

Data Sheet No 2 Revision 4 Replaces Revision 2<sup>nd</sup> March 2000, 04/03. 08/05.

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

**Product:** Calor Butane including BBQ Gas  
**Substance Type:** Petroleum product  
**Physical Status:** Liquefied gas  
**Recommended uses:** Calor Butane is a multi-purpose product intended for uses including fuels for equipment which has been specifically designed to run on commercial butane  
**Company:** Calor Gas Limited  
**Address:** Athena House, Athena Drive, Tachbrook Park, Warwick, CV34 6RL  
**Telephone:** 01926 330088  
**Emergency Number:** 0845 7 444999  
**Technical Helpdesk:** 01926 318497

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**2. Composition and Information on Ingredients****Description**

Calor Butane consists of predominately C<sub>4</sub> Hydrocarbons (butane and butanes) together with smaller amounts of other C<sub>2</sub> to C<sub>5</sub> hydrocarbons and complies with BS: 4250. Contains <0.1% 1,3 Butadiene.  
An additive, usually the odorant ethyl mercaptan, may also be present.

| <b>CAS Number</b> | <b>EINECS Number</b> | <b>Annex I Index</b> |
|-------------------|----------------------|----------------------|
| 106-97-8          | 203-448-7            | 601-004-00-0         |

**Hazardous Components**

| <b>Component</b>          | <b>Conc</b> | <b>Class</b> | <b>Risk Phrases</b>          |
|---------------------------|-------------|--------------|------------------------------|
| Liquefied Petroleum Gases | >99%        | F+           | <b>R12</b> Extreme Flammable |

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**3. Hazards 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.
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#### 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 to warm 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 cold water for at least 15 minutes to 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

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#### 5. Fire Fighting Measures

These material 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.

**Combustion Products:** see Stability and Reactivity. Section 10 of this Safety Data Sheet.

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## 6. Accidental Release Measures

- Immediate Emergency Action:**
- Evacuate the area except for personnel dealing with emergency
  - Do not operate electrical equipment unless flameproof
  - Summon aid of emergency services
  - Treat or refer casualties if necessary
- Further Action – Fire**
- Stop product flow
  - Use dry powder or carbon dioxide extinguishers
  - Cool containers exposed to fire by water fog/spray
- Further Action – Spillage**
- 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**

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## 7. Handling and Storage

- General** Cylinders containing Calor Butane are designed to give liquid or vapour offtake.
- Vapour offtake must be used in the vertical position.
  - Liquid offtake must be stored and used in the position indicated on the cylinder.
- A face shield and impervious rubber gloves should be worn when transferring this product as a liquid.
- Handling Procedure**
- No smoking or naked lights
  - Switch off mobile phones
  - Ensure good ventilation
  - Avoid inhalation of vapour
  - Avoid contact with liquid and sold storage containers
  - When handling cylinders wear protective footwear and suitable gloves.
  - Avoid contact with eyes.
- Storage** Calor Butane 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 LPGA (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.
- Fire Prevention**
- Ensure that Pipework and handling equipment are designed for the purpose, and is electrically bonded and grounded (earthed) to prevent accumulation of static charge
  - Explosive air/vapour mixtures may form at ambient temperature

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

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## 8. Exposure Controls/Personal Protection

The following limits are taken from the Health and Safety Executives Guidance Note EH40 Workplace Exposure Limits 2005.

|                         | Long-term exposure limit (PPm) (8hr TWA) | Short-term exposure limit (ppm) 15 min Period) |
|-------------------------|--|--|
| Butane                  | 600                                      | 750  |
| Liquefied Petroleum Gas | 1000                                     | 1250   |

**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.
- 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.

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## 9. Physical and Chemical Properties

|                                    |   |
|------------------------------------|---|
| <b>Appearances:</b>                | Colourless liquefied gas                                |
| <b>Odour:</b>                      | Odourless, odorant added to provide a distinctive smell |
| <b>Boiling Point:</b>              | -2°C  |
| <b>Flash Point:</b>                | -60 °C (PMCC)   |
| <b>Flammability Limits:</b>        | 2% to 9% in air   |
| <b>Autoflammability:</b>           | 410-550 °C  |
| <b>Vapour Pressure:</b>            | 2 bar at 15 °C  |
| <b>Specific Gravity of Liquid:</b> | 0.575 at 15 °C (Water = 1.0)                            |
| <b>Specific Gravity of Vapour:</b> | 2.0 at 15 °C (Air = 1.0)                                |
| <b>Solubility in Water:</b>        | Insoluble   |

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**10. Stability and Reactivity**

Calor Butane 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:** Butane reacts violently with strong oxidising agents (e.g. chlorates which may be used in agriculture), peroxide, plastics, chlorine dioxide and concentrated nitric acid.
- 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 (if there is insufficient air for complete combustion).

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**11. Toxicological Information**

- Eye Contact:** Contact with liquid Calor Butane will present a risk of serious damage to the eyes.
- Skin Contact:** Contact with liquid Calor Butane 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.
- 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

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**12. Ecological Information**

- Ecotoxicity:** No known ecological damage is caused by this product.  
**Air:** Calor Butane is a mixture of volatile components which when released to air will photodegrade and react 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

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## 13. Disposal Considerations

- Disposal Considerations:**
- Calor Gas Cylinders are the property of Calor Gas Limited and should be returned to the local dealer / stockist.
  - 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 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.
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## 14. Transport Information

|   |                                       |
|---|---------------------------------------|
| Dangerous for Conveyance                |                                       |
| <b>UN Proper Shipping name:</b>         | Butane                                |
| <b>UN Number:</b>                       | 1011                                  |
| <b>Symbol:</b>                          | Flammable Gas                         |
| <b>Packing Group:</b>                   | Special Containers                    |
| <b>ADR/RID Proper Shipping Name:</b>    | Butane                                |
| <b>Substance Identification Number:</b> | 1011                                  |
| <b>Class:</b>                           | 2                                     |
| <b>Classification Code:</b>             | 2F                                    |
| <b>Label:</b>                           | 2.1                                   |
| <b>IATA / ICAO Hazard Class:</b>        | 2.1 (forbidden on passenger aircraft) |
| <b>IMO Hazard Class:</b>                | 2.1                                   |
| <b>Marine Pollutant:</b>                | No                                    |
| <b>Hazard Identification Number:</b>    | 23                                    |
| <b>Hazchem Code:</b>                    | 2YE                                   |

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## **15. Regulatory Information**

This material has been classified according to the requirements of the Dangerous Substances Directive 67/548/EEC as last amended by the 28<sup>th</sup> Adaptation to Technical Progress, and the Dangerous Preparations Directive 1999/45/EEC as amended by the 1<sup>st</sup> Adaptation to Technical Progress.

### **Dangerous for Supply**

#### **Product label**

Extremely Flammable  
Contains : Butane  
Symbol : Flame



#### **Risk Phrases**

R12 Extremely flammable

#### **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  
S33 Take precautionary measures against static discharges

**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.

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## **16. Other Information**

The references set below give further information

### **Legislation**

Carriage of Dangerous Goods and Use of Transportable Pressure Equipment (Amendment) Regulations 2005  
Chemical (Hazard Information and Packaging for Supply) Regs 2002 (CHIP 3)  
Control of Major Accident Hazards Regulations 1999 (COMAH)  
Control of Major Accident Hazards (Amendment) Regulations 2005  
Control of Substances Hazardous to Health (Amendment) Regulations 2004  
Dangerous Substances and Explosive Atmosphere Regulations 2002 (DSEAR)  
Dangerous Substances (Notification and Marking of Sites) Regulations 1990  
Health and Safety etc. Act 1974  
Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972  
Management of Health and Safety at Work Regulations 1992  
Notification of Installations Handling Hazardous Substances Regulations (NIHHS) 1982  
Pipelines Safety Regulations 1996  
The Pressure Systems (Safety) Regulations 2000

### **Health and Safety Advisory Literature**

The LP Gas Association produced over 30 Industry Codes of Practice which can be obtained from LP Gas Association, Headlands Business Park, Salisbury Road, Ringwood, Hampshire NH24 3PB. Tel: 01425 461612 or [www.lpga.co.uk](http://www.lpga.co.uk)

HSE Books, PO Box 1999, Sudbury, Suffolk, CO10 6FS. Tel: 01787 881165

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