



## **MODULE 2**

Jennifer Okeke

DOOWE



## MODULE 2

- **Safety requirements for fuelling equipment**
- **Safety standards followed while driving your Autogas powered vehicle**
- **Highlight the safety guidelines observed at the Autogas fuelling station**

Nigeria's Largest Online Cooking Gas Retailer

## **Safety requirements for fuelling equipment**

### **Importance of these safety requirements**

From the moment of manufacture through the distribution chain and until it is utilized and the combustion products are safely disposed of, LPG is potentially hazardous.

- Understanding the behaviour of LPG and keeping it under control is the key to safety.
- Every uncontrolled release is a dangerous situation that requires an immediate response. Because natural LPG has no odour and is virtually undetectable, a specific odour is frequently added to alert people to its existence. Then, even the tiniest leak can be identified and dealt with appropriately. However, because LPG is heavier than air, a leak that occurs underground or at a low level may not be detected right away.
- Consumers should be given safety information and should handle and use products with caution after receiving them.
- LPG refers to a group of goods that share many characteristics but differ in ways that compromise safety.
- LPG Containers should be easily distinguishable.
- For safety, good appliance and installation requirements are required.

## **Potentials risks and hazards**

LPG has its own set of dangerous properties. Understanding these features and behaviours and exercising control under both normal and abnormal settings is the key to LPG safety.

Some risks and hazards associated with the use of Autogas:

- The main dangers associated with LPG are fire and explosion. This is due to its strong flammability, which, in extreme situations, can combine with another attribute, like pressure, to cause the BLEVE (Boiling Liquid Expanding Vapor Explosion) phenomena. With the increased usage of thermal barrier coatings or thermally activated surface finishes on LPG pressure vessels, the risk of a BLEVE must be considered, as well as the risk of a significant LPG leak.
- In this case, a large LPG leak creates a combustible cloud. An Unconfined Vapor Cloud Explosion (UVCE) occurs when a cloud is ignited, and various investigations have been conducted on this phenomenon. There are also dangers associated with the various routes of distribution and use.
- If ventilation is insufficient and combustion products are not transported into the atmosphere, an extra potential hazard may occur at the time of use. Because carbon monoxide is an odourless gas, it can be created and reach deadly amounts without being noticed. Sniffing LPG, i.e. intentionally inhaling LPG vapour in search of a narcotic effect, can result in damage or death due to asphyxiation, when the LPG has substituted the Nitrogen / Oxygen (air).

- If liquid LPG comes into touch with the skin, it will produce cold burns. Propane is more harmful in this regard due to its low boiling point, whereas Butane is slower to vaporize and scatter in cold temperatures. When handling any liquefied product, the eyes and body must be covered.

### **Safety standards followed while driving your Autogas powered vehicle**

These are guidelines to follow when you are driving your Autogas Powered Vehicle;

- Only people who have been trained and certified to utilize LPG as a road vehicle fuel should be authorized to work on the engine or fuel system. No one should remove any portion of the system, or empty or gas-free it unless they have had proper training and are capable of doing so.
- Only persons who have been trained in the safety elements of LPG and LPG systems should be authorized to operate on LPG vehicles if their job is near, or could otherwise impact, the vehicle's LPG system.
- Anyone working on an LPG vehicle should be aware of where system components are situated and that some contain liquid LPG while others contain LPG vapour. The LPG will be at high pressure in either instance.

Nigeria's Largest Online Cooking Gas Retailer

- Provide secure parking and repair areas for LPG cars. They should be parked away from heat, open flames, and other sources of ignition, just like gasoline-powered vehicles. They should also be kept away from ground holes such as drains and pits.
- Clearly with appropriately placed placards, as a reminder to those working on the vehicle and anybody else in the vicinity, especially those doing 'hot work.'
- If any LPG leaks can't be halted safely, such as by isolating the LPG tank, don't try to drive the car off the roadside.
- Domestic LPG does not fulfil the Octane requirements for Autogas, and it may cause engine failure over time.
- Make sure the dust cap on the filler valve is reinserted after refuelling with LPG.
- It is recommended that the vehicle be driven in petrol mode for 5-7 kilometres after every 100-150 kilometres driven in LPG mode to keep the petrol system in good working order.
- If you're using a carburettor engine (a device for supplying a spark-ignition engine with a mixture of fuel and air), it's a good idea to leave the selector switch in neutral for a time before converting to LPG. Due to the mixing of both fuels, switching from petrol to LPG straight may cause the engine to stall or backfire.

Nigeria's Largest Online Cooking Gas Retailer

- Due to the extreme flammability of LPG, any hot work (welding, gas cutting, brazing, etc.) on the body or other sections of an LPG-powered vehicle should only be performed by trained personnel in a licensed workshop.
- Under no circumstances is it permissible to repair an LPG tank. Repair and maintenance of the Autogas system and its components, on the other hand, should only be performed by authorized workshops. Repairs should ideally be carried out by the same Retro-fitter who installed the ALPG (Autogas) system in the first place.
- Check for leaks in the Autogas tank and piping system regularly. According to regulatory regulations, the Autogas Cylinder must be examined regularly.
- Cut off the LPG supply and park the car in an open place away from ignition sources if there is a leak in the LPG system. Move everyone away from the car and in the opposite direction of the wind, and seek assistance from the nearest authorized installer/workshop.
- Do not use a home or any other detachable LPG cylinder as auto fuel because it is illegal and extremely dangerous.

- **Autogas refuelling of the vehicle tank should only be done using the dispensing nozzle at authorized ALDS (Auto LPG Dispensing Systems). Filling an LPG tank with home LPG or any other gas is not a good idea.**
- **Avoid checking the LPG system on the auto-rickshaw or tankers on the side of the road for leaks and other faults.**
- **If a leak is discovered, do not panic; instead, stop the vehicles and activate the emergency plan, which includes notifying the local police station, fire station, emergency medical facilities, public awareness system, and warning people to stay away from the area, as well as turning off the electricity and all ignition sources.**
- **Provides an appropriate first-aid kit to the operators.**
- **The drivers should have access to the phone numbers of the local fire department, emergency medical institution, and other necessary public safety agencies. The drivers must keep a notebook with these emergency numbers in it.**
- **It is recommended that drivers avoid wearing garments made of synthetic fibres or any other substance that produces static electricity.**



- It is recommended that drivers do a mock drill at least once a year to review and rehearse emergency procedures.
- The oil firms or the government should provide periodic training for the drivers, as well as credentials.

### **Highlight the safety guidelines observed at the Autogas fuelling station**

Visiting a gas station to refuel your vehicle is a common occurrence that is often unpleasant for many people, especially if it is required during peak business hours. Nonetheless, it is an inescapable activity that must be completed as needed. You may, however, disregard the safety precautions that must be taken when visiting a gas station, especially if you are in a hurry. People rarely consider the potential ramifications when getting their cars refuelled in such situations. Nothing, however, is more valuable than your life!

You can consider what could go wrong, particularly if you refuel your vehicle at the same gas station every time. Accidents do happen, and no one can predict when one will happen. There are a variety of fire hazards that must be avoided at all costs. Apart from adopting precautions, one should also travel in and around a filling station in a somewhat safer location.

## **GUIDELINES**

- **Anyone who deals with LPG should receive extensive safety training. As a result, employees' understanding of the physical and chemical features of LPG is the first and most critical safety equipment.**
- **Avoid smoking or using a lighter or match.**  
In and around a gas station, avoid doing things like lighting a matchstick or a lighter or smoking a cigarette. LPG is highly Flammable, and even the tiniest spark can result in a dangerous fire or explosion. Before approaching a petrol pump zone, you must also put out any lit cigarettes or other ignitable things. Before visiting a gas station, try to remove or unload all flammable and combustible materials from your vehicle. In a nutshell, avoid doing anything that could cause a fire or Explosion.
- **Turn the engine off.**  
First and foremost, you must always remember to turn off your car's engine when getting it refuelled. It is not only dangerous but also illegal, to refill your car while the engine is running. Also, while refuelling the tank, keep the keys of your vehicle away from the point of igniting or starting the motor. This is done to prevent someone from accidentally turning the keys and starting the engine while you're still getting your car refuelled.
- **Don't Use Your Phone**  
You should be aware that cell phones emit very harmful radiations that, if they come into touch with gasoline, might cause a fire. Furthermore, if your phone becomes overheated, such as from excessive use or when out on a hot day, it may represent a serious hazard of

explosion. As a result, always remember to turn off your cell phones before entering a gas station.

- Only personnel who have been trained in the safety elements of LPG and LPG systems should be permitted to work on LPG cars.
- In LPG filling station and filling vehicle-related jobs, only hire trained and professional staff.
- Personal protective equipment (PPE), safety clothes, and goggles, among other items, should be worn at all times in the workplace to prevent injury.
- Gas detectors will be installed at various LPG filling station locations. The technology emits an audio alarm whenever a leak is detected.
- All LPG activities must be carried out by employees who have undergone extensive LPG training.

Nigeria's Largest Online Cooking Gas Retailer