



Health and Safety

LPG (Liquefied Petroleum Gas)

Minimum Standard

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1 Aims and Principles

The aim of this Government of Jersey (GoJ) Minimum Standard is to provide guidance on the steps which should be taken to ensure that the risks posed by liquefied petroleum gas (LPG) cylinders are adequately controlled to prevent harm.

This Minimum Standard covers the storage and handling of LPG in cylinders up to a total quantity of 400kg. It also covers transporting of LPG cylinders in vehicles. It does not cover systems where LPG is used as fuel for heating, cooking or lighting, which are covered by the Minimum Standard – Gas Systems.

Departments responsible for managing the risks posed by LPG cylinders must develop their own procedures which detail the specific arrangements to be implemented. The procedures must include the standards set out in this document or be of an equivalent or higher standard.

2 Legislation and Guidance

a) Applicable Legislation and Approved Code of Practice

Health and Safety at Work (Jersey) Law, 1989

Liquefied Petroleum Gas (Jersey) Regulations, 1984

b) Guidance

LPG – Guidance on the storage of liquefied petroleum gas in cylinders

3 Definitions

Liquefied Petroleum Gas (LPG)

Commercial butane, commercial propane and any mixture of the two which is in liquid form as a result of the application of pressure greater than prevailing atmospheric pressure.

Cylinder

Any container, the capacity of which does not exceed 50 kg in weight, of liquefied petroleum gas and includes any valve belonging to such container which until activated retains the liquefied petroleum gas inside the container.

4 Who this Minimum Standard Applies to

- All Government of Jersey (GoJ) and States' employees
- Voluntary staff or those on honorary contracts where there is no implied contract of employment

5 Links to other GoJ Policies, Minimum Standards and Guidance

a) Policies

Government of Jersey - Health and Safety Policy

b) GoJ Minimum Standards

Risk Assessment
Manual Handling
Control of Contractors

6 Roles and Responsibilities

The department's arrangements must clearly set out the roles and responsibilities of those required to manage the risks to employees and others from transportable gas containers.

Reference should be made to the Government of Jersey Health and Safety Policy for general responsibilities.

7 Risk Assessment

A risk assessment covering the storage, handling and transport of LPG cylinders covering the following should be prepared, although this list is not exhaustive:

- The properties of LPG and associated hazards e.g. heavier than air, flammable etc.
- Storage requirements for empty and full cylinders
- Safe and acceptable means of transporting cylinders
- Manual handling risks
- Types of emergency e.g. leak or fire and the arrangements in place
- Training requirements

8 Storage

LPG cylinders are considered to be in storage when they are not being used i.e. are not connected to any equipment or are being transported.

“Empty” and full cylinders should be stored separately but “empty” cylinders should be treated as if they are full as there is likely to be residual product remaining in the cylinder.

Quantity of cylinders

Only the minimum number of LPG cylinders required to ensure continuous operations should be stored at any one time.

This reduces the risks in the event of a fire and also ensures that cylinders are not left in storage for long periods of time.

Separation distances

Separation distances are intended to protect the LPG cylinders from the immediate radiation effects of fires occurring in close proximity as well as to minimise the risk of escaping LPG being ignited before it has dispersed or diluted.

LPG cylinder storage areas should have the following separation distances between the cylinders and other potential hazards:

- At least 3 metres away from any flammable liquids, ~~combustible~~, corrosive, oxidising, toxic or explosive materials, or compressed gas cylinders unless they are separated by a wall with 30-minute fire resistance specification
- At least 3 metres away from any combustible materials such as paper, cardboard, wood etc.
- At least 2 metres away from any opening into a building e.g. window, doorway, vents, inlets, air bricks etc.
- At least 2 metres away from any drain or gully unless a secure cover is fitted
- At least 3 metres from any weeds or long grass etc.
- At least 1.5 metres vertically or 1 metre horizontally from any electrical fitting – unless the fitting is intrinsically safe for use in flammable atmospheres
- At least 1 metre from any site boundary, building or source of ignition e.g. smoking unless a fire separation wall is present

Design and location of storage areas

In addition to the minimum separation distances, the location and design of the storage area should also take into account the following requirements:

- Be outside in the open air to ensure good ventilation in the event of gas escape
- Not to be below ground level or within a containment structure to prevent gas build-up at low level.
- Have a solid base, such as concrete, to prevent water from pooling which can cause corrosion of the cylinders
- Must not obstruct any means of access, egress, passageways or emergency exits
- Should be away from vehicle routes or be provided with suitable protection to prevent damage from collision
- Should be designed to ensure that LPG cylinders are stored in an upright position at all times so the pressure relief valve remains operable
- Separate areas for storage of full and “empty” cylinders

Security

The storage area should be secure to prevent unauthorised access to the cylinders. For a small amount of LPG cylinders, a lockable cage will be sufficient.

If a secure storage compound is used instead of a lockable cage, the compound must be surrounded by a substantial fence constructed from industrial type mesh, for example 12 gauge 52mm x 52mm welded panels or 12 gauge link fencing, and at least 1.8 metres high.

A single entrance to the compound is permitted provided that the escape travel distance from any part of the storage area is less than 12 metres, measured around the containers.

The gate should not be self-locking, must open outwards and be easily and immediately openable from the inside.

The doors or gates to any storage facility must be kept locked when unattended.

Signage

Signage should be used to show the following:

- Full and empty cylinder storage areas
- Highly Flammable – LPG (or similar)
- No Smoking
- Sources of ignition prohibited
- What to do in the case of fire

These should be fixed in a prominent location.

9 Handling/Transporting Gas Cylinders

Transporting cylinders using manual handling aids/mechanical aids

LPG cylinders should not be dropped, dragged or rolled when being moved.

They should be transported in an upright position at all times, never horizontally, and should be secured on any carrying equipment to prevent unexpected movement.

Transporting in vehicles

Wherever possible the transportation of LPG cylinders should only be carried out in purpose-built vehicles.

Where this is not possible, cylinders can be transported on open-backed vehicles to reduce the risk of any flammable atmosphere being created should a leak occur and with a cylinder quantity less than 333kgs.

LPG cylinders are to be transported in an upright position.

Any vehicle transporting LPG should carry a 2kg dry powder fire extinguisher or equivalent and have the appropriate signage to alert the fire service in case of an accident.

Where it is intended to transport LPG cylinders inside closed vehicles, further advice should be sought from the department's Health and Safety Advisor(s).

10 Fire Safety

A Fire Safety Risk Assessment should be carried out where flammable gases are being stored and handled.

Ensuring that the storage area is designed and sited in an appropriate place as described Section 8 will significantly reduce the risks of fire occurring or the cylinders being affected in the event of a fire occurring in close proximity.

Adequate fire-fighting equipment should be available for dealing with any incidents which could occur. See Appendix A for further information.

Details of the areas which contain LPG cylinders should be readily available to the emergency services in the event of a fire occurring on site.

11 Emergency Measures and Procedures

If cylinders are handled and stored correctly, then an emergency situation is unlikely to arise.

However, the risk cannot be discounted and arrangements should be in place should such an event occur.

The types of emergency which could occur should be detailed in the risk assessment.

Items which should be considered as part of the emergency procedures are set out in Appendix A.

12 Training

Any persons involved with the storage or handling of LPG cylinders should receive suitable training which should be recorded.

The scope of the training required will be dependent on the role of the individual and should be tailored accordingly.

Emergency Procedures

The following items should be considered in the preparation of documented emergency procedures.

In the event of leakage

In the event of a leakage of gas being detected from an LPG cylinder, the Fire & Rescue Service should be called immediately.

PROVIDED IT IS SAFE TO DO SO, nearby sources of ignition should be extinguished, the cylinder valve closed and any plug or cap securely replaced.

If the leak cannot be stopped, AND IT IS SAFE TO DO SO, the container should be removed to a well-ventilated open space which is well away from drains, buildings, sources of ignition and other LPG cylinders.

General access to the leaking cylinder should be prevented, by barriers if necessary.

Notices advising of the presence of a leaking cylinder and prohibiting smoking and other naked lights should be displayed.

The supplier of the cylinder should then be informed immediately. No attempt should be made to make any repairs.

In the event of a fire

The alarm should be raised, including activation of any fire alarm

The Fire & Rescue Service should be called immediately: telephone 999 and inform the Service that LPG cylinders may be involved

The immediate area, including people occupying other accommodation in close proximity, should be evacuated.

On the arrival of the Fire & Rescue Service, the Fire Officer should be informed of the location of the fire, the location of the LPG cylinders and the location of any other hazardous materials that may be held on the premises

Fire-fighting measures

There should be adequate firefighting equipment on the premises. For quantities of LPG less than 400 kg, it is advised that at least one 9 litre water extinguisher and one 2 kg dry powder extinguisher be provided and kept ready for use.

Further guidance can be obtained from the States of Jersey Fire & Rescue Service.

Appendix A

Information and Instruction

People on premises where LPG is stored should receive adequate instruction and training on the actions to be taken in the event of fire or a leakage of LPG. These instructions should be repeated on a regular basis.

Notices setting out the emergency procedures should be prominently displayed near the LPG storage area.