



# GUIDE TO THE SAFE HANDLING AND STORAGE OF LIQUEFIED PETROLEUM GAS IN RESTAURANTS – Guide for operators

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## Contents

1	Introduction .....	3
2	Considerations in the handling and storage of liquefied petroleum gas .....	3

## 1 Introduction

This guide is intended to instruct restaurant operators on the safe handling and storage of liquefied petroleum (LP) gas in restaurants.

This guide is based on the Government Decree on the Safety Requirements of Liquid Gas Plants (858/2012) and the Government Decree on the Monitoring of the Handling and Storage of Dangerous Chemicals (685/2015).

## 2 Considerations in the handling and storage of liquefied petroleum gas

Liquefied petroleum gases are highly flammable and heavier than air, which means that they will fall down to floor or ground level and gather in, for example, holes and basements. Liquid drops splashed onto the skin may cause frostbite. LP gases are scented to help leak detection.

When using liquefied petroleum gas indoors, adequate combustion air availability must be ensured. If there is not enough air for combustion, carbon monoxide will form and may cause carbon monoxide poisoning.

Any appliances that use liquefied petroleum gas must be approved for indoor use. A CE marking indicates that the device complies with its safety requirements. Fixed installations related to appliances that use LP gas may only be carried out and serviced by Tukes-approved professionals. The installer must provide an installation certificate, which must be kept and shown to the supervisory authority upon request.

Use and service instructions concerning the use, handling and storage of liquefied petroleum gas must be drafted, which adhere to the supplier's instructions and the material safety data sheet for liquefied petroleum gas. The operator shall ensure that the personnel using LP gas are familiar with the instructions and have received enough training and guidance on the use and storage of LP gas.

The restaurant must have a maintenance plan, according to which the serviceability of the equipment and pipelines used to handle and store LP gas is verified regularly.

### **The mandatory equipment for a gas stove and gas oven are:**

- appliance stop valve
- flame supervision device
- hose burst valve
- liquefied petroleum gas hose, max length 1.2 metres
- If the appliance is located in a cellar, the space must have mechanical ventilation and be equipped with a gas leak alarm system. The system's alarm must be extensive enough considering the location. Liquefied petroleum gas must be prevented from getting into floor drains.
- pipeline shut-off valves

### Storage of liquefied petroleum gas in a restaurant:

- only such amounts of LP gas may be kept in rooms where it is used that are justified on the basis of operation and safety (e.g. one cylinder in use and one spare). Empty cylinders are not to be stored in rooms where LP gas is used (see below)
- additional gas cylinders are not to be stored inside restaurant facilities, but rather outside in a separate storage space, for example, a compartmented cylinder storeroom or gas cylinder cabinet
- recommended max. size of gas cylinder 11 kg
- in a ventilated room
- gas cylinder always in an upright position



Image 1. A steel gas cylinder (left) and a composite gas cylinder (right).

### It is prohibited to store liquefied petroleum gas:

- in the basement
- in other underground facilities
- in attic spaces
- on escape routes
- in hot areas, such as next to electric or wood stoves

### A gas cylinder cabinet must have:

- a lock
- ventilation from the top and bottom parts (adequate ventilation must be taken into account in the bottom of the cabinet since liquefied petroleum gas is heavier than air)
- a label indicating it contains LP gas
- a sign indicating that smoking and naked flames are forbidden
- an “Ex” sign
- full and empty cylinders in an upright position with the safety caps on
- full and empty cylinders placed separately in clearly marked locations
- only gas cylinders, and no other things are to be stored in the cabinet



Image 2. A gas cylinder cabinet with a lock and all necessary labels.

Storages that contain a maximum of one ton of liquefied petroleum gas can be located on the building's outer wall if the wall structures meet fire compartmentation rating EI60. LP gas cylinders and vessels may not be placed within one metre of exits and windows.

If 33 kg cylinders are used, the construction of a separate central gas station (for example, in accordance with standard SFS 7507) is recommended. LP gas pipelines must be marked with a yellow identification colour and shut-off valves equipped with appropriate labels.

If the amount of liquefied petroleum gas being handled and stored is 200 kg or more, the operator must file a report on the handling and storage of dangerous chemicals with the rescue authority of the wellbeing services county. Please note that even empty cylinders are included in the amount.

The storage of liquefied petroleum gas in gas cylinder cabinets and central gas stations may cause an explosion hazard. The operator must produce an explosion protection document and mark the storage area with an Ex label. The storage of a single gas cylinder and a spare does not require an explosion hazard assessment, the production of an explosion protection document or Ex markings.

Contact the rescue authority of the wellbeing services county for more information about the placement and markings of gas cylinder storerooms, gas cylinder cabinets and central gas stations. The contact information can be found at [pelastuslaitokset.fi/yhteystiedot](https://pelastuslaitokset.fi/yhteystiedot).