April 2026

### SECTION 1 — IDENTIFICATION

<b>Product Name:</b>	Liquefied Petroleum Gas (LPG) — Industrial Grade
<b>Trade Names:</b>	LPG, LP Gas, Propane-Butane Mix, Hydrocarbon Gas Liquid
<b>CAS Number:</b>	68476-85-7 (mixture); Propane: 74-98-6; Butane: 106-97-8
<b>EC Number:</b>	270-704-2
<b>UN Number:</b>	UN 1075
<b>Intended Use:</b>	Industrial feedstock (PDH, steam cracking, petrochemical), fuel gas, refrigerant
<b>Restrictions:</b>	Not for consumer use without authorised downstream handling procedures
<b>Supplier:</b>	Major energy trading companies / NOC trading arms (QatarEnergy, ADNOC, Saudi Aramco Trading, Shell Trading)
<b>Emergency Contact:</b>	+971 2 707 0000 (ADNOC) / +974 4013 0000 (QatarEnergy) / CHEMTREC: +1-703-527-3887

### SECTION 2 — HAZARD IDENTIFICATION

■ Flame Extremely Flammable Gas H220	■ Flame Over Circle Oxidising Gas —	■ Exclamation Mark Acute Tox. H280	■ Gas Under Pressure Contains LPG H280
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<b>Signal Word:</b>	DANGER
<b>Hazard Statements:</b>	H220 — Extremely flammable gas H280 — Contains gas under pressure; may explode if heated H336 — May cause drowsiness or dizziness (high concentrations) H304 — May be fatal if swallowed and enters airways (liquid phase)
<b>Precautionary Stmts:</b>	P210 — Keep away from heat, sparks, open flames, hot surfaces. No smoking. P260 — Do not breathe gas/vapours. P271 — Use only outdoors or in well-ventilated area. P377 — Leaking gas fire: Do not extinguish unless leak can be stopped safely. P381 — Eliminate all ignition sources if safe to do so. P410+P403 — Protect from sunlight. Store in a well-ventilated place.
<b>Classification (GHS):</b>	Flammable Gas Category 1   Liquefied Gas   Specific Target Organ Tox. (Single Exposure) Cat. 3

### SECTION 3 — COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS No.	EC No.	Typical wt%	Classification (GHS)
Propane (C3H8)	74-98-6	200-827-9	30 – 70%	Flam. Gas 1 (H220) Press. Gas (H280)
n-Butane (C4H10)	106-97-8	203-448-7	30 – 70%	Flam. Gas 1 (H220) Press. Gas (H280)
Isobutane (C4H10)	75-28-5	200-857-2	0 – 15%	Flam. Gas 1 (H220) Press. Gas (H280)
Ethane / Propylene	74-84-0 / 115-07-1	200-814-8	< 5%	Flam. Gas 1 (H220)

### SECTION 4 — FIRST AID MEASURES

<b>Inhalation:</b>	Move person to fresh air immediately. If breathing is irregular or stopped, administer artificial respiration. If symptoms persist, obtain medical attention. Do not leave unattended.
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<b>Skin Contact:</b>	In case of contact with liquid LPG, treat as frostbite. Gently rewarm affected area with warm (38–43°C) water. Do NOT rub. Seek medical attention. Remove contaminated clothing.
<b>Eye Contact:</b>	Immediately flush with large amounts of lukewarm water for at least 15 minutes, lifting eyelids. Seek immediate medical attention.
<b>Ingestion:</b>	Not a relevant route of exposure under normal industrial conditions. If liquid LPG is swallowed, seek immediate medical attention. Do not induce vomiting.
<b>Notes to Doctor:</b>	Treat symptomatically. High concentrations may cause cardiac sensitisation and arrhythmia. Keep patient warm and at rest.

## SECTION 5 — FIRE-FIGHTING MEASURES

<b>Extinguishing Media:</b>	Dry chemical powder, CO <sub>2</sub> , water spray (to cool cylinders). Do NOT use water jet directly on flames.
<b>Special Hazards:</b>	Extremely flammable. Vapour/air mixture is explosive. Vapour is heavier than air — may travel to ignition source. Backflash possible. Cylinders/vessels may BLEVE (Boiling Liquid Expanding Vapour Explosion) if exposed to intense heat.
<b>Fire-Fighting Procedure:</b>	Evacuate area. Eliminate ignition sources. Do NOT extinguish a gas fire unless the leak can be stopped safely. Cool exposed containers with water spray from a safe distance. Wear SCBA.
<b>HAZCHEM Code:</b>	2WE
<b>ERG Guide No.:</b>	115

## SECTION 6 — ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions:</b>	Eliminate all ignition sources. Evacuate area. Use explosion-proof equipment. Wear appropriate PPE. Prevent vapours from entering low-lying areas, drains, sewers.
<b>Environmental Precautions:</b>	Prevent large releases into atmosphere. Notify relevant authorities if significant release occurs. Product is not classified as an environmental hazard.
<b>Containment &amp; Cleanup:</b>	Stop leak at source if safe to do so. Ventilate area. Allow vapours to disperse. For large spills, engage emergency response team. No need for physical cleanup — product evaporates.

## SECTION 7 — HANDLING AND STORAGE

<b>Handling:</b>	Use only in well-ventilated areas or outdoors. Eliminate ignition sources. Bond and earth equipment. Use non-sparking tools. Do not open valves rapidly. Inspect connections for leaks using approved methods. Comply with local regulations for hazardous gases.
<b>Storage:</b>	Store in cool, dry, well-ventilated area away from heat, direct sunlight, and ignition sources. Segregate from oxidising agents. Storage area must comply with applicable fire codes. Cylinders must be kept upright and secured. Maximum storage temperature: 50°C.
<b>Incompatibilities:</b>	Strong oxidising agents (chlorine, fluorine, oxygen-enriched atmospheres). Avoid contact with halogens.

## SECTION 8 — EXPOSURE CONTROLS / PERSONAL PROTECTION

Substance	OEL TWA (ppm)	OEL STEL (ppm)	Basis
LPG (mixed)	1,000 ppm	1,250 ppm	ACGIH / EU SCOEL
Propane	1,000 ppm	—	ACGIH TLV
Butane (n-)	800 ppm	—	UK WEL

<b>Engineering Controls:</b>	Mechanical ventilation, gas detection systems with alarm, explosion-proof electrical equipment. Continuous gas monitoring recommended in enclosed areas.
<b>Respiratory Protection:</b>	Self-Contained Breathing Apparatus (SCBA) for confined space entry or large spill response. Air-purifying respirators are NOT suitable for oxygen-deficient atmospheres.

<b>Hand Protection:</b>	Cryogenic gloves (liquid LPG contact). PVC or neoprene gloves for general handling.
<b>Eye Protection:</b>	Safety goggles or face shield when handling liquid phase.
<b>Body Protection:</b>	Antistatic clothing. Safety boots. For cryogenic service: cryogenic apron and face shield.

## SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State:</b>	Gas at ambient conditions; liquid under pressure
<b>Appearance / Odour:</b>	Colourless gas; faint petroleum odour (odorant may be added: ethyl mercaptan)
<b>Molecular Formula:</b>	C <sub>3</sub> H <sub>8</sub> / C <sub>4</sub> H <sub>10</sub> (mixture)
<b>Molecular Weight:</b>	44.1 (propane) / 58.1 (butane)
<b>Boiling Point:</b>	Propane: -42.1°C   Butane: -0.5°C (at atmospheric pressure)
<b>Vapour Pressure:</b>	Propane: ~8.4 bar @ 20°C   Butane: ~2.1 bar @ 20°C
<b>Vapour Density (air=1):</b>	1.5 – 2.0 (heavier than air — accumulates in low-lying areas)
<b>Relative Density (liquid):</b>	0.49 – 0.58 g/cm <sup>3</sup> at -20°C
<b>Flash Point:</b>	-104°C (propane) / -60°C (butane)
<b>Auto-Ignition Temp.:</b>	470°C (propane) / 405°C (butane)
<b>Flammable Limits (LEL/UEL):</b>	Propane: 2.1% – 9.5% v/v in air   Butane: 1.8% – 8.4% v/v in air
<b>Solubility in Water:</b>	Slightly soluble (< 100 mg/L at 20°C)
<b>Calorific Value (net):</b>	Propane: ~46.3 MJ/kg   Butane: ~45.7 MJ/kg
<b>Octane Number (RON):</b>	Propane: ~112   Butane: ~94

## SECTION 10 — STABILITY AND REACTIVITY

<b>Stability:</b>	Stable under normal ambient conditions of storage and use.
<b>Conditions to Avoid:</b>	Heat, open flames, sparks, static electricity, excessive pressure, oxidising agents.
<b>Incompatible Materials:</b>	Strong oxidising agents, halogens, concentrated acids. Do NOT store with oxygen or chlorine.
<b>Hazardous Decomposition:</b>	Under fire conditions: carbon monoxide (CO), carbon dioxide (CO <sub>2</sub> ). Incomplete combustion may produce black smoke and soot.
<b>Hazardous Polymerisation:</b>	Will not occur.

## SECTION 11 — TOXICOLOGICAL INFORMATION

<b>Acute Toxicity:</b>	LC <sub>50</sub> (rat, inhalation, 4h): > 800,000 ppm (propane — practically non-toxic). Product is an asphyxiant at very high concentrations.
<b>Inhalation:</b>	High concentrations may cause dizziness, headache, drowsiness, unconsciousness. Cardiac sensitisation at very high concentrations.
<b>Chronic Toxicity:</b>	Propane: IARC Group 3 (not classifiable as carcinogen). No evidence of chronic systemic toxicity under normal industrial exposure conditions.
<b>Reproductive Toxicity:</b>	No data indicating reproductive or developmental toxicity.
<b>DNEL (Workers, inhal.):</b>	1,800 mg/m <sup>3</sup> (propane, long-term systemic effects)

## SECTION 12 — ECOLOGICAL INFORMATION

<b>Ecotoxicity:</b>	Not classified as environmentally hazardous. Product evaporates rapidly and does not bioaccumulate in aquatic organisms.
<b>Persistence:</b>	LPG components are readily biodegradable under aerobic conditions.
<b>Bioaccumulation:</b>	Low bioaccumulation potential (log Kow: propane 1.09 / butane 2.89).
<b>Mobility in Soil:</b>	Product is a gas at ambient conditions; will not persist in soil or water.
<b>GWP / ODP:</b>	GWP <sub>100</sub> : Propane ~3.3 CO <sub>2</sub> -eq   No ozone depletion potential (ODP = 0).

## SECTION 13 — DISPOSAL CONSIDERATIONS

**Disposal Method:** Do not dispose of to atmosphere in large quantities. Return unused gas to supplier. Empty containers may still contain residual gas — treat as full. Disposal must comply with local regulations for flammable/hazardous waste.

**Waste Code (EU):** 16 05 04\* (gases in pressure containers, including halons)

## SECTION 14 — TRANSPORT INFORMATION

Regulation	Class	UN No.	Proper Shipping Name	PG	Labels
IMDG (Sea)	2.1	UN 1075	Petroleum gases, liquefied	—	Flammable Gas
IATA (Air)	2.1	UN 1075	Petroleum gases, liquefied	—	Flammable Gas
ADR/RID (Road/Rail)	2F	UN 1075	Petroleum gases, liquefied	—	Flammable Gas

**Marine Pollutant:** No

**Tunnel Restriction (ADR):** B/D — Passage forbidden through tunnels of category B, C, D and E

**Special Precautions:** Keep away from heat and sources of ignition. Segregate from oxidising agents and foodstuffs during transport. Vessels must comply with IGC Code.

## SECTION 15 — REGULATORY INFORMATION

**EU Regulation:** Classified and labelled in accordance with Regulation (EC) No. 1272/2008 (CLP/GHS). REACH: CAS 74-98-6 and 106-97-8 are registered.

**OSHA (US):** 29 CFR 1910.119 (PSM) may apply. Listed on TSCA inventory.

**Malaysia:** Occupational Safety and Health Act 1994 (OSHA), Factories and Machinery Act 1967, Environmental Quality Act 1974. DOE & DOSH requirements apply.

**China:** IECSC registered. GB 13690 hazard classification: Class 2.1 Flammable Gas. GB 15258 labelling applies.

**International:** Subject to import/export controls in various jurisdictions. Consult local authorities for permit requirements.

## SECTION 16 — OTHER INFORMATION

**Revision History:** Version 4.0 — Full revision per GHS Rev. 9 (UN 2021) and EU CLP 10th ATP

**Issue Date:** 18 April 2026

**Prepared By:** HSE / Product Stewardship Department

**Key Literature:** ECMA-376; ACGIH TLVs & BEIs 2024; IOGP Report 477 (LPG); IGC Code (IMO); ISO 17075

**Disclaimer:** This Safety Data Sheet has been prepared in good faith based on available data and is intended to provide guidance for safe handling of this product. It does not constitute a specification. Users are responsible for conducting their own risk assessments and ensuring compliance with applicable legislation.

**Full Text of H-Statements:** H220 — Extremely flammable gas | H280 — Contains gas under pressure; may explode if heated | H304 — May be fatal if swallowed and enters airways | H336 — May cause drowsiness or dizziness

This document is prepared in accordance with GHS (Globally Harmonized System of Classification and Labelling of Chemicals) Rev.9, EU Regulation 1272/2008 (CLP), and OSHA HazCom 2012 (29 CFR 1910.1200). The format follows ISO 11014:2009.