

# User Information Sheet 002

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## Bulk LPG Installations for Grain Dryers

### **INTRODUCTION**

This Guidance gives recommended safe practice in the use of LPG fired grain dryers. It is assumed the vessels are provided on hire/rental but the same advice should be followed for consumer owned vessels

It is recommended that this guidance is used as the basis of instructions from LPG suppliers to the agricultural consumer.

The guidance refers to liquid fired equipment although the principles also apply to vapour fired equipment. Both fixed and mobile grain dryers are included.

It is important that the essential safety aspects are fully understood by the operators of the equipment.

### **1. GENERAL REQUIREMENTS**

#### **1.1 LPG Storage Vessels**

Storage vessels should stand on firm level ground or preferably on a concrete pad, with the storage vessel firmly in its horizontal attitude.

The location relative to buildings, boundaries and potential sources of ignition shall comply with Code of Practice 1 part 1 part 1

The location relative to the grain dryer shall be at a distance not less than that specified in the dryer instructions or as given in Code of Practice 1 part 1 for sources of ignition or greater if the dryer is moveable i.e., mobile. See 3.1.

In addition to separation distances specified in users information and guidance notes the installation shall be located as far as practicable from hay / straw stacks or other readily flammable material and certainly no closer than 3 metres or the distance for ignition sources, whichever is the greater.

The position should permit safe access for road tanker and for safe refilling in accordance with Code of Practice 1 part 1 and also access for fire service vehicles in the event of an emergency.

## 1.2 Pipework

Protection against corrosion and mechanical damage is essential with special attention to avoiding vehicular damage. Specification and installation should comply with Code of Practice 22.

Rigid pipework is preferred. Whether rigid pipework or flexible hose is used the diameter and length should be kept to a minimum to keep the volume as low as practical.

Hose should be to BSEN1762 and kept as short as practical and adequately protected against mechanical damage.

**Note: Normal hydraulic hose is not suitable.**

Periodic inspection and re-testing to Code of Practice 14 is essential.

Hydrostatic relief valves should be incorporated to protect against overpressure if liquid can be trapped between isolation valves.

When not in use, pipework should be depressurised and the ends securely capped or plugged.

## 2. FIXED GRAIN DRYER WITH STATIC STORAGE

### 2.1 Installation

It should conform in all respects to Code of Practice 1 part 1. Permanent pipework should be used between the vessel and the dryer.

## 3. MOBILE GRAIN DRYER WITH STATIC STORAGE VESSEL

### 3.1 LPG Storage Vessels

Only purpose designed and constructed LPG vessels should be used conforming to Code of Practice 1 part 1 and inspected and re-tested and maintained in accordance with Code of Practice 1 part 3.

Storage vessels must not be moved except by the LPG supplier or with the suppliers written agreement. The potential danger from the moving of LPG vessels by users on forklift trucks or dumper trucks, or on flat-bed or other trailers must be made clear to the user. Such a practice may result in legal action by the Health and Safety Enforcement Authority against the user.

Vessel location relative to grain dryer should be not less than 7.5 metres from the nearest part of the dryer, or not less than that specified in the dryer instructions, (whichever is the greater), nor in a position where if the dryer becomes unstable it might fall. Experience has shown that unstable conditions can arise in emergency situations, e.g. fire, being struck by a vehicle. The dryer is a source of ignition.

### 3.2 **Dryer**

The dryer must be set up on level firm ground in a position to comply with dryer instructions with adequate distance from buildings, boundaries and flammable materials such as hay and straw. For determining safety distances the dryer is a source of ignition.

### 3.3 **Installation**

If the mobile dryer always occupies a designated location, permanent rigid pipework is preferred in accordance with 1.2.

If hoses are used they should be to BSEN1762. Long lengths need very careful protection against vehicular and other mechanical damage. Positive barriers are preferred. Adequate warning notices to warn vehicle drivers of the presence of the hose will reduce the risk of vehicular hose damage and consequent failure. Hose rupture would result in an escape of liquid phase LPG giving rise to a significant gas cloud and a major hazard.

## 4. **MOBILE GRAIN DRYER WITH MOBILE STORAGE VESSEL**

### 4.1 **LPG Mobile Storage Vessels [Trailer mounted]**

Only a purpose designed LPG vessel designed, constructed and approved for mobile service by a competent person should be used. It will need to comply with the requirements for "mobile systems" in The Pressure Systems and Transportable Gas Containers Regulations 1989.

If it is likely to be towed on public roads the unit will be regarded as a road tanker, and the relevant legislation listed below will apply. Guidance is contained in Code of Practice 2. The vessel/trailer must be designed as a unit with a suitable towing hitch.

A vessel designed for static use simply placed on a trailer is not acceptable and should not be permitted. See 3.1.

Mobile storage should only be moved by the LPG supplier, or under the terms and conditions of a specific agreement.

Mobile storage when positioned for use must 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 LPG suppliers instructions.

The location of storage vessel and grain dryer should comply with 3.1.

For towing on public roads when containing LPG the design and operation will also need to conform to the following:

- Road Traffic [Construction and Use] Regulations 1986 and subsequent amendments.
- The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations

#### 4.2 **Installation**

As 3.3.

### 5. **FIRE PRECAUTIONS AND EMERGENCY PROCEDURES**

Attention should be drawn to Code of Practice 3 “Recommendations for prevention or control of fire involving LPG”

Key instructions:

The nearest source of water for fire brigade use should be noted.

Buckets of water on hand may serve to extinguish small fires before they escalate.

In the event of an escape of gas (LPG) shut-down the dryer immediately and turn off the gas at the storage vessel if safe to do so.

If the gas ignites, or if a non-LPG fire occurs - call the Fire Brigade immediately and keep personnel well away.

A dry powder extinguisher (9kg) should be on hand at the installation. This can extinguish small ignited gas escapes if this permits further action to turn off the gas at source.

## 6. TRAINING INSTRUCTION TO OPERATORS

Adequate training or instructions on the use of the LPG storage, of whatever type, should be provided by the LPG suppliers to the user. This should cover at least the following:

- How to shut off the supply of LPG from the storage vessel.
- Making/breaking connections to the storage vessel - if applicable.
- Routine checks including hoses.
- Action in the event of a gas escape.
- Other emergency action.
- Treatment of cold burns.
- Arrangements for refill deliveries.
  
- Positive shut-down of dryer for an adequate time to cool before a delivery is made.
  
- Prohibition on moving storage vessel (unless expressly permitted with agreed procedures).