



**CALOR**  
Grain Drying

# SAFETY INFORMATION CALOR GRAIN DRYING

## What is Liquefied Petroleum Gas?

Liquefied Petroleum Gas (LPG) is a term used for Hydrocarbon gases that exist as vapour under ambient conditions of temperature and pressure, but which can be liquefied by the application of moderate pressure or refrigeration.

LPG is a very versatile, portable and manageable fuel and a naturally occurring by-product of the oil extraction process. The two most common LPG gases are known as Propane and Butane. Calor Propane is used to power Grain Dryers.

## Important information about Calor Grain Drying Refuelling Installations.

### LPG Storage Vessels

- LPG Vessels must always stand on a level concrete pad that is capable of supporting their maximum weight.
- The location of vessels in relation to buildings, boundaries, potential sources of ignition, and other types of fuel storage must comply with the requirements of (ROI) Table 1 I.S.3216, (NI) Table 1 LGUK COP - Part 1.
- There must be safe access provide to and from the installation to ensure LPG deliveries and for safe refilling and/or connection to take place.
- Measures must be taken to prevent the risk of unauthorised and uncontrolled access, if there is a risk of unauthorised and uncontrolled access, precautions such as robust and secure fencing to the current standards must be provided.
- Access to LPG vessels must be maintained at all times for emergency service vehicles.
- Only purpose-designed and constructed LPG vessels in accordance with current Standards and legislation must be used.

- Any LPG vessels provided by Calor Gas must not under any circumstances be altered and/or moved. In the event the vessel(s) need to be moved, Calor must be contacted and written agreement obtained to authorise the move of the vessels. Only authorised personnel are permitted to move LPG vessels and they must follow a safe system of work. In the event that Calor LPG vessels are moved without prior written agreement, this is a breach of contract, and the supply of LPG will be terminated. Calor reserves the right to notify the appropriate regulatory authorities.
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## **Dryer**

- The dryer must be set up on level ground in a position in accordance with the suppliers instructions with adequate safety distance maintained from buildings, boundaries and flammable materials, including hay and straw.
  - The dryer must always be located as far as practicable from hay/straw stacks or other readily flammable material. This distance must not be less than 7.5 metres. A site specific risk assessment must be undertaken to ensure that the required safety distances are maintained.
  - For determining separation distances from LPG vessels, the dryer must be considered as a fixed source of ignition. It must not be sited at a distance less than that given in (ROI) Table 1 I.S.3216, (NI) Table1 of LGUK COP - Part 1. Under no circumstances must the distance between the LPG vessel or vessels and the dryer be less than the height of the dryer.
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## **Connection between LPG Vessel and the Dryer**

- At installations with fixed LPG storage vessels and fixed dryers, permanent pipework must always be used to connect the vessel to the dryer.
- At other installations, permanent pipework must be used to connect the LPG vessel and dryer, wherever practicable. Where permanent pipework is not employed, the site operator in control must always complete and document a Risk Assessment before the equipment is used.
- Pipework and hoses must be protected against corrosion and mechanical damage. Particular care is essential to avoid damage by vehicles. Major accidents have been caused by vehicle impacts.
- Where liquid LPG can be trapped between isolation valves, hydrostatic relief valves must be incorporated to protect against over-pressurization.
- When not in use, pipework must be depressurized and the ends securely capped or plugged using appropriate fittings by a suitably qualified, experienced and competent person, and the LPG vessel outlets must be plugged or capped.
- To keep the volume as low as practical, the diameter and length of the pipework of flexible hoses must be kept to a minimum, consistent with the flow rate or pressure drop necessary for the proper functioning of the dryer.
- Pipework must be specified, designed and installed in accordance with the requirements of (ROI) I.S.3216, (NI) LGUK Code of Practice 22.

## Testing

- After installation and before operation, or after a prolonged shut-down the installation must be tested.
  - The pipework and connections must be leak-tested or proof-tested by an approved contractor.
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## Specific Requirements for a Mobile Grain Dryer with Static Storage Vessel

LPG supplies must be separated from the dryer by not less than the greater of:

- 7.5 metres from the nearest part of the dryer, or
  - The separation specified in the dryer instructions, or
  - The height of the dryer.
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## Installation

- The dryer must not be placed in a position where, if it becomes unsuitable, it might fall and cause injury and damage. Experience has shown that unstable conditions can arise in emergency situations, eg. fire, being struck by a vehicle.
- If the mobile dryer always occupies a designated location, permanent rigid pipework (in accordance with the requirements of (ROI) I.S.3216 and (NI) LGUK Code of Practice 22) must be employed.
- If hoses are used they must always meet the requirements of BS4089: "Specification for Metallic Hose Assemblies for Liquid Petroleum Gases and Liquefied Natural Gases" or BS EN 1762: "Specification for Rubber hoses and hose assemblies for liquefied petroleum gas, LPG (liquid or gaseous phase), and natural gas up to 25 bar (2,5 MPa)", and must be as short as practicable. Long lengths must be avoided. Hoses and pipework must be protected against vehicular and other mechanical damage using protective barriers.
- Warning notices to warn vehicle drivers and pedestrians of the presence of hose or pipework must be appropriately placed.
- **Hose rupture would result in an escape of liquid phase LPG giving rise to a significant cloud and major hazard.**

## Specific Requirements for a Mobile Grain Dryer with Mobile Storage Vessel

LPG Mobile Storage Vessels (Trailer Mounted):

- Only a purpose-designed LPG vessel, constructed and approved for mobile service by a suitably qualified and experienced and competent person must be used.
  - A vessel designed for static use simply placed on a trailer must never be used.
  - The vessel/trailer must be designed as a unit with a suitable towing hitch.
  - If it is likely to be towed on public roads, the unit must be registered as a road tanker and, must comply with relevant road safety legislation.
  - Mobile storage vessels provided by the gas supplier must not be moved other than by the supplier or with the suppliers written agreement.
  - Mobile storage, when positioned for use, must always be firmly immobilized and stabilized on level ground so that the vessel is in its proper horizontal attitude and in a location accessible for safe refilling by a road tanker in accordance with the LPG suppliers instructions.
  - The storage vessel and grain dryer must be located as described in (ROI) I.S.3216 and (NI) Table1 of LGUK COP - Part 1.
  - The dryer must be installed as detailed in installation above.
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## Health & Safety

### Safety at tank location

- No smoking, naked flames or source of ignition should be permitted in the vicinity.
  - Warning signs to this effect must be displayed.
  - Suitable fire extinguishers (dry powder 9kg) must be sited adjacent to the installation.
  - Protect vessels & equipment from damage caused by impact.
  - PPE – if required.
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## Fire Precautions and Emergency Procedures

### Key considerations

- The nearest source of water for fire brigade use must be used.
- Buckets of water on hand may service to extinguish small straw fires before they escalate.
- In the event of an escape of LPG, shut-down the dryer immediately and if it is safe to do so, turn off the gas at the storage vessel.
- If the gas ignites, or if a non-LPG fire occurs, call the fire brigade immediately and keep personnel well away and at a safe distance.
- A dry powder extinguisher (9kg) must be available at the installation. This may be used to extinguish small, ignited gas escapes.

## Training

Any person responsible for, or involved with the operation of LPG, must have an understanding of the physical characteristics of the product and be trained in the operation of all ancillary equipment.

Those persons must be familiar with the fundamentals of fire fighting and fire control with particular reference to fires involving LPG. They must also be familiar with the correct handling of any fire fighting and fire control equipment provided and exercised in this respect at frequent intervals. They must know the location of the main isolating switches, fire hydrants, gas and liquid valves and understand their use.

Contact your Calor Sales Representative or Calor Engineering Team to enquire about organising a Calor LPG Training Session.

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## Emergency information:

### Action in the case of a LPG Fire

- Raise the alarm. The Fire Brigade and Calor Gas must be notified immediately.
- Fires should normally be controlled but not extinguished until any source of gas escape can be cut off.
- If it is safe to do so, close tank valves in circumstances where a leak in pipework has ignited. Isolate all valves upstream and downstream to starve the fire of gas.
- A small fire can be dealt with using a dry powder fire extinguisher. Do not use water to attempt to extinguish LPG fires.
- Vessels must be cooled with water to prevent a pressure build-up.

### Action in the case of a gas leak

- Raise the alarm. The Fire Brigade and Calor Gas must be notified immediately.
  - Evacuate all persons, except those necessary to deal with the emergency.
  - Whenever possible, and if it is safe to do so, turn off all isolation valves necessary to cut off or reduce the source or sources of escaping gas.
  - Remove sources of ignition.
  - Do not move vehicles.
  - Keep everyone away from the area in which the gas vapour is spreading.
  - Alert neighbours to the danger especially if there are nearby cellars or basements
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## Calor Contact

During business hours phone

**ROI: 01 450 5000**

**NI: 028 9045 5588**

Outside business hours phone

**ROI: 01 291 6229**

**NI: 0845 075 5588**



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