# Flogas Safety Data Sheet

# LIQUEFIED PETROLEUM GAS - COMMERCIAL PROPANE

**Data Sheet No 1: Revision 11 dated November 2016** **Replaces Issue 10**

This data sheet has been prepared in accordance with the requirements of Article 31 of EU Regulation 1907/2006 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

## 1: IDENTIFICATION OF THE SUBSTANCE OR PREPARATION AND OF THE SUPPLIER

**PRODUCT:** **Flogas Liquefied Propane Gas, including products marketed as Flogas Commercial Propane**

**SUBSTANCE TYPE:** **Petroleum product**
**PHYSICAL STATUS:** **Liquefied gas**

**RECOMMENDED USES:**

Flogas Liquefied Propane Gas is a multi purpose product intended for uses including:

- fuels for equipment which has been specifically designed to run on commercial propane;
- internal combustion engine fuel;
- feedstock for the petrochemical industry.

**COMPANY:** **Flogas Britain Ltd.**

**ADDRESS:** **81 Rayns Way, Watermead Business Park, Syston, Leicester, LE7 1PF**

**Telephone:** **0116 264 9000**
**Emergency Telephone:** **03457 200 100**

**Further Information:** enquiries@flogas.co.uk

## 2: HAZARD IDENTIFICATION

- Extremely Flammable (F+).
- Readily forms an explosive air-vapour mixture at ambient temperature.
- Vapour is heavier than air and may travel to remote sources of ignition (e.g. along drainage systems, into basements etc.).
- Liquid leaks generate large volumes of flammable vapour (approximately 250: 1).
- Cold burns (frostbite) will result from skin/eye contact with liquid.
- Liquid release or vapour pressure jets present a risk of serious damage to the eyes.
- Abuse involving wilful inhalation of very high concentrations of vapour, even for short periods, can produce unconsciousness or might prove fatal. Inhalation may cause irritation to the nose and throat, headache, nausea, vomiting, dizziness and drowsiness. In poorly ventilated or confined spaces, unconsciousness or asphyxiation may result.

## 3: COMPOSITION/INFORMATION ON INGREDIENTS

Liquefied Petroleum Gas consisting predominantly of C3 hydrocarbons (propane and propene) supplied as a fuel in a closed system meeting the requirements for commercial propane of British Standard 4250.

As a liquefied petroleum gas, which occurs in nature and is not chemically modified, this is exempted from Titles II (Registration), V (Downstream Users) and VI (Evaluation) of the EU REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) Regulation by virtue of Article 2(7)

A small quantity (typically <50ppm) of ethyl mercaptan or similar odorising agent is commonly added to assist in leak detection.

A small quantity (<1250ppm) of Methanol is sometimes added as an anti-freeze

Contains <0.1% 1,3 Butadiene.

Liquefied petroleum gases: EINECS NUMBER: 270-704-2 CAS NUMBER: 68476-85-7

## 4: FIRST AID MEASURES

**INHALATION:** Remove the affected person to fresh air. If breathing has stopped administer artificial respiration. Give external cardiac massage if necessary. If the person is breathing, but unconscious, place them in the recovery position. Obtain medical assistance immediately.

**EYES:** Cold burns should be flushed with water to normalise temperature. Cover the eye with a sterile dressing and obtain medical assistance immediately.

**SKIN:** Burns should be flushed with water to normalise temperature. Cover the burns with sterile dressings. Do not apply ointments or powders. Obtain medical assistance immediately.

**INGESTION:** Not applicable.

## 5: FIRE-FIGHTING MEASURES

These materials are delivered, stored and used at temperatures above their flash point. Avoid all naked flames, sparks, cigarettes, etc.

- ***IN CASE OF FIRE, IMMEDIATELY ALERT THE FIRE BRIGADE.***
- Ensure an escape path is always available from any fire.
- If gas has ignited, do not attempt to extinguish but stop gas flow and allow to burn out.
- Use water spray to cool heat-exposed containers, and to protect surrounding areas and personnel effecting shut-off.

Every precaution must be taken to keep containers cool to avoid the possibility of a boiling liquid expanding vapour explosion (BLEVE).

Pressurised containers are liable to explode violently when subjected to high temperatures.

**Extinguishing Media**

***Large Fire:***

- None. Product flow must be stopped and container cooled by water spray. Water fog should be used to assist approach to the source of the fire. Large fires should only be fought by the Fire Brigade.
- **DO NOT USE WATER JET**

***Small Fire:***

- Dry Powder.
- **DO NOT USE WATER OR FOAM.**

Fires in confined spaces should be dealt with by trained personnel wearing approved breathing apparatus.

**Combustion Products**

See Stability and Reactivity, Section 10 of this Safety Data Sheet

## 6. ACCIDENTAL RELEASE MEASURES

**IMMEDIATE EMERGENCY ACTION:**

- Clear people away from the area to a safe place;
- Do not operate electrical equipment unless flameproof;
- Summon aid of emergency services;
- Treat or refer casualties if necessary.

**FURTHER ACTION – FIRE**

***IF SAFE TO DO SO*** :

- Stop product flow
- Use dry powder or carbon dioxide extinguishers
- Cool containers exposed to fire by water fog/spray

### FURTHER ACTION – SPILLAGE

***IF SAFE TO DO SO:***

- Extinguish naked lights, e.g. cigarettes – AVOID MAKING SPARKS.
- Position fire fighting equipment.
- Try to stop the flow of liquid product.
- Cover drains and disperse vapour with water spray.

***Note:*** vapour may collect in confined spaces

## 7: HANDLING AND STORAGE

### GENERAL

Cylinders containing Flogas Liquefied Propane Gas may be designed to give liquid or vapour off-take.

- Vapour off-take cylinders must be used in an upright/vertical position with the outlet valve at the top of the cylinder.
- Liquid off-take cylinders must be used in the position indicated on the cylinder.

### HANDLING PRECAUTIONS

- No Smoking or Naked Lights.
- Ensure good ventilation.
- Avoid inhalation of vapour.
- Avoid contact with liquid and cold storage containers.
- When handling cylinders wear protective footwear and suitable gloves.
- Avoid contact with the eyes.

### STORAGE CONDITIONS

- No Smoking or Naked Lights.
- 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.
- Containers must be properly labelled.
- Do not remove warning labels from containers.

### FIRE PREVENTION

- Explosive air/vapour mixtures may form at ambient temperature.

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

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### EXPOSURE LIMIT VALUES

The following limits are taken from The Health and Safety Executive's Guidance Note EH40: Occupational Exposure Limits.

***Occupational Exposure Limits:***

Flogas Liquefied Propane Gas is not subject to a specific OEL. However as a Liquefied Petroleum Gas the following OEL should be applied:

| | |
|---|---|
| Liquefied Petroleum Gas*: | 1750 mg/cubic metre (1000 ppm) 8-hour TWA reference period<br>2180 mg/cubic metre (1250 ppm) 15-min TWA reference period |

*Pure Propane is identified as a simple asphyxiant and EH40 paragraph 57 applies

### RECOMMENDED PROTECTIVE CLOTHING

**Protective Clothing**

- Wear suitable gloves and overalls to prevent cold burns and frostbite (Neoprene or LPG resistant Gauntlet Glove).
- In filling operations wear protective clothing including impervious gloves, safety goggles or face shield to BS2092, BS EN 166, 167 & 168. (N.B. alternative arrangements may be put in place at Autogas retail applications).
- When handling cylinders protective footwear to BS EN345 should be worn.

**Respiratory Protection**

If operations are such that significant exposure to vapour may be anticipated, then suitable approved respiratory equipment should be worn.

The use of respiratory equipment must be strictly in accordance with the manufacturers' instructions and any statutory requirements governing its selection and use.

All wearers of respiratory protection must be trained in its use. The nature of the atmosphere and the working environment will determine the protection required. Equipment must be to the relevant BS EN and this may be determined by reference to BS4275: *Recommendations for the selection, use and maintenance of respiratory protective equipment.*

**Environmental Exposure Controls**

Not applicable. The substance is a vapour at normal temperatures and pressures. In normal use it is not discharged into the atmosphere but used as a fuel.

## 9: PHYSICAL AND CHEMICAL PROPERTIES

**General Information**

| | |
|---|---|
| Appearance: | Colourless liquefied gas |
| Odour: | Odourless, odorant added to provide a distinctive smell. |
| Boiling Point: | -42 °C |
| Flash Point: | -104 °C (PMCC) |
| Flammability Limited: | 2% to 11% in air |
| Auto-flammability: | 460 – 580 °C |
| Vapour Pressure: | 7.5 bar at 15 °C |
| Specific Gravity of Liquid: | 0.512 at 15 °C |
| Specific Gravity of Vapour: | 1.5 at 15 °C (Air = 1.0) |

**Important Health, Safety and Environmental Information**

- Extremely Flammable (F+).
- Readily forms an explosive air-vapour mixture at ambient temperature.
- Vapour is heavier than air and may travel to remote sources of ignition (e.g. along drainage systems, into basements etc.).
- Liquid leaks generate large volumes of flammable vapour (approximately 250:1).
- Cold burns (frostbite) will result from skin/eye contact with liquid.
- Liquid release or vapour pressure jets present a risk of serious damage to the eyes.
- Abuse involving wilful inhalation of very high concentrations of vapour, even for short periods, can produce unconsciousness or might prove fatal. Inhalation may cause irritation to the nose and throat, headache, nausea, vomiting, dizziness and drowsiness. In poorly ventilated or confined spaces, unconsciousness or asphyxiation may result.

**Other Information:**

No other information is relevant to this product

## 10: STABILITY AND REACTIVITY

Flogas Liquefied Propane Gas is stable at ambient temperatures. Hazardous polymerization will not occur.

**Conditions to avoid;**

- Sources of ignition.
- Storage at above 50 Deg. C.

**Materials to avoid;**

- Strong Oxidizing agents (e.g. chlorates, which may be used in agriculture, peroxides)

**Decomposition products;**

The substances arising from the thermal decomposition of these products will largely depend upon the conditions bringing about decomposition. The following hazardous substances may be expected from normal combustion:

- Carbon Dioxide ($CO_2$);

***Note:*** Carbon Monoxide (CO) may be produced if there is insufficient air for complete combustion.

## 11: TOXICOLOGICAL INFORMATION

**Eye contact;**

Contact with liquid Flogas Liquefied Propane Gas will present a risk of serious damage to the eyes.

**Skin contact;**

Contact with liquid Flogas Liquefied Propane Gas will cause cold burns and frostbite to the skin.

**Inhalation;**

Low vapour concentrations may cause nausea, dizziness, headaches and drowsiness. May have a narcotic effect if high concentrations of vapour are inhaled.

High vapour concentrations may produce symptoms of oxygen deficiency which, coupled with central nervous system depression, may lead to rapid loss of consciousness.

**Abuse;**

Under normal conditions of use the product is not hazardous; however, abuse involving deliberate inhalation of very high concentrations of vapour, even for short periods, can produce unconsciousness and/or result in a sudden fatality.

**Carcinogenicity;**

No known behaviour.

**Mutagenicity;**

No known behaviour.

**Tetratogenicity;**

No known behaviour.

## 12: ECOLOGICAL INFORMATION

**Ecotoxicity;**

No known ecological damage is caused by this product.

***Air***

Flogas Liquefied Propane Gases are mixtures of volatile components which when released to air will react rapidly with hydroxyl radicals and ozone to give carbon dioxide and water.

***Water***

If released to water the product will rapidly evaporate.

***Soil***

If released to soil the product will rapidly evaporate.

**Mobility;**

Spillages are unlikely to penetrate the soil.

**Persistence and degradability;**

Unlikely to cause long term adverse effects in the environment.

**Bioaccumulative potential;**

This material is not expected to bioaccumulate.

**Aquatic toxicity;**

Unlikely to cause long term effects in the aquatic environment.

**Results of PBT assessment;**

A chemical safety report is not required for this product consequently no PBT is required

**Other adverse effects;**

No known behaviour

## 13: DISPOSAL CONSIDERATIONS

Flogas cylinders are the property of Flogas Britain Limited and should be returned to the local dealer/stockist/authorised agent. Users are recommended to contact their local Flogas representative when they wish to dispose of surplus quantities of Flogas Liquefied Propane Gas.

Do not discharge product into areas where there is a risk of forming an explosive mixture with air.

Empty packages may contain some remaining product. Hazard warning labels are a guide to the safe handling of empty packaging and should not be removed.

Empty containers represent a fire hazard as they may contain flammable product residues and vapour. Never incinerate, crush, weld, solder or braze empty containers.

## 14: TRANSPORT INFORMATION

| | |
|---|---|
| UN Proper Shipping Name: | Propane |
| UN Number: | 1978 |
| Symbol: | Flammable Gas |
| Packing Group: | N/A |
| ADR/RID Proper Shipping Name: | Propane |
| Substance Identification No.: | 1978 |
| Class: | 2 |
| Classification Code: | 2F |
| Label: | 2.1 |
| IATA/ICAO Hazard Class: | 2.1 (Forbidden on passenger aircraft) |
| IMO Hazard Class: | 2.1 |
| Marine Pollutant: | No. |
| Hazard Identification No.: | 23 |
| Hazchem Code: | 2YE |

## 15: REGULATORY INFORMATION

This material has been classified according to European Regulation (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures (known as the CLP Regulation) which implements the United Nations globally harmonised system (UN GHS) for classification and labelling of chemicals throughout Europe.

**Classification according to Regulation (EC) No. 1272/2008 (CLP)**

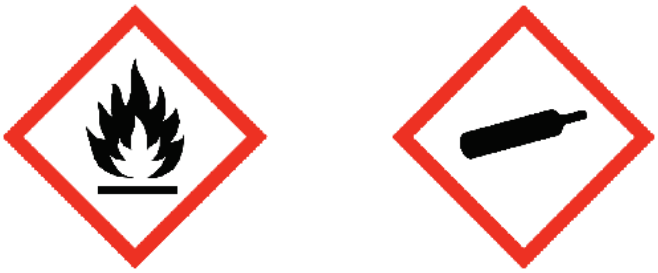
| Hazard Class: | Category Code: |
|---|---|
| Gases under pressure | Press. Gas |
| Flammable gas | Flam. Gas 1 |

**Hazard Statement Codes:**

**H220:** Extremely flammable gas.
**H280:** Contains gas under pressure; may explode if heated.

**Labelling according to Regulation (EC) No. 1272/2008 (CLP)**

**Hazard pictograms are FLAME and COMPRESSED GAS:**



**Signal Word: Danger**
**Contains: Commercial Propane**

**Precautionary Statement Codes:**

**P102:** Keep out of reach of children.
**P210:** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
**P377:** Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
**P381:** Eliminate all ignition sources if safe to do so.
**P403:** Store in a well-ventilated place.

***Note:*** Closed refillable cylinders, and non-refillable cylinders within the scope of EN 417, for fuel gases which are only released for combustion only have to bear an appropriate symbol (supply or carriage) and the risk and safety phrases concerning flammability. Such cylinders are exempted from carrying the risk and safety phrases relating to health effects.

## 16: OTHER INFORMATION

The references set out below provide further information:

**LEGISLATION**

- Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations
- Health and Safety at Work etc. Act
- Management of Health and Safety at Work Regulations
- Control of Major Accident Hazards Regulations 2015
- Dangerous Substances (Notification and Marking of Sites) Regulations
- Dangerous Substances and Explosive Atmosphere Regulations
- Pipelines Safety Regulations

- Gas Safety (Installation and Use) Regulations
- The Pressure Systems Safety Regulations 2000
- EU Regulation 1907/2006 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- EU Regulation 1271/2008 on the Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation)

## HEALTH AND SAFETY ADVISORY LITERATURE

### UKLPG Codes of Practice

| No. | Details |
|---|---|
| Fund | LPG Technical Fundamentals |
| 1 | Bulk LPG Storage at Fixed Installations<br>Part 1: Design and Installation<br>Part 2: Small Bulk Installations for Domestic Purposes<br>Part 3: Examination and Inspection<br>Part 4: Buried/Mounded LPG Storage Vessels |
| 2 | Safe Handling and Transport of LPG in Road Tankers and Tank Containers by Road |
| 3 | Prevention or Control of Fire Involving LPG |
| 4 | Recommendations for the Safe and Satisfactory Operation of Bitumen Boilers and Mastic Asphalt Cauldrons Mixers and Hand Tools Operating on Commercial Propane |
| 7 | Storage of Full and Empty LPG Cylinders and Cartridges |
| 9 | LPG-Air Plants |
| 10 | Recommendations for the Safe Handling of LPG in Storage Containers Attached to Mobile Gas Fired Equipment |
| 11 | Autogas Installations |
| 12 | Recommendations for the Safe Filling of LPG Cylinders at Depots |
| 15 | Valves and Fittings for LPG Service<br>Part 1: Safety Valves<br>Part 2: Valves for Transportable LPG Cylinders |
| 17 | Purging LPG Vessels and Systems |
| 18 | Recommendations for the Safe Use of LPG as a Propulsion Fuel for Boats, Yachts and Other Craft |
| 19 | Liquid Measuring Systems for LPG<br>Part 1: Flow Rates up to 80 litres per minute in Installations Dispensing Road Vehicle Fuel<br>Part 2: Transfers Between Mobile Equipment and Fixed LPG Storage at Flow Rates above 80 litres per minute |
| 20 | Automotive LPG Refuelling Facilities |
| 21 | Guidelines for Safety Checks on LPG Appliances in Caravans |
| 22 | LPG Piping Systems Design and Installation |
| 24 | The use of LPG cylinders<br>Part 1: The use of Propane Cylinders at Residential Premises<br>Part 3: The use of LPG cylinders in Mobile Catering Vehicles and Similar Units<br>Part 4: The use of LPG for Catering and Outdoor Functions<br>Part 5: The Storage and Use of LPG on Construction Sites<br>Part 6: Use of Propane in Cylinders at Commercial and Industrial Premises |
| 25 | LPG Central Storage and Distribution Systems for Multiple Consumers |
| 26 | Uplifting of Bulk LPG Vessels from Site and their Carriage to and from Site by Road |
| 27 | The Carriage of LPG Cylinders by Road |
| 29 | Hazard Information and Packaging Labelling for Commercial LPG Cylinders |
| 30 | Gas Installations for Motive Power on Mechanical Handling and Maintenance Equipment |
| GN2 | A Guide to Servicing Cabinet Heaters |
| GN3 | A Guide to the preparation of Major Accident Hazard Prevention Policies (MAPPs) |