Technical Publication

Calor Safety Data Sheet - Liquefied Propane Gas

Data Sheet No 2 Revision 9 Replaces Revisions 03/00, 04/03, 08/05, 03/06, 06/09, 02/10, 12/10, 07/11

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

1. Identification of the Substance or Preparation and of the supplier

Identification of the substance or preparation:	Calor Liquefied Propane Gas including products marked as Calor Propane Calor Autogas, Calor Patio Gas & Calor High Purity Propane
Substance Type:	Petroleum product
Physical Status:	Liquefied Gas
Use of the substance or preparation:	Calor Liquefied Propane is a multi-purpose product intended for uses including fuels for equipment which has been specifically designed to run on commercial propane, an internal combustion engine fuel feedstock for the petrochemical industry
Company:	Calor Gas Limited
Address:	Athena House, Athena Drive, Tachbrook Park, Warwick, CV34 6RL
Telephone:	01926 330088
Emergency Number:	0345 7 444 999
Web Address:	www.calor.co.uk
Technical Help Desk	01926 318497

2. Hazard Identification

- Extremely Flammable (F+)
- Readily forms and 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 product
- 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 and 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 and Information on Ingredients

Description
Liquefied petroleum gas consisting predominately C_3 Hydrocarbons supplied as a fuel in a closed system meeting the requirements for commercial propane of BS4250.

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 odorizing agent is commonly added to assist in leak detection.

A small quantity (<1250 ppm) of methanol is sometimes added as an anti freeze agent.

Contains <0.1% 1,3 Butadiene.

CAS Number	EINECS Number
68476-85-7	270-704-2

4. First Aid Measures

Inhalation: Remove the affected person to fresh air. Keep the patient warm and at rest. 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.

Skin: Burns should be flushed with tepid water to normalise temperature and until circulation returns. Cover the burns with sterile dressings. Do not apply ointments or powders. Obtain medical assistance immediately.

Eyes: Cold burns should be flushed immediately with tepid water normalise temperature. Hold eyelids apart while flushing to rinse entire surface of the eye and lids with water. Cover the eye with a sterile dressing and 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, VACATE THE AREA AND 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, if safe to do so, 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.
- Beware of vapour accumulating to form explosive concentrations. Explosive vapours may travel, be ignited at remote locations and flash back. A water spray may be used for vapour dispersal.

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

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

Extinguishing Media

Large Fires

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

Small Fires

- Dry powder
- DO NOT USE WATER OR FOAM

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

6. Accident 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

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

Further Action – Spillage If Safe

- Extinguish naked lights, e.g. cigarettes – AVOID MAKING SPARKS. Do not use a mobile phone
- Isolate power from sources of ignition and ventilate the area
- Position fire fighting equipment
- Try to stop the flow of liquid product
- Cover drains and sewers. Disperse vapour with water spray

Note: Vapour may collect in confined spaces

INFORM THE RELEVANT AUTHORITIES IF A MAJOR SPILLAGE OCCURS

7. Handling and Storage

General

Cylinders containing Calor Liquefied Propane Gas are designed to give liquid or vapour offtake.

- Vapour offtake must be used in the vertical position with the outlet valve at the top.
- Liquid offtake must be stored and used in the position indicated on the cylinder.

A face shield or safety goggles and impervious rubber gloves should be worn when transferring this product as a liquid.

7.1 Handling Procedure

- No smoking or naked lights
- Switch off mobile phones
- 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 eyes.

7.2 Storage

Calor Liquefied Propane Gas must be stored in purpose designed mild steel cylinder(s) or tank(s) or other systems of suitable pressure rating. These should be segregated from oxidant gases and other oxidants in store. Reference should be made to the relevant Codes of Practice for Safe Storage and Handling of LPG produced by HSE and UKLPG (See Section 16)

Additional Storage Information

- No smoking or naked lights
- Switch off mobile phones
- Store and use only 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 labelled properly
- Do not remove warning labels from containers
- Check that cylinders are within test date. If overdue for inspection they must be returned to Calor Gas Limited.
- Ensure that Pipework and handling equipment are designed for the purpose, inspected and maintained and is electrically bonded and grounded (earthed) to prevent accumulation of static charge
- Explosive air/vapour mixtures may form at ambient temperature

7.3 Specific Use(s)

- Calor Liquefied Propane Gas is a multi purpose product intended for uses including
- Fuel for equipment which has been specifically designed to be powered by Commercial Propane
- Internal combustion engine fuel

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

8. Exposure Controls / Personal Protection

8.1 Exposure Limit Values

The following limits are taken from the Health and Safety Executives Guidance Note EH40 Workplace Exposure Limits.

8.1.1 Occupational Exposure Limit

Calor Gas 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 2180 mg/cubic metre (1250 ppm) 15-min reference period.

	Long-term exposure limit 1750 mg/cubic metre (8hr TWA)	**Short-term exposure limit** 2180 mg/cubic metre (15 min Period)
Liquefied Petroleum Gas	1000 ppm	1250 ppm

*Pure Propane is identified as a simple asphyxiant and EH40 paragraph 60 applies.

8.2 Exposure Controls

8.2.1 Occupational Exposure Controls

Engineering measures Provide natural or explosion-proof ventilation that is adequate to ensure flammable gas does not reach its lower explosive limit.

Personal Protective Equipment

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 shields to BS EN 166,167 & 168. (Note: at retail Autogas applications alternative arrangements may be put in place).
- When handling cylinders wear protective footwear to BS EN345

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 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.*

8.2.2 Environmental Exposure Controls

Not applicable. The substance is a vapour ay normal temperature and pressure. In normal use it is not discharged into the atmosphere but used as a fuel.

9. Physical and Chemical Properties

9.1 General Information

Appearances:	Colourless liquefied gas
Odour:	Odorant added to provide a distinctive smell
Boiling Point:	-42°C
Flash Point:	-104 °C (PMCC)
Flammability Limits:	2% to 11% in air
Autoflammability:	460-580 °C
Vapour Pressure:	7.5 bar at 15 °C
Specific Gravity of Liquid:	0.512 at 15 °C (Water = 1.0)
Specific Gravity of Vapour:	1.5 at 15 °C (Air = 1.0)
Solubility in Water:	Insoluble

9.2 Important Health, Safety and Environment 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.

9.3 Other Information

No other information is relevant to this product.

10. Stability and Reactivity

Calor Liquefied Propane is stable at ambient temperatures. Hazardous polymerization will not occur, however, it can form explosive mixture with air.

Conditions to avoid:	• Sources of ignition • Storage at above 50 Deg. C.
Materials to avoid:	Propane reacts violently with strong oxidising agents (e.g. chlorates which may be used in agriculture), peroxide, plastics, chlorine dioxide and concentrated nitric acid.
Hazardous Decomposition products:	The substance 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 • Carbon Monoxide may be produced (if there is insufficient air for complete combustion).

11. Toxicological Information

Eye Contact:	Contact with Calor Liquefied Propane gas will present a risk of serious damage to the eyes.
Skin Contact:	Contact with Calor Liquefied Propane gas will cause cold burns and frost bite to the skin.
Inhalation:	Low vapour concentrations may cause nausea, dizziness, headaches and drowsiness. May have a narcotic effect if high concentrations 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.

Volatile Substance 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
Teratogenicity:	No known behaviour

12. Ecological Information

Ecotoxicity:	No known ecological damage is caused by this product. ***Air:*** Calor Liquefied Propane gas is a mixture 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

Disposal Considerations:

- Calor Gas Cylinders are the property of Calor Gas Limited and should be returned to the local dealer / stockist when no longer required.
- Users are recommended to contact their local Calor Gas representative when they wish to dispose of surplus quantities of Calor Propane.
- Emptying of tanks containing Calor Propane is the responsibility of Calor Gas Limited
- Do not discharge product into areas where there is a risk of an explosive mixture with air.
- Empty vessels or cylinders 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

Dangerous for Conveyance

UN Proper Shipping name:	Propane
UN Number:	1978
Symbol:	Flammable Gas
Packing Group:	Special Containers
ADR/RID Proper Shipping Name:	Propane
Substance Identification Number:	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 Number:	23
Hazchem Code:	2YE

15. Regulatory Information

This material has been classified according to the requirements of implementing the United Nations "Globally Harmonised System of Classification and Labelling of Chemicals" (GHS), EU Regulation 1271/2008 on the Classification, Labelling and Packaging of Substances and Mixtures (the CLP Regulation) and the Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (CHIP 4).

Dangerous for Supply

Product label

Danger Extremely Flammable Gas
Contains : Calor Propane, Calor Autogas or Patio Gas
Symbol : Flame

GHS Label

Transport Label

Hazard Statements

H220 Extremely flammable

Precautionary Statements

P102 Keep out of the reach of Children
P403 Store in a well-ventilated place
P210 Keep away from heat/sparks/ open flames / hot surfaces – 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

Note: Closed refillable cylinders and non-refillable cylinders within the scope of EN417, containing fuel gases which are only used for combustion 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 phases relating to health effects.

16. Other Information

The references set below give further information

LEGISLATION
Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations
Chemical Hazard Information and Packaging for Supply Regulations (CHIP)
Classification, Labelling and Packaging of Substances and Mixtures (CLP) Regulations
Control of Industrial Major Accident Hazards Regulations
Dangerous Substances and Explosive Atmosphere Regulations
Dangerous Substances (Notification and Marking of Sites) Regulations
Health and Safety at Work etc. Act
Management of Health and Safety at Work Regulations
Notification of Installations Handling Hazardous Substances Regulations (NIHHS)
Pipelines Safety Regulations
The Pressure Systems (Safety) Regulations
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 (the CLP Regulation)

Health and Safety Advisory Literature

The UKLPG produced over 30 Industry Codes of Practice which can be obtained from UKLPG. For a comprehensive publication list please access the UKLPG website www.uklpg.org.

Further guidance on the above legislation can be obtained from www.hse.gov.uk and publications can be purchased from HSE Books, PO Box 1999, Sudbury, Suffolk, CO10 6FS.Tel: 01787 881165 or www.hsebooks.co.uk