

Participant Handbook

Sector
Hydrocarbon

Sub-Sector
Downstream (Oil Refining and Marketing)

Occupation
LPG Distribution

Reference ID: **HYC/Q3201, Version 3.0**
NSQF Level 3



LPG Delivery Personnel

This book is sponsored by

Hydrocarbon Sector Skill Council

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Shri Narendra Modi
Prime Minister of India

“ Skilling is building a better India.
If we have to move India towards
development then Skill Development
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Certificate

**COMPLIANCE TO
QUALIFICATION PACK – NATIONAL OCCUPATIONAL
STANDARDS**

is hereby issued by the

HYDROCARBON SECTOR SKILL COUNCIL

for

SKILLING CONTENT : PARTICIPANT HANDBOOK

Complying to National Occupational Standards of

Job Role/ Qualification Pack: 'LPG Delivery Personnel' QP No. 'HYC/Q3201 NSQF Level 4'

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About this book

This Participant Handbook is designed for providing skill training and/ or upgrading the knowledge and basic skills to take up the job of an 'LPG Delivery Personnel' in the Hydrocarbon sector.

This Participant Handbook is designed based on the Qualification Pack (QP) under the National Skill Qualification Framework (NSQF) and it comprises the following National Occupational Standards (NOS)/ topics.

- HYC/N 3201 Deliver LPG Cylinders to Consumers
- HYC/N 3102 Maintain Safe and Secure Working Environment
- HYC/N 3103 Maintain Health and Hygiene
- HYC/N 3202 Assist in Upkeep and Maintenance of LPG Storage Area

Symbols Used



Key Learning
Outcomes



Steps



Exercise



Tips



Notes



Objectives

Table of Contents

Sr. No.	Modules and Units	Page No.
1.	Introduction	1
	Unit 1.1 – Introduction to the Training Programme	3
	Unit 1.2 – Introduction to the Hydrocarbon Sector	5
	Unit 1.3 – Introduction to the Downstream Segment	10
	Unit 1.4 – Role of an LPG Delivery Personnel	12
2.	Deliver LPG Cylinders to Consumers (HYC/N 3201)	19
	Unit 2.1 – About LPG Cylinders	21
	Unit 2.2 – Pre-Delivery Activities	27
	Unit 2.3 – Delivery Activities	31
	Unit 2.4 – Post-Delivery Activities	36
3.	Maintain Safe and Secure Working Environment (HYC/N 3102)	45
	Unit 3.1 – Precautionary Measures to Avoid Hazards	47
	Unit 3.2 – Safety Standards and Procedures	50
	Unit 3.3 – Emergency Procedures in Case of Fire	55
4.	Maintain Health and Hygiene (HYC/N 3103)	63
	Unit 4.1 – Personal Hygiene Practices	65
5.	Assist in Upkeep and Maintenance of LPG Storage Area (HYC/N 3202)	73
	Unit 5.1 – Role of an LPG Delivery Personnel in Upkeep and Maintenance of Storage Area	75
	Unit 5.2 – Dos and Don'ts of Storage and Handling of LPG Cylinder	77
6.	Core Generic Skills	83
	Unit 6.1 – Reading and Writing Skills	85
	Unit 6.2 – Communication Skills	86
	Unit 6.3 – Plan and Organise Work	89
	Unit 6.4 – Problem Solving Skills	90
7.	Annexure	93
8	DGT/VSQ/N0102 Employability skill (60 hours)	

It is recommended that all trainings include the appropriate Employability Skills Module Content for the same is available here:

<https://www.skillindiadigital.gov.in/content/list>





1. Introduction

Unit 1.1 - Introduction to the Training Programme

Unit 1.2 - Introduction to the Hydrocarbon Sector

Unit 1.3 - Introduction to the Downstream Segment

Unit 1.4 - Role of an LPG Delivery Personnel



Key Learning Outcomes

At the end of this unit, you will be able to:

1. Explain the purpose of the training programme
2. State the benefits of the training programme
3. Discuss the qualification pack and National Occupation Standards
4. Explain about the hydrocarbon sector
5. Explain what hydrocarbons are and describe the different types of hydrocarbons
6. List the different types of hydrocarbons
7. Describe the refining process for crude oil
8. Describe the distillation process
9. State the different types of fuels
10. List the three major segments in the hydrocarbon sector
11. State the functions of the downstream segment
12. List the roles and responsibilities of an LPG Delivery Personnel
13. State the personal attributes of an LPG Delivery Personnel

UNIT 1.1: Introduction to the Training Programme

Unit Objectives



At the end of this unit, you will be able to:

1. Explain the purpose of the training programme
2. State the benefits of the training programme
3. Discuss the qualification pack and National Occupation Standards

1.1.1 Introduction to the Training Programme

This training programme is developed to impart specific skills to individuals who wish to work as an LPG Delivery Personnel.

The training programme is based upon the National Occupational Standards for LPG delivery and installation at customer premises. The National Occupational Standards have been described in the following sub-section of this session.

The training programme will enable an individual to:

- Perform specialised work such as LPG pre-delivery, delivery and post-delivery activities at customer premises
- Demonstrate the safe usage as well as safe handling of equipment
- Follow the safety guidelines while setting up a cylinder
- Assist in upkeep and maintenance of LPG storage area and LPG delivery vehicle
- Achieve customer satisfaction by providing excellent service
- Follow and maintain personal health, hygiene and work in line with safety environment protocol
- Build good rapport with the customer through effective communication that is respectful towards the customer

1.1.2 Benefits of the Training Programme

- After successful completion of the training programme, the participants will undergo an assessment which will have a theory and a practical test
- On successfully passing the assessment, a certificate will be awarded by the Hydrocarbon Sector Skill Council
- This will help you in getting employed as an LPG Delivery Personnel in downstream companies or in working independently

1.1.3 Introduction to QP and NOS

This training programme is intended to impart basic skill and knowledge relevant to LPG delivery and installation activities required to be performed at the customer premises. This programme is based on the qualification pack called LPG Delivery Personnel. The Qualification Pack Code for LPG Delivery Personnel is HYC/Q 3201. This is also called a QP. A QP consists of a set of National Occupational Standards (NOS). NOS specify the standardised level of competency a worker should possess in order to perform the enlisted function at the workplace. Under the LPG Delivery Personnel QP, there are four numbers of NOS which detail the functions to be performed at the work site by the LPG Delivery Personnel.

NOS Code	Major Function/Task
HYC/N 3201	Deliver LPG Cylinders to Consumers
HYC/N 3102	Maintain Safe and Secure Working Environment
HYC/N 3103	Maintain Health and Hygiene
HYC/N 3202	Assist in Upkeep and Maintenance of LPG Storage Area

UNIT 1.2: Introduction to the Hydrocarbon Sector

Unit Objectives



At the end of this unit, you will be able to:

1. Describe the hydrocarbon sector
2. Explain what hydrocarbons are and describe the different types of hydrocarbons
3. Describe the refining process for crude Oil
4. State the different types of fuels

1.2.1 About the Hydrocarbon Sector

The hydrocarbon sector is one of the six-core industries in India and therefore has an impact on all the other sectors, industries, and segments in the country. Since India is a developing nation, there is an ever-increasing demand for energy and this demand further influences the growth of this sector. Today, 57 per cent of India's domestic crude oil production comes from Oil and Natural Gas Corporation (ONGC). India is also the fourth-largest importer of Liquefied Natural Gas (LNG) in the world.

One of the reasons why this sector is projected to flourish is government initiatives. State-run oil firms are working towards improving the Liquefied Petroleum Gas (LPG) infrastructure in Uttar Pradesh, which will also help create clean energy and generate employment. The Government of India (GOI) has introduced various policies in order to promote the use of biofuels for transport. Additionally GOI is also planning to build refineries in Rajasthan and Maharashtra, increase the use of LNG, and auction off oil and gas fields. GOI is also planning to create an integrated oil major that will compete in the global market.

The hydrocarbon sector has played a vital role in the economic growth of the country.

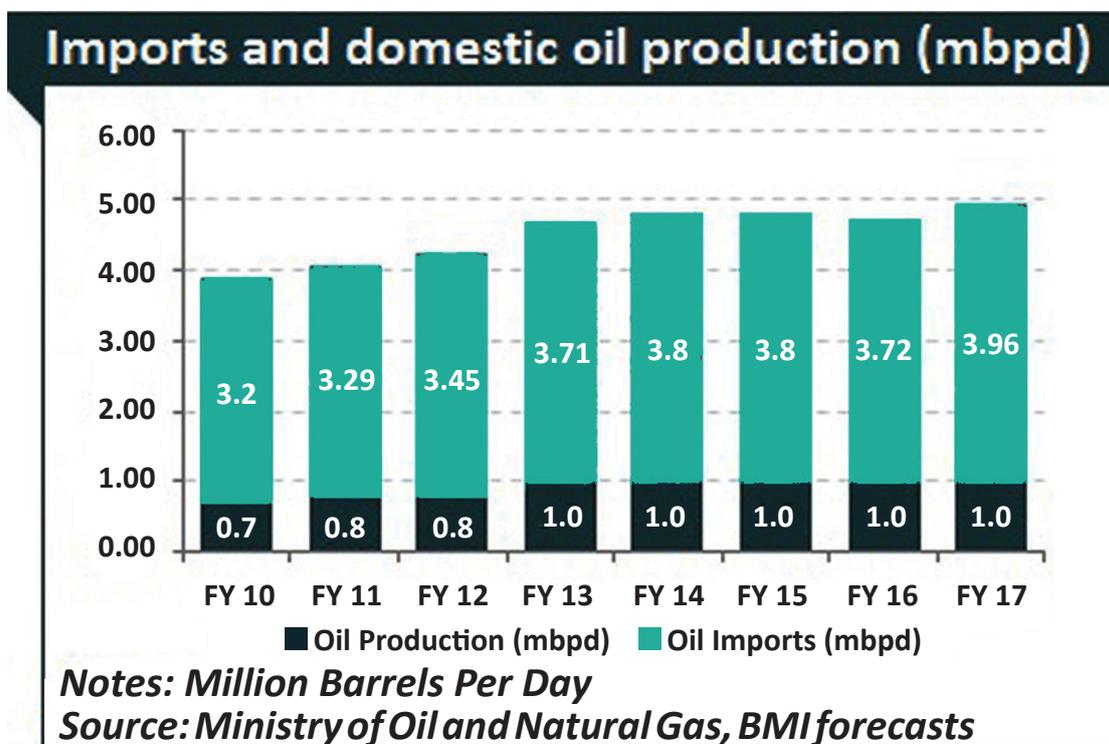


Fig. 1.2.1. Economic growth

The oil and gas (Hydrocarbon) sector has seen significant growth over the past few years. India's energy consumption has almost doubled since 2000 and the potential for further rapid growth is enormous.

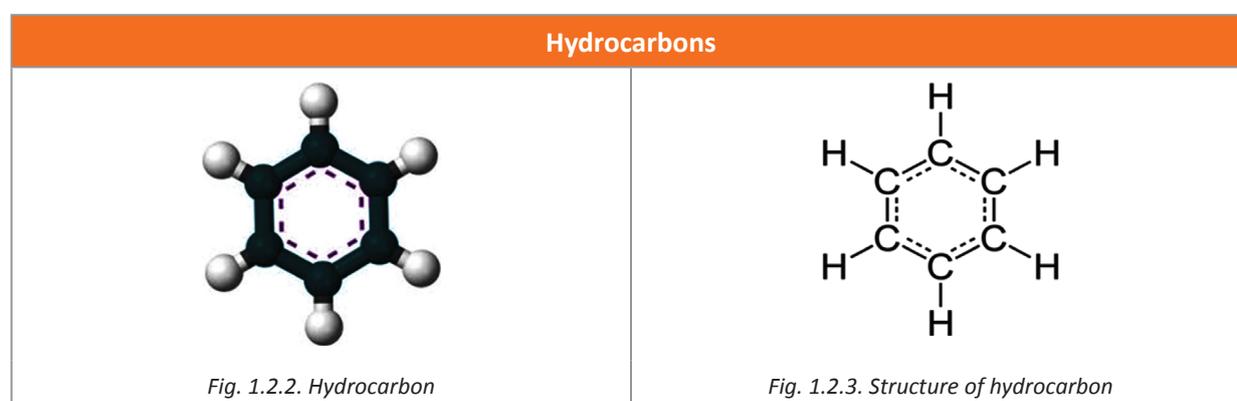
According to data¹ released by the Department of Industrial Policy and Promotion (DIPP), the petroleum and natural gas sector attracted FDI worth US\$ 6.86 billion between April 2000 and September 2017.

The Ministry of Petroleum and Natural Gas (MOP and NG) is a Ministry of the Government of India responsible for the exploration, production, refining, distribution, marketing, import, export, and conservation of petroleum, natural gas, petroleum products, and liquefied natural gas in India. They are the apex body for laying down the guidelines and rules for the petroleum and natural gas segment.

The Hydrocarbon Sector Skill Council (HSSC) plays a crucial role in the skill development ecosystem in India. Their job is to ensure that the training is relevant to industry needs and is aligned with the national skill development policy. As autonomous bodies, they front-end various activities and take measures to identify and close the skill gaps under the Hydrocarbon segment.

1.2.2 About Hydrocarbons

Hydrocarbons are organic compounds which are made up of hydrogen and carbon atoms.



Types of Hydrocarbons:

There are four basic types of hydrocarbons:

- The common usages of alkanes are in natural gas and petroleum fuels.
- Alkenes are used in the syntheses of alcohols, plastics, lacquers, detergents, and fuels.
- Acetylene is used to cut and weld steel.
- Many aromatic compounds are used as solvents to remove or thin out oil or grease-based compounds. Toluene, for example, is an ingredient in paint thinners.

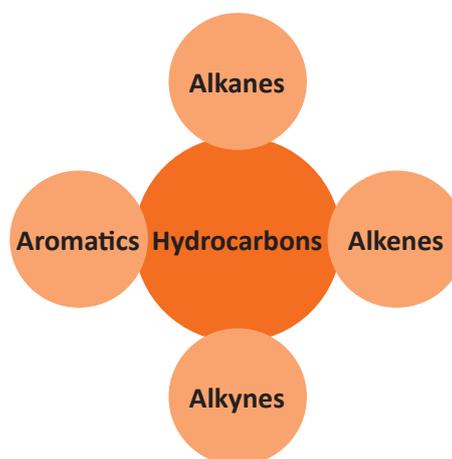


Fig. 1.2.4. Types of hydrocarbons

1- <https://www.ibef.org/industry/oil-gas-india.aspx>

Many of the fuels which we use are hydrocarbons. The majority of the hydrocarbons found naturally are present in crude oil. Crude oil is a mixture of hydrocarbons that exists as a liquid found underground or underwater. Hydrocarbons in crude oil can generally be divided into four categories:

Hydrocarbons in Crude Oil	Weight
Paraffins	15 to 60%
Napthenes	30 to 60%
Aromatics	3 to 30%
Asphaltics	6%

What is Petroleum?

Petroleum is a naturally occurring, yellow-to-black liquid found beneath the Earth's surface. It is a general term for crude oil and natural gas.

1.2.3 Refining of Crude Oil

Refining of crude oil refers to the process of converting crude oil into useful products. The process is divided into three basic steps: separation, conversion, and treatment.

1. Separation or Distillation process

Separation refers to the process of distillation. Crude oil is heated in a furnace so that hydrocarbons can be separated according to their weight and boiling point.

2. Conversion

Conversion is simply the process of changing one kind of hydrocarbon into another.

3. Treatment

Treatment is the final process of refining. One common example of treatment is the removal of sulphur from diesel fuel, which is necessary for it to meet clean air guidelines.

Distillation Process

This process is based on the principle that different substances boil at different temperatures. In the distillation process, crude oil is heated and fed into a tall steel tower called a distillation column and then separated into its components according to their boiling points. As the temperature of the crude oil in the distillation column rises, the crude oil separates itself into different components. Each component corresponds to a different type of petroleum product, depending on its boiling temperature.

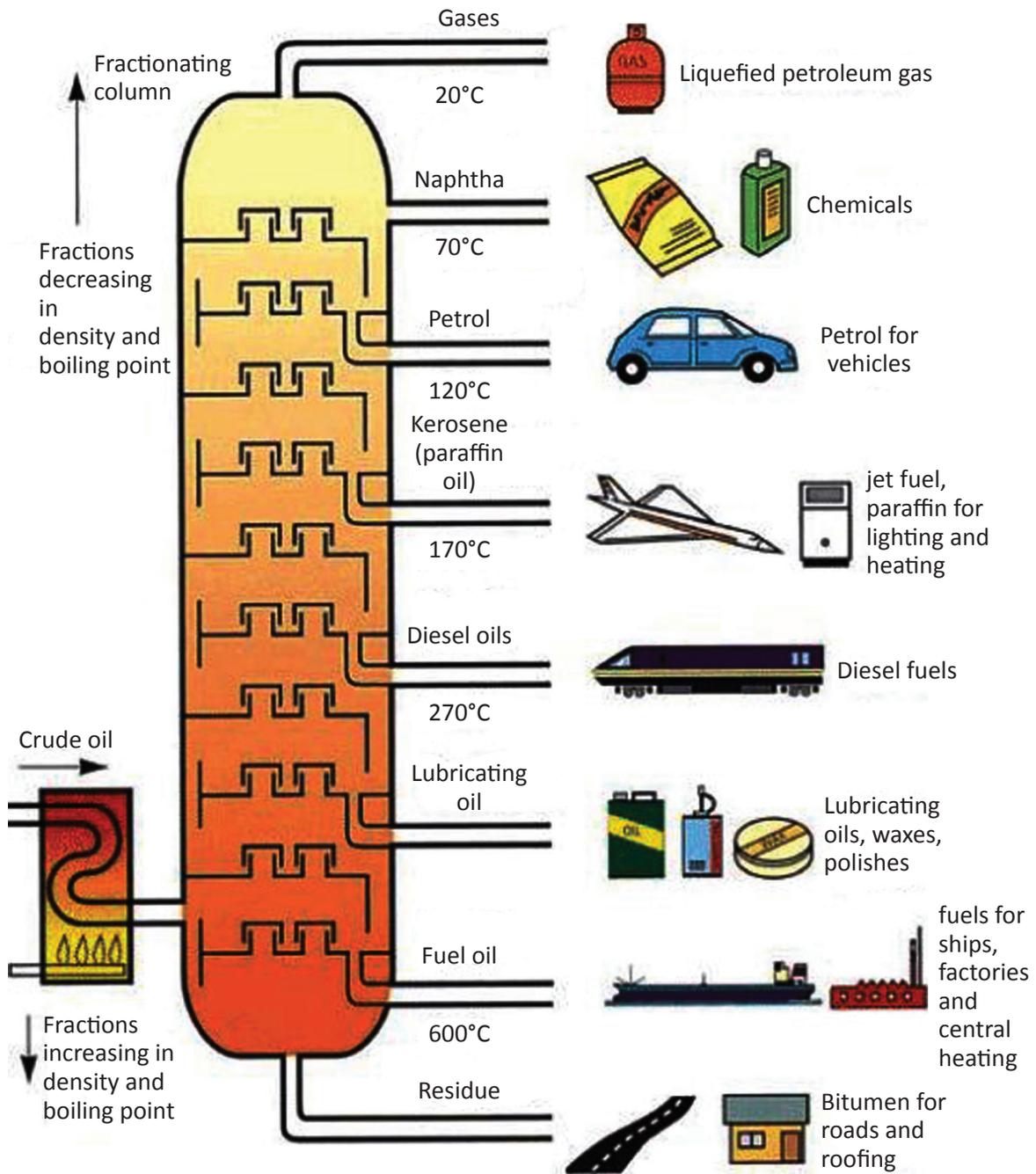


Fig. 1.2.5. Distillation process

1.2.4 Types of Fuel

There are three main types of fuels – solid fuels, liquid fuels and gaseous fuels.

Fuel Types and Examples

Solid fuels



Fig. 1.2.6. Wood



Fig. 1.2.7. Coal



Fig. 1.2.8. Cow Dung

Some more examples are coke, charcoal, etc.

Liquid fuels



Fig. 1.2.9. Diesel, Petrol



Fig. 1.2.10. Kerosene



Fig. 1.2.11. Coal Tar

Some more examples are petrol, naphtha, ethanol, etc.

Gaseous fuels



Fig. 1.2.12. CNG



Fig. 1.2.13. LPG



Fig. 1.2.14. Biogas

UNIT 1.3: Introduction to the Downstream Segment

Unit Objectives



At the end of this unit, you will be able to:

1. List the three major segments in the hydrocarbon sector
2. State the functions of the downstream segment

1.3.1 Different Segments of Hydrocarbon Sector (Petroleum Industry)

The petroleum industry is divided into three major segments: Upstream, Midstream, and Downstream.

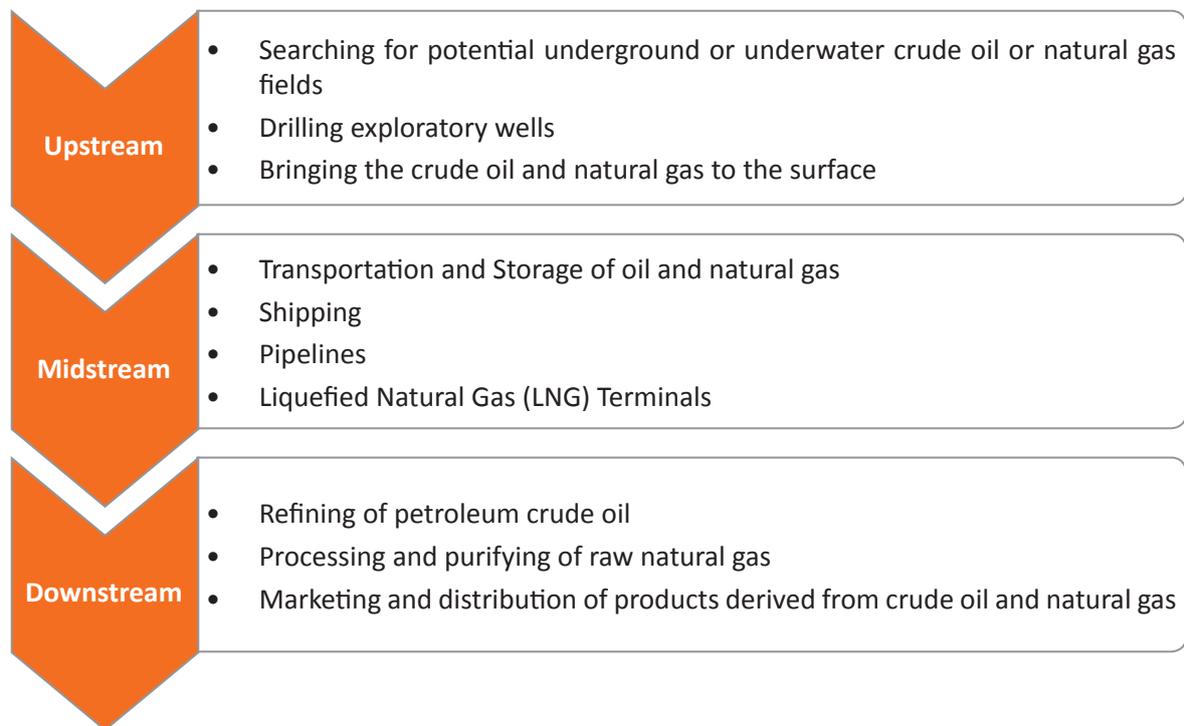


Fig. 1.3.1. Different segments of hydrocarbon sector

Processes involved in different segments of the petroleum industry:

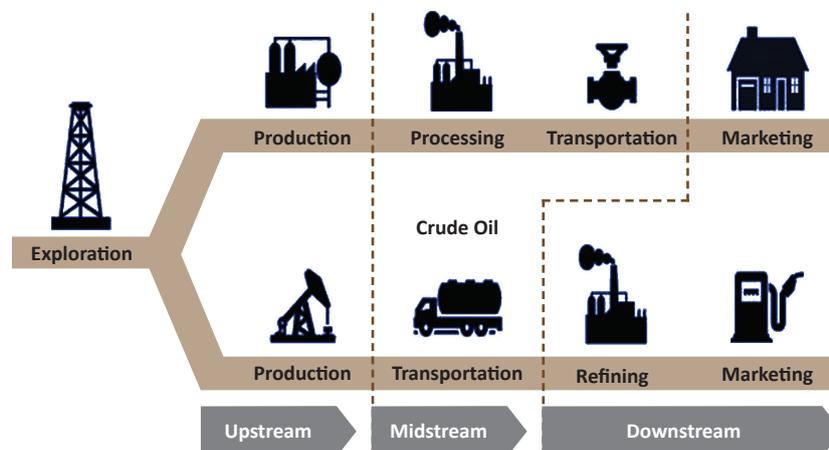


Fig. 1.3.2. Processes involved in different segments of the petroleum industry

1.3.2 About the Downstream Segment

The downstream segment involves the refining of petroleum crude oil and the processing and purifying of raw natural gas, as well as the marketing and distribution of products derived from crude oil and natural gas. The downstream segment reaches consumers through products such as petrol, kerosene, jet fuel, diesel oil, fuel oils, lubricants, waxes, asphalt, natural gas, and Liquefied Petroleum Gas (LPG), etc.

About the Downstream Segment in India



Fig. 1.3.3. Downstream segment

The downstream segment is also known as the oil and gas industry. The oil and gas industry is among the six core industries in India. It plays a major role in influencing the decision-making for all the other important sections of the economy. India's downstream segment has 19 refineries in the public sector and three in the private sector. Private companies such as Reliance Industries Ltd. and Essar Oil are the major refiners. In the year 2016, public sector refineries accounted for 54.42% of total refinery crude throughput and the private sector refineries' total crude throughput grew at a CAGR of 9.28%, reaching 88.7 million metric tonnes (MMT).

In the year 2016, total consumption of petroleum products by companies stood at around 183.5 MMT, higher by 11.2% in comparison with the previous fiscal year. The total number of retail outlets increased to 56,190 (including private) in April 2016 (provisional) from 53,419 in April 2015.

UNIT 1.4: Role of an LPG Delivery Personnel

Unit Objectives



At the end of this unit, you will be able to:

1. List the roles and responsibilities of an LPG Delivery Personnel
2. State the personal attributes of an LPG Delivery Personnel

1.4.1 Who is an LPG Delivery Personnel?

The LPG Delivery Personnel is the one who delivers filled LPG cylinders from the distributors/godown to the customer premises and returns the empty cylinders from the customer premises to the distributors/godown.

The job of an LPG Delivery Personnel is important as he is the first point of contact for a customer on a periodic basis and thus is the face of the organisation.

He must deliver the cylinder to the right address of the customer. He should be able to disconnect the empty cylinder and replace it with a filled cylinder at the customer premises while diligently following safety practices.

He should also explain the safety measures to the customer and educate them about the dos and don'ts of handling LPG.

He should provide good customer service and should be courteous and respectful towards the customer.



Fig. 1.4.1. LPG Delivery Personnel

1.4.2 Roles and Responsibilities of an LPG Delivery Personnel

This job role involves the following:

- Visit the godown and collect the refilled LPG cylinders according to the schedule and plan of delivery
- Carry the tools and equipment required for domestic LPG cylinder delivery
- Execute pre-delivery, delivery and post-delivery activities of LPG cylinders at customer premises
- Demonstrate the safe usage of LPG as well as safe handling of equipment
- Achieve customer satisfaction by providing excellent service

- Fulfil customer requirement by resolving all complaints within 48 hours
- Build good rapport with the customer through effective communication
- Plan and organise tasks in order to meet expected outcomes
- Apply different kinds of problem-solving strategies to resolve customer issues
- Assist in upkeep and maintenance of LPG storage area and LPG Delivery Vehicle

As a part of his job role, he also needs to:

- Conduct pre-checking before installation activities, such as, visiting the showroom or godown, collecting customer details as the per the day's schedule and planning accordingly.
- Check if the tool-kit is ready with all essential tools and replenish the required consumables.
- Wear proper uniform and carry ID card provided by distributors at all times while visiting customer premises.
- Greet the customer in a polite manner.
- Educate consumers on the properties of LPG and safe usage of LPG equipment.
- Ensure that there are no other inflammable items in the kitchen during the setting up of the LPG cylinder.
- Ensure cylinders are installed at places free from obstruction / prone to damage or vulnerable to unsafe conditions.
- If any unsafe practices are observed, they should be politely communicated to the customer.
- Follow dos and don'ts during the storage and handling of LPG cylinders.
- Get the customer feedback, record the same and convey the same to the showroom staff.
- Understand customer's need for service quality requirements.

Career Path of LPG Delivery Personnel

An individual may progress from LPG Delivery Personnel to the Supervisor level.



Fig. 1.4.2. Career Path for LPG Delivery Personnel

1.4.3 Personal Attributes of an LPG Delivery Personnel

In addition to the above, LPG Delivery Personnel should :

- be honest, reliable and responsible
- be well-organised and plan assigned tasks
- be courteous while communicating with customers
- maintain mental and physical fitness to perform at work

- have an eye for detail
- be able to read and write
- be a good listener
- maintain personal health and hygiene
- stay alert and observant to notice potential hazards in and around the storage area and customer premises
- solve problems with an analytical mind-set
- always wear proper uniform while visiting the customer

Exercise



1. What are your expectations from this training programme?

2. What are the three main sections of the hydrocarbon sector?

3. List the roles and responsibilities of an LPG Delivery Personnel.

Hands-on practice sessions will be conducted at the LPG Showroom/Distributors/Godown.



2. Deliver LPG Cylinders to Consumers

Unit 2.1 - About LPG Cylinders

Unit 2.2 - Pre-Delivery Activities

Unit 2.3 - Delivery Activities

Unit 2.4 - Post-Delivery Activities



Key Learning Outcomes

At the end of this unit, you will be able to:

1. State the properties of LPG
2. List the characteristics of LPG
3. Describe how LPG is filled in cylinders
4. Explain the use of LPG
5. Describe the pre-delivery activities at the distributor's showroom/godown
6. Identify the required tools and equipment required for pre-delivery activities
7. Describe the pre-delivery activities at the customer premises
8. Describe the delivery activities at the customer premises
9. Explain the procedure to replace a cylinder
10. Explain the procedure for a new domestic LPG connection
11. Describe the post-delivery activities performed at the customer premises
12. State the procedure for billing

UNIT 2.1: About LPG Cylinders

Unit Objectives



At the end of this unit, you will be able to:

1. State the properties of LPG
2. List the characteristics of LPG
3. Describe how LPG is filled in cylinders
4. Explain the use of LPG

2.1.1 What is LPG?

Liquefied Petroleum Gas (LPG) is a combination of hydrocarbon gases such as propane and butane. Though LPG is in gaseous state at normal temperature, it becomes a liquid with the application of higher pressure. This property allows for its use as a fuel.

LPG is sold in India as per the specifications of IS 4576, which is a standard specified by the Indian Government. LPG is produced at refineries during processing of crude or is extracted from natural gas.

LPG is the most convenient form of fuel in comparison to similar category of gaseous fuel like Compressed Natural Gas (CNG), Liquefied Natural Gas (LNG) due to its basic inherent properties. LPG is used as a domestic fuel in kitchens. It is also gaining popularity in industries for a wide variety of its uses. LPG is a pure and clean source of energy.

LPG provides even and controllable heat, and is an ideal source of heat and power for several industrial uses. As LPG is a colourless and odourless gas, it cannot be detected. Therefore, Ethyl Mercaptan is a liquid chemical added to LPG to provide odour for detection during LPG leakage.

2.1.2 Characteristics and Properties of LPG

LPG mainly consists of one or more of the following hydrocarbons:

- Propane (C_3H_8)
- Propylene (C_3H_6)
- n-butane (C_4H_{10})
- Iso-butane (C_4H_{10})
- Butylene (C_4H_8)

Small quantities of one or more of the following hydrocarbons may also be present:

- Ethane (C_2H_6)
- Ethylene (C_2H_4)
- Pentane (C_5H_{12})
- Pentene (C_5H_{10})

The required specifications and composition of the hydrocarbons for LPG sold in India is specified in Indian Standards IS 4576 - Liquefied Petroleum Gases. This standard prescribes the requirements and methods of sampling and test for all types of LPG commercially marked for household, commercial, industrial applications and pipeline transmission excluding automotive use.

2.1.2.1 Properties of LPG

Flammable

LPG forms a flammable mixture with air in the range of 2% to 10%.

It can, therefore, lead to a fire or an explosion hazard if stored or used incorrectly.

High Density

LPG is approximately twice as heavy as air when in gas form.

It normally settles down at ground level or low lying places.

Colourless

LPG is colourless, both in liquid and vapour phase.



Rapid Vapourisation

LPG, in liquid form, when released from a container or a cylinder vapourises immediately and expands 270 times which can lead to an explosion.

Hence a vapour space of approximately 15% is left in the LPG cylinder.

Odourless

LPG in general is odourless and cannot be detected by human senses.

Hence an odourising substance - Ethyl Mercaptan is added to LPG to provide odour for detection during leaks.

Fig. 2.1.1. Properties of LPG

Boiling Point:

The temperature at which the vapour pressure of a liquid becomes equal to the external pressure is called boiling point. The normal boiling point is the temperature at which the vapour pressure reaches 760mm of mercury or 1 atmosphere.

Hydrocarbon Gas	Boiling Point
Propane	- 42°C
Butane	- 20°C
LPG	sub-zero

2.1.3 How is LPG Filled in Cylinders?

LPG cylinders are produced as per Bureau of Indian Standards (BIS) 3196 by manufacturers approved by the Chief Controller of Explosives, Nagpur (CCOE). These manufacturers have a BIS license. Every new LPG cylinder is checked at various manufacturing stages and marked by BIS after various tests carried out as per the BIS codes and Gas Cylinder Rules, 2004. Thereafter, each LPG cylinder is checked at the LPG bottling Plants. Only the LPG cylinders which meet the standards, as specified in the Gas Cylinder Rules, are filled, checked and sent to the distributors for delivery to the customers.

Procedure of filling LPG in cylinders:

1. Empty cylinders received in the bottling Plant for filling are initially checked for any damage or repair.
2. Once the cylinder passes this stage, cylinders are washed and dried to remove dirt and loose particles. Washing is done in capped condition to avoid damage to valves.

3. The dried cylinders are then sent for purging. Purging removes unwanted gas or liquid from the cylinder.
4. Purging is done for new cylinders, hot repaired cylinders and retested cylinders. Air is removed from the cylinders up to 0.35 kg/cm² of vacuum.
5. Cylinders are then transferred to a carousel for filling after punching the tare weight and cylinder type.
6. The filling process is automated. On filling up the desired weight, the filling gun gets disconnected.
7. Filled Cylinders undergo a weight check to ensure the cylinders are filled with the correct quantity.

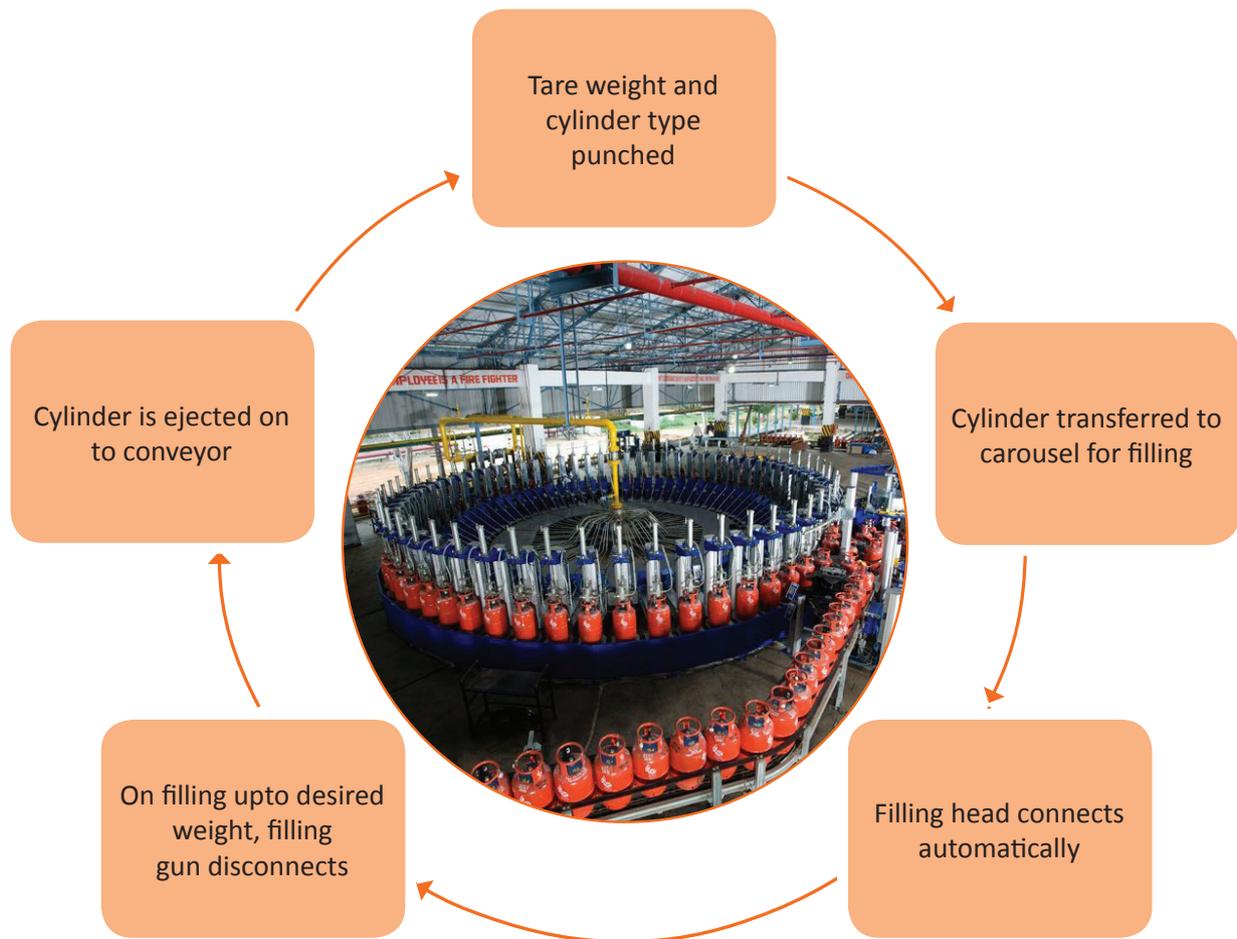


Fig. 2.1.2. Procedure of filling LPG in cylinders

2.1.4 Uses of LPG

The uses of LPG as a fuel are as follows:

Household

It is used for cooking and heating water at home.



Fig. 2.1.3. LPG use at home for cooking

Industrial

It is used for heat treatment in industries such as metal cutting and forging, etc. Other areas of application include construction, textile, paper, ceramics, etc.



Fig. 2.1.5. LPG use at construction site

Vehicles

It can be used to power vehicles such as cars, vans, etc.



Fig. 2.1.4. LPG use in vehicle

Commercial

It is used for cooking in commercial spaces such as hotels and restaurants. It is also used for heating water, lighting, and air conditioning. Other areas of application include agriculture, horticulture, etc.



Fig. 2.1.6. LPG use in restaurants

2.1.5 Types of LPG Cylinders

LPG cylinders are sold and used in India in various sizes and capacities.



Fig. 2.1.7. LPG cylinders sizes and capacities

There are two types of material used to produce cylinders. They are as follows:

Steel Cylinders

Steel cylinders are considered traditional as steel has been used since the inception of LPG storage. They are prone to corrosion.



Fig. 2.1.8. Steel Cylinder

Composite Cylinders

Composite cylinders are a new generation of cylinders and have come into use in recent times. They are lightweight, non-explosive, and non-corrosive. Composites are costlier than steel.



Fig. 2.1.9. Composite Cylinder

2.1.5.1 Parts of a Cylinder

The body of LPG cylinder can be divided into three main parts, namely the neck portion called collar shroud, the main body (pressure part) and the foot ring.

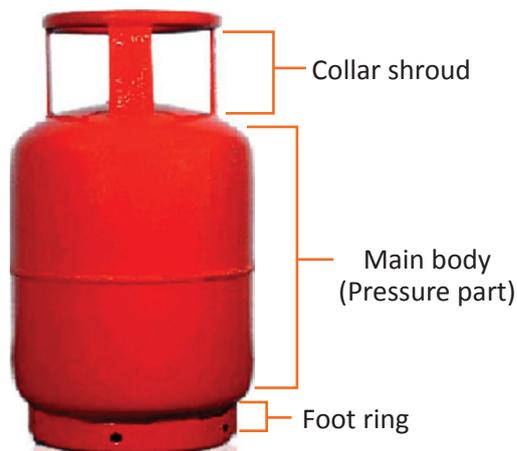


Fig. 2.1.10. Parts of a cylinder

2.1.6 LPG Supply Chain

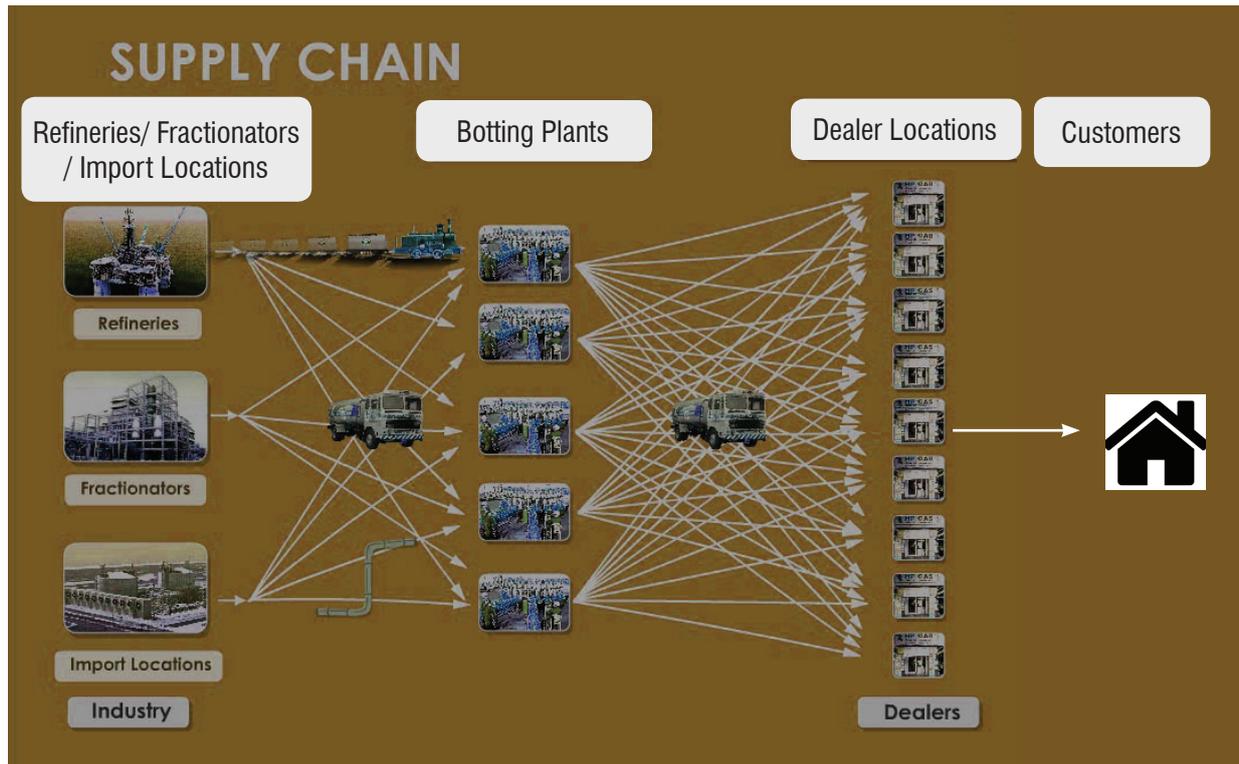


Fig. 2.1.11. LPG supply chain

LPG Distributors:

LPG distributorships are appointed by Public Sector Oil Marketing Companies (OMCs) and are governed by the terms and conditions of the agreement entered into between the OMCs and the Distributors. The LPG distributors are responsible to sell a product of the correct quality and quantity and provide excellent customer service.

Domestic Customer:

The customers who used LPG at home.

Organisation chart:

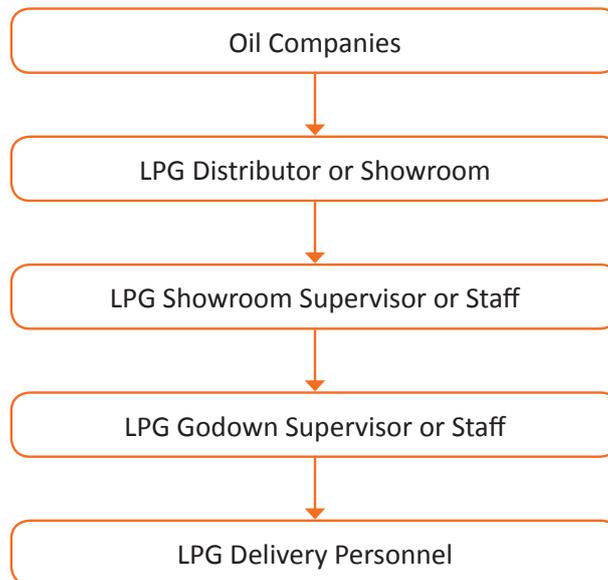


Fig. 2.1.12. Organisation chart

UNIT 2.2: Pre-Delivery Activities

Unit Objectives



At the end of this unit, you will be able to:

1. Describe the pre-delivery activities at the distributor's showroom/godown
2. Identify the required tools and equipment required for pre-delivery activities
3. Describe the pre-delivery activities at the customer premises

2.2.1 Pre-Delivery Activities

The LPG Delivery Personnel is responsible for transporting filled LPG cylinders from the distributor's showroom or godown to the customer premises. He is also responsible for pre-delivery checks at the showroom or godown. While delivering the filled LPG cylinder to the customer, the LPG Delivery Personnel needs to perform the following pre-delivery activities.

- He must first visit the LPG distributor's showroom or godown to collect the filled LPG cylinders as per the day's schedule and plan of delivery.
- The cylinders are collected from the LPG distributor's showroom or godown, after carrying out the following pre-checks:
 - Check the tare weight of the cylinder, for example 15.7 kg.
 - Ensure that the cylinder is properly sealed.
 - Check the due date for testing on the cylinder.

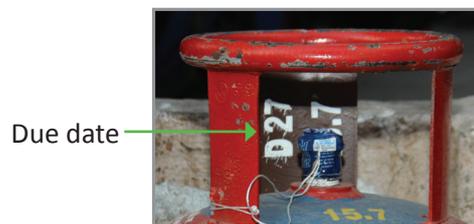


Fig. 2.2.1. Due date

- Ensure that the self-closing (SC) valve is properly protected by the valve protection (VP) ring.



Fig. 2.2.2. Cylinder inspection

- The LPG Delivery Personnel should carry a complete set of tools (preferably in a bag).



Fig 2.2.3 Tool kit

- The LPG Delivery Personnel needs to also carry the printed cash memos and other delivery documents with digital payment devices (if any) before the delivery vehicle is ready.
- The digital payment devices may include point of sale (POS) machines or mobile devices.

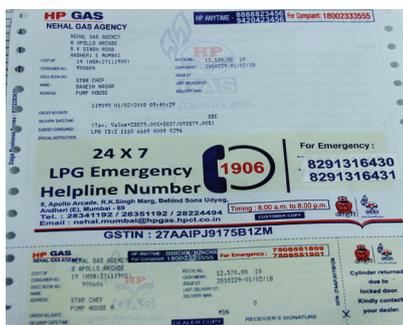


Fig 2.2.4 Cash memo



Fig 2.2.5 Digital payment devices

- Before delivery, the LPG Delivery Personnel should check and ensure that the delivery vehicle is ready.
 - The vehicle should be properly marked to show that it is carrying LPG cylinders.
 - The filled cylinders should be stacked in the vertical position in the vehicle.



Fig 2.2.6 LPG godown



Fig 2.2.7 LPG cylinder delivery vehicle



Fig 2.2.8 Loading LPG cylinders in vehicle

- If the house is found locked, the tear-off slip is to be stuck or displayed with 'house locked' intimation at the main door of the customer.
- Update the gas mobile application with refill returns. The valid reason for the returns should also be updated.

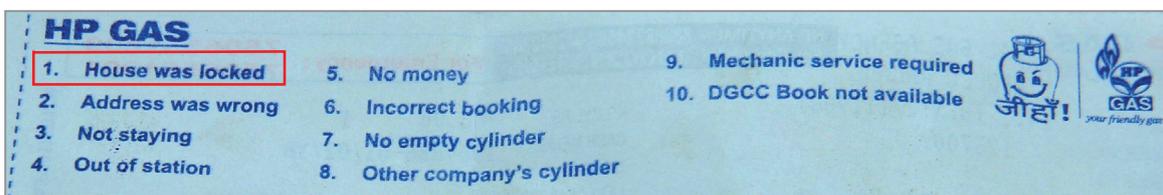


Fig 2.2.9 House lock intimation

2.2.2 Tools and Equipment Used in Delivery of LPG Cylinders

The LPG Delivery Personnel needs the following tools and equipment for installing or replacing LPG cylinders at the customer premises. The tool kit should comprise of:

- 10 numbers of 'O' rings;
- 5 numbers of safety cap along with nylon thread;
- 1 portable fire extinguisher;
- 1.5 meters of flexible suraksha hose;
- Proper equipment to fix or remove the 'O' ring;
- Proper equipment to check leakage from valve pin;
- 1 portable weighing machine.

'O' ring

It is installed in the cylinder. It is used to protect the self-closing valve pin.



Fig. 2.2.10. 'O' ring

Safety cap along with nylon thread

The safety cap is used to cover the valve of the cylinder which is not in use.



Fig. 2.2.11. Safety cap

Portable weighing machine

It is used to find the correct weight of the LPG cylinder.



Fig. 2.2.12. Portable weighing machine

Portable fire extinguisher

It is used in case of a fire emergency to extinguish the fire.



Fig. 2.2.13. Portable fire extinguisher

Leak detectors

They are used to detect leakage of gas.



Fig. 2.2.14. Leak detectors

Suraksha hose

It helps to supply LPG from the cylinder to the gas stove.



Fig. 2.2.15. Suraksha hose

Cash memo

It is an invoice for the customer. It includes the customer's address and other details.

An LPG delivery person is supposed to use this to identify the right customer.

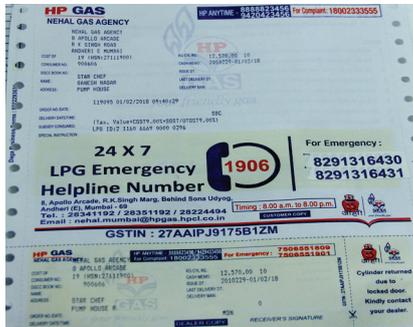


Fig 2.2.16 Cash memo

LPG cylinder

It is used for storing LPG under pressure.



Fig 2.2.17 LPG cylinders

UNIT 2.3: Delivery Activities

Unit Objectives

At the end of this unit, you will be able to:

1. Describe the delivery activities at the customer premises
2. Explain the procedure to replace a cylinder
3. Explain the procedure for a new domestic LPG connection

2.3.1 Deliver and Replace LPG Cylinder at Customer Premises

LPG Delivery Personnel must perform the following pre delivery checks (PDC) before replacing the cylinders in the customer's kitchen:

- Ensure that the refill cylinder is being delivered to the right customer.
- Greet the customer.



Fig 2.3.1 Verify the correct address



Fig 2.3.2 Greet the customer

- Ensure that the cylinder is carried to the customer's house with minimum noise.
- LPG Delivery Personnel must check the weight of the cylinder in the presence of the customer.



Fig 2.3.3 Show the weight of the filled cylinder

- If the cylinder is not of the desired weight, the same should be kept aside with a tag indicating it has to be returned to the distributor's showroom or godown.
- Ask the customer to check the seal on the cylinder.
- Open the seal and remove the safety cap in the presence of the customer.



Fig 2.3.4 Intact seal of the cylinder



Fig 2.3.5 Open the safety cap

- Before fixing the pressure regulator, check if there is any leakage in the valve using the leak detector.
- In case of any leakage, do not connect or install cylinder. Mark the cylinder as faulty and send it back to the showroom or godown.

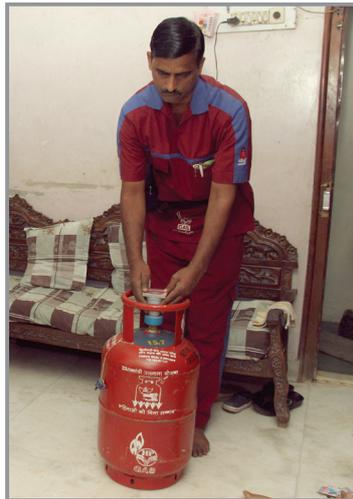


Fig 2.3.6 Check the LPG leakage

Replace a filled LPG cylinder

- Ensure that there are no other flammable items (kerosene stove, open fire *chullas*, lamp and heaters) in the kitchen.



Fig 2.3.7 Kerosene stove and lamp

- Switch OFF the knob of the gas stove or hotplate.
- Switch OFF the pressure regulator of the used cylinder .
- Disconnect the used cylinder and replace it with a new filled cylinder.
- Connect the regulator to the cylinder.
- Ensure that the pressure regulator fits the cylinder properly.



Fig 2.3.8 Fit the pressure regulator

- Switch ON the pressure regulator knob.
- Demonstrate the soundness of the cylinder by testing the connection.



Fig 2.3.9 Switch ON the pressure regulator



Fig 2.3.10 Check the cylinder connection

2.3.2 Installation Procedure for a New Connection

It is the responsibility of the LPG Delivery Personnel to install LPG cylinders for new connections. The customer must not install or connect the new connection on their own.

The new connection or installation of cylinders is similar to replacing refilled cylinders. The LPG Delivery Personnel needs to follow the standard operating procedure (SOP) for the installation of a new connection.

- While installation of new connection, he should ensure that there are no naked flames from kerosene stoves, heaters or any potential heat sources existing in the kitchen.
- He should perform the pre-delivery checks as follows:
 - Remove the safety cap by pulling the cord and lifting the cap off the valve.
 - Using a leak detector to check if there is any leakage of gas from the valve or 'O' ring.
 - In case the cylinder is faulty, put the safety cap on the cylinder valve and keep the cylinder aside.

- Install the gas stove or hot plate if the new connection comes along with the option.
 - Check the ISI mark on the gas stove or hot plate.
 - Open the new gas stove or hot plate packaging in the presence of the customer.
 - Check for any visual damages before assembling the gas stove or hot plate.
 - Show the warranty certificate to the customer.
 - Check if the customer requires to change the position of the nozzle inlet and accordingly reverse the fittings.
 - Assemble the gas stove or the hot plate by fixing the knob, leg stands and other items.
 - Once the gas stove is assembled, check for any loose fittings and tighten them properly.



Fig 2.3.11 ISI mark

- Inform the customer that the hot plate should always be placed on a platform (made of non-flammable material) above the cylinder level.
- Check the suraksha hose and show the validity and other markings of the suraksha hose to the customer. Record the validity of the hose in the Domestic Gas Consumer Card (DGCC) book.
- Attach one end of the suraksha hose to the gas stove or hotplate and the other end to the pressure regulator.
- Ensure that the suraksha hose does not get damaged, turned or twisted while fixing.
- The LPG cylinder should be placed in an upright/vertical position at the ground level.
- Ensure that the LPG cylinder should be placed in a well ventilated area.



Fig 2.3.12 Ideal installation

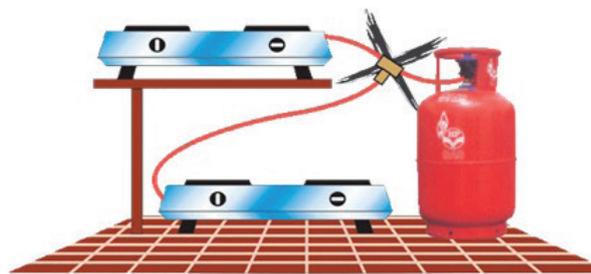


Fig 2.3.13 In-correct installation

Connect the pressure regulator to the self-closing valve of the cylinder

- Ensure the knob of the regulator is in the 'OFF' position while connecting.
- Hold the regulator and pull the bush up.
- Place the regulator vertically on the valve, press it down gently and rotate.
- Release the bush. You will hear a click sound if the regulator is fixed properly. The pressure regulator is in the locked position.
- Now, turn on the switch knob of the pressure regulator in the anti-clockwise direction. This will open the valve of the LPG cylinder and allow the gas to pass through the suraksha hose to the gas stove.



Fig. 2.3.14. Fit the pressure regulator on cylinder valve

- Demonstrate the soundness of cylinder by testing the connection. Hold a lighted matchstick near the gas stove burner head. Turn the knob of the gas stove burner to ON position. The flame from the burner is ignited.
- Educate the customer regarding safety precautions while connecting or disconnecting the cylinder for the next use.
- Ask the customer to use emergency contact numbers in case of any LPG leakages emergency.



Fig. 2.3.15. Emergency helpline number

UNIT 2.4: Post-Delivery Activities

Unit Objectives

At the end of this unit, you will be able to:

1. Describe the post-delivery activities performed at the customer premises
2. State the procedure for billing

2.4.1 Post-Delivery Activities

After installing or refilling the LPG cylinder at the customer premises, LPG Delivery Personnel must perform the following post-delivery activities:

Billing Procedure

Ask the customer about the mode of transaction and present the cash memo to the customer.

- Cash Transaction
 - Present the cash memo to the customer.
 - Collect the exact amount from the customer as printed on the cash memo.
 - Update the cylinder delivery details in the customer's DGCC book.
 - Obtain the customer's signature on the counter foil.
 - Return the counter foil at the distributor's showroom.
- Online Transaction
 - Use the mobile application for online payment.
 - Check for the authenticity of the transaction with the OTP (one time password).
 - Record the customer's payment in the mobile application.
 - Advise the customer to use the online mode for booking a cylinder.



Fig 2.4.1 Cash Transaction

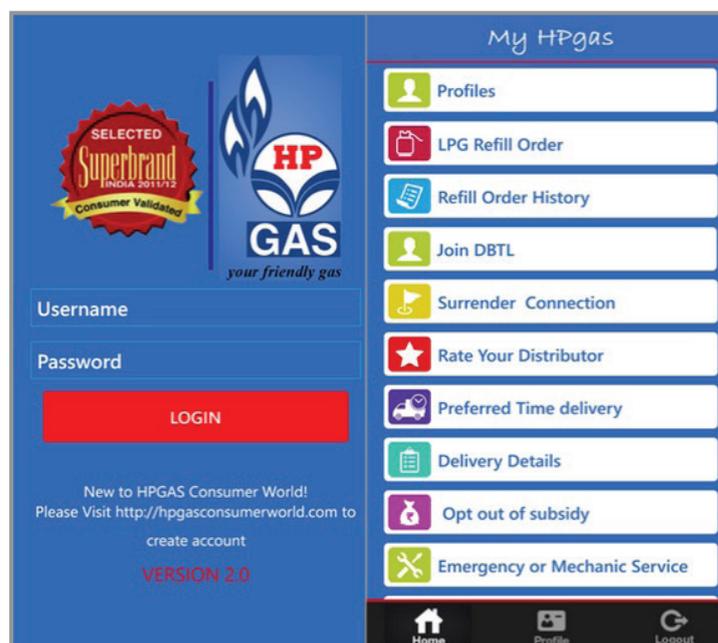


Fig 2.4.2 e - Transaction

LPG Schemes

- Advise the customer for mandatory inspection of LPG installation once in 2 years by authorised personnel only.
- Inform the customer about the prevalent schemes, such as 'Ujwala', 'Give-it-Up'.
- In case the customer is using single cylinder, suggest the customer to apply for a second cylinder as a backup.
- Inform the customer about the use of the surksha hose which is safe and has a five year warranty.



Fig 2.4.3 Ujwala scheme

Educate the customer regarding safety precautions

- In case of LPG leakage, advise the customer to switch OFF the regulator and open the windows and doors immediately.
- In case of LPG leakage, advise the customer not to switch ON/OFF any electrical equipment or appliances as it may cause a spark.
- Ask the customer to keep the regulator switch in the OFF position when the cylinder is not in use.
- Ask the customer to always cover the valve of the cylinder with the safety cap for the used cylinder.



Fig 2.4.4 Safety measures

- Advise the customer to not hand over the empty or faulty cylinder to any unauthorised personnel.

Customer feedback

- Ask for a feedback from the customer, which has to be promptly conveyed to the showroom staff.

Educate the Customer regarding Conservation of Fuel

The Indian government is promoting the conservation of LPG (cooking fuel). LPG is a clean fuel and its use will improve the lifestyle of poor households. However, the country is importing large amounts of the fuel to meet the requirements of its citizens. This is where fuel conservation plays a crucial role. The following initiative outlines the need for fuel conservation:

Shri. Narendra Modi
Hon'ble Prime Minister, India

**The less you burn,
The more you earn.**

Happy Cooking!

PCRA
Petroleum Conservation Research Association
Ministry of Petroleum & Natural Gas, Govt. of India

SAVE
ENVIRONMENT · FUEL · MONEY

We are the lucky ones who get to use LPG in our kitchens.

In our country there are still more than 8 crore households who have to rely on dirty fuels like firewood, coal, dung – cakes etc. as primary source of cooking. These fuels cause indoor air pollution resulting in smoke related acute and chronic respiratory and cardio-vascular illnesses amongst women and young children. About 1.3 million people—mostly women and children—die prematurely every year because of exposure to indoor pollution from bio-mass.

To eliminate these potential health hazards, the Pradhan Mantri Ujjwala Yojana was launched on 1st May 2016 from Ballia in Uttar Pradesh, with a stated aim of providing LPG connections to Below Poverty Line households in the country. The scheme is aimed at replacing the unclean cooking fuels mostly used in rural India with clean and more efficient LPG.

As it is, our country is LPG deficit. As a result, the country had to import 8.8 MMT of LPG at a staggering Rs. 25,840 crs. during 2015-16, almost 40 % of its demand, thereby causing a heavy drain on the economy. This makes the conservation of LPG more relevant so that more and more poor and deprived households are given access to clean fuel and thus improve their quality of life.

Ministry of Petroleum & Natural Gas

PCRA
Petroleum Conservation Research Association

PCRA, Sanrakshan Bhavan, 10 - Bhikaiji Cama Place, New Delhi- 110 066
Phone: 91-11-26198856 | Fax: 91-11-26109668 | Email : pcra@pcra.org

Follow PCRA India At: Visit Us At: www.pcra.org

Fig 2.4.5 PCRA initiative for conservation of LPG

As an LPG Delivery Personnel, you can educate the customer on fuel conservation. The following tips have to be communicated to the customer:

How Can You

Conserve Fuel While Cooking

Happy Cooking!

<p>1 Switch to star labeled/ISI mark Domestic LPG stoves </p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> ✓ </div> <div style="text-align: center;"> <p>NON ISI ✗</p> ✗ </div> </div> <p>2 Use pressure cooker to cook faster and save fuel </p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> ✓ </div> <div style="text-align: center;"> ✗ </div> </div> <p>3 Light the stove only after assembling all cooking items </p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> ✓ </div> <div style="text-align: center;"> ✗ </div> </div> <p>4 Use optimum quantity of water </p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> ✓ </div> <div style="text-align: center;"> ✗ </div> </div> <p>5 Reduce the flame once boiling starts </p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> ✓ </div> <div style="text-align: center;"> ✗ </div> </div> <p>6 Cereals should be soaked in water before cooking </p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> ✓ </div> <div style="text-align: center;"> ✗ </div> </div>	<p>7 Use only broad based vessels </p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> ✓ </div> <div style="text-align: center;"> ✗ </div> </div> <p>8 Place a lid on an open vessel before cooking </p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> ✓ </div> <div style="text-align: center;"> ✗ </div> </div> <p>9 Small burner on gas stove is more efficient </p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> ✓ </div> <div style="text-align: center;"> ✗ </div> </div> <p>10 A bright steady flame means efficient cooking </p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> ✓ </div> <div style="text-align: center;"> ✗ </div> </div> <p>11 Clean stove burner at regular intervals </p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> ✓ </div> <div style="text-align: center;"> ✗ </div> </div> <p>12 Do not keep food items straight from the refrigerator on the gas burner </p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> ✓ </div> <div style="text-align: center;"> ✗ </div> </div>
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Fig 2.4.6 PCRA initiative for conservation of LPG

Exercise



1. Read the questions and tick the correct option.

- a. The two types of material used to produce cylinders are _____.
 - i. Steel and Composite
 - ii. Steel and Iron
 - iii. Composite and Non-Composite
 - iv. Composite and Iron
- b. LPG is a combination of hydrocarbon gases, such as _____.
 - i. methane and ethane
 - ii. propane and butane
 - iii. propane and ethane
 - iv. butane and methane
- c. Which of the following chemical liquid is added to LPG to provide odour for detecting leakage?
 - i. Ethyl Mercaptan
 - ii. Methyl Mercaptan
 - iii. Sulphuric acid
 - iv. Methane
- d. Before fixing the LPG cylinder to the gas stove, it has to be tested using _____.
 - i. leak detectors
 - ii. pressure regulators
 - iii. wrenches
 - iv. match stick or lighter
- e. This is a printed invoice which includes the customer's address and other details.
 - i. Customer's pass book
 - ii. Cash memo
 - iii. Domestic Gas Customer Card
 - iv. Customer register
- f. The cylinder should be covered with the _____ when it is not in use.
 - i. Safety cap
 - ii. Surkasha hose
 - iii. 'O' ring
 - iv. Pressure regulator

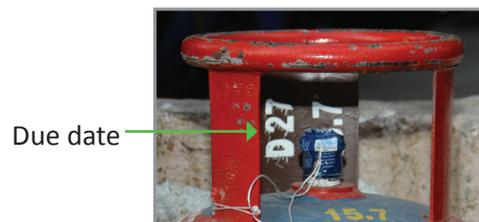
Hands-on practice sessions will be conducted at the LPG Showroom/Distributors/Godown.

Tips



- What is due date for testing?

The date on the cylinder mentions when the cylinder is due for testing. The due date is mentioned as an alphabet for indicating the quarter, followed by a two digit number for the year. For example: The date 'D 27' on the cylinder is the due date for testing during the period October to December of the year 2027.



Due date for Testing	
A	January, February, March
B	April, May, June
C	July, August, September
D	October, November, December



3. Maintain Safe and Secure Working Environment

Unit 3.1 - Precautionary Measures to Avoid Hazards

Unit 3.2 - Safety Standards and Procedures

Unit 3.3 - Emergency Procedures in case of fire



Key Learning Outcomes

At the end of this unit, you will be able to:

1. List the hazards that occur when dealing with LPG
2. Describe the safety measures taken while handling LPG cylinders
3. Explain the safety standards for using the LPG cylinder equipment
4. Describe the safety standards and procedures regarding the use of LPG cylinder
5. State the Fire Triangle
6. List the different types of fire
7. State the different types of fire extinguishers and their uses
8. Describe the DCP type fire extinguisher and its uses
9. Explain the procedure to use fire extinguisher

UNIT 3.1: Precautionary Measures to Avoid Hazards

Unit Objectives



At the end of this unit, you will be able to:

1. List the hazards that occur when dealing with LPG
2. Describe the safety measures taken while handling LPG cylinders

3.1.1 Hazards While Dealing with LPG

We have learned that LPG has wide domestic use. It is one of the most cost-effective and environment-friendly fuels. However, it may prove dangerous if not handled properly. Incorrect use and improper handling of LPG can result in explosions, fires, loss of property and most importantly, loss of lives.

Following are the causes that can lead to a physical and chemical hazard if the LPG cylinders are not handled properly:

- Fire or explosion from the uncontrolled release of LPG near ignition source
- LPG leakage from the LPG cylinder valve
- LPG cylinder falls on the ground
- Improper stacking of LPG cylinders in the vehicle
- Tampering the LPG equipment and attempting to clean it with a steel pin
- Replacing or installing cylinders by an unauthorised person
- LPG cylinder is placed in an unventilated area
- Use of oil or similar lubricant on the valves or other fittings of the cylinder
- By soaking the cooking appliance body in water, the grease/lubricant in the gas knob may get washed away, which might cause a gas leak.



Fig. 3.1.1. LPG hazards

3.1.2 Safety Measures While Dealing with LPG

LPG is commonly used in many households and industries as it is economical and eco-friendly in nature. However, improper use and handling of LPG can result in blasts, fire hazards, property damage and most vitally, fatal injuries or death. Therefore, LPG has to be used in accordance with certain safety measures.

3.1.2.1 Safety Measures for LPG Installation

The following measures cover general safety requirements to be observed during installation and operation of domestic appliances that use LPG in cylinders as a fuel:

- Check the weight of the cylinder and ensure it is at an optimum level.
- Check the contents on the other equipment such as pressure regulator, accurate self-closing valve, flexible suraksha hose, safety cap along with nylon thread, etc.
- Check the next due date of re-testing on the LPG cylinder. If it is past its due date, do not accept the cylinder.



Fig. 3.1.2. Cylinder inspection

- The LPG cylinder must always be installed or placed in an upright or vertical position and at the floor level.
- The LPG cylinder should be installed or placed in well-ventilated area so that a gas leak, if any, will be swept away by natural draft.
- Ensure that the LPG cylinder is placed or kept on its foot ring, which is welded at the bottom. Do not use any other kind of stand for the cylinder.

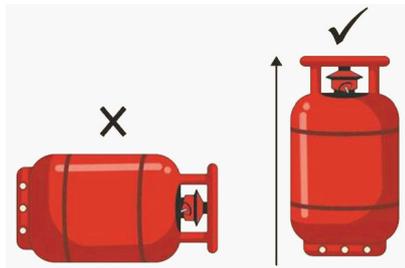


Fig. 3.1.3. Install in upright position



Fig. 3.1.4. Install cylinder in ventilated area

- The LPG cylinder contains highly flammable gases. Therefore, it should not be stored or placed near sources of ignition.
- Avoid using oil or grease while installing the LPG cylinder at the customer's premises.
- The LPG cylinder should be installed carefully so that the suraksha hose is not disturbed due to the movement of the operator.



Fig. 3.1.5. Warning symbol of highly flammable LPG gas



Fig. 3.1.6. Kerosene stove and lamp

- Cylinders should not be installed under conditions that will cause them to corrode.
- After installing the new connection or replacing the empty gas cylinder, check the joint between the suraksha hose and pressure regulator with soap solution against LPG leakage.



Fig. 3.1.7. Check LPG leakage with soap solution

3.1.2.2 Safety Measures for LPG Leakage, Emergency or Fire

The following safety measures can be followed to prevent a fire hazard that occurs due to LPG leakage:

- If you smell an LPG leak in the premises, switch OFF the gas stove or hot plate knob and turn off the regulator.
- Do not check the leakage with naked fire or lighted matchstick.
- Ensure that all flames are extinguished in case of a fire. Do not switch ON or OFF any electrical equipment to avoid any electric spark or other sources of fire or ignition.
- Open the door(s) and window(s) for ventilation.
- Do not attempt to repair or tamper with the cylinder's self-closing valve, pressure regulator, suraksha hose or burner.
- In case of an uncontrolled LPG leakage, safely detach the pressure regulator from the cylinder immediately. Fit the safety cap on the SC valve of the cylinder.
- Inform the LPG supplier for handling the emergency using the LPG toll free helpline number.

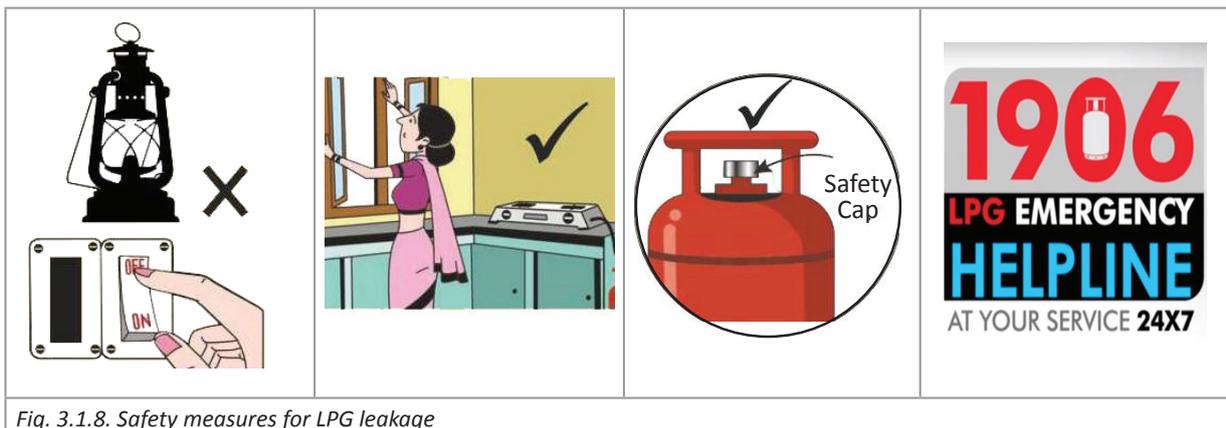


Fig. 3.1.8. Safety measures for LPG leakage

In case of LPG-induced fire:

- Use a wet cloth for extinguishing small fire.
- Turn off the regulator.
- Carry a portable fire extinguisher.

UNIT 3.2: Safety Standards and Procedures

Unit Objectives



At the end of this unit, you will be able to:

1. Explain the safety standards for using the LPG cylinder equipment
2. Describe the safety standards and procedures regarding the use of LPG cylinder

3.2.1. Standard LPG Cylinder Equipment

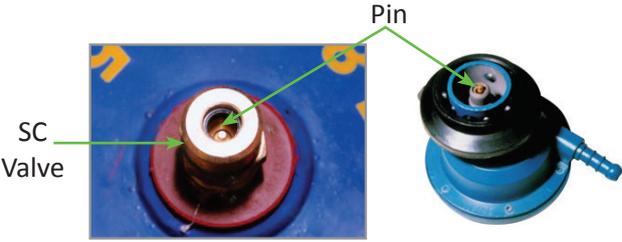
 <p>Fig. 3.2.1. Cylinder valve</p>	<p>Self-closing valve</p> <ul style="list-style-type: none"> • A device that regulates, directs or controls the flow of gas by opening, closing or partially obstructing various passageways • Ensures that the cylinder with a self-closing valve should always meet BIS standard
<p>Pressure regulator</p> <ul style="list-style-type: none"> • It helps to regulate the pressure of LPG in cylinders. • Uses a pressure regulator of appropriate type, which matches the cylinder self-closing valve • It should always meet ISI standard. 	 <p>Fig. 3.2.2. Pressure regulator</p>
 <p>Fig. 3.2.3. 'O' ring</p>	<p>'O' ring</p> <ul style="list-style-type: none"> • It is designed to be seated in a groove • It is compressed during assembly between two or more parts, creating a seal at the interface.
<p>Safety cap</p> <ul style="list-style-type: none"> • It helps to prevent dust from getting inside the valve. • It is used to prevent damage to the valve. • It also helps in preventing the spread of gas in case of a pin-leak. 	 <p>Fig. 3.2.4. Safety cap</p>



Fig. 3.2.5. Suraksha LPG hose

Suraksha LPG hose

- This leak-proof tube is a connector between the cylinder and the gas stove.
- It helps to supply LPG from the cylinder to the gas stove.
- Always use ISI marked suraksha hose.
- The Suraksha LPG hose is produced by manufacturers who are approved by LERC and BIS, according to IS - 9573: 1998 Type

Features of Suraksha LPG Hose

The hose is manufactured with strict quality control standards that cover raw materials, processing and the finished product. The key features are as follows:

- The hose is built using three layers, with the inner and outer layer made of high quality rubber. The middle layer is made using interwoven copper or brass coated high carbon steel wire mesh that cuts down any deficit in the rubber tube.
- The hose is crack-proof and cannot be harmed by rodents on account of the interwoven steel wire mesh.
- The outer layer of the hose can withstand damage from fire, weather and abrasion.
- Each hose contains details such as batch number, month/year of manufacture, and expiry date (month/year).
- The hoses are packed and sold in pouches which carry details such as manufacturer, MRP, length, instruction card and safety tips.

Gas Stove

- Today, gas stoves use two basic types of ignition sources i.e. standing pilot and electric.
- A stove with a standing pilot has a small, continuously burning gas flame under the cooktop.
- Green Label LPG stoves save fuel and possess a thermal efficiency of 68% and above. Other LPG stoves possess a thermal efficiency of 64%. Other advantages are as follows:
 - They are manufactured with strict quality control checks.
 - Authorities at BIS certify each stove and provide a serial number for each unit.
 - Consumers will receive a BIS certificate along with the stove, which will be packaged according to specifications.



Fig. 3.2.6. Gas stove

3.2.2 Safety Practices Regarding LPG Cylinder Usage

At the distributor's showroom or godown

The LPG Delivery Personnel needs to know the following safety practices that can be used at the distributor's showroom or godown:

- Always check the next due date of testing before delivering the LPG cylinder.
- Ensure that the cylinder does not have any defects.
- Use proper Personal Protective Equipment (PPE) when lifting the filled LPG cylinder. This may include safety shoes, etc.



Fig. 3.2.7. Safety shoes

Due date
for testing



Fig. 3.2.8. Due date for testing

- Do not roll the cylinder on the ground. Use proper handling device such as a cylinder trolley.
- Ensure that the cylinder is at its optimum weight by using a weighing machine.
- The cylinder should be stacked in an upright or vertical position in the LPG vehicle.
- Ensure that the LPG vehicle has at least one fire extinguisher for fire safety.



Fig. 3.2.9. LPG delivery vehicle



Fig. 3.2.10. Fire extinguisher

At the customer's premises

The LPG Delivery Personnel should be able to inform the customer about the following safety practices to be followed:

Safety Tips for Changing Cylinder

- Extinguish all the flames or sources of fire in the kitchen.
- Avoid switching ON or OFF any electric appliance.
- Keep the door(s) and window(s) open.
- Switch OFF the pressure regulator knob.

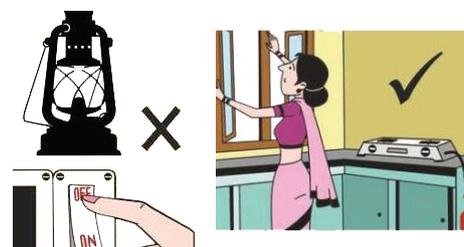


Fig. 3.2.11. Safety tips for changing cylinder

- Ensure you hear a click sound when you fix the regulator.



Fig. 3.2.12. Fit the pressure regulator on cylinder valve

Safety Tips to Light the LPG Burner

- Do not apply unnecessary force to turn the gas stove knob ON.
- Always light the matchstick before turning on the gas stove.
- Always turn OFF the stove knob when not in use.

Cleaning the Appliance

In addition to the other safety practices, an LPG Delivery Personnel should be able to inform the consumer on the following safety practices for cleaning the appliance:

- Switch the appliance taps and pressure regulator knob OFF and wait till the surface of the appliance is cool.
- Do not attempt to clean a hot surface with a wet cloth; the surface finish may crack.
- Clean the surface of the appliance with a dry cloth.
- Clean the surface with a moist cloth to remove stains from cooking.
- To clean the burner head of the stove or hot plate, remove it and dip it in a warm solution of soap and water and use a toothpick to clean the burner ports.
- Do not tamper with the gas equipment or attempt to clean it with a steel pin.
- Never soak the appliance body in water as the grease or lubricant in the gas tap may be washed away resulting in the possibility of gas leakage.

Safety Check for Suraksha Hose

- Ensure that there are no cracks on the suraksha hose.

3.2.2.1 Safety Tips While Dealing with Cylinders

- Keep the gas stove above the cylinder on a stable surface.
- Do not keep the gas stove on the floor for cooking purposes. The area used for cooking has to be elevated at a level above the cylinder.
- Always be present near the stove while it is ON.



Fig. 3.2.13. Safety tips for LPG cylinder

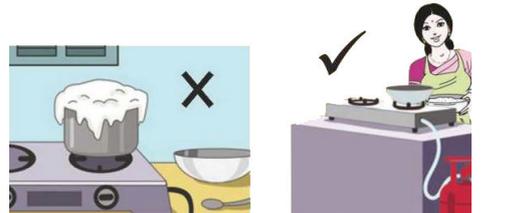
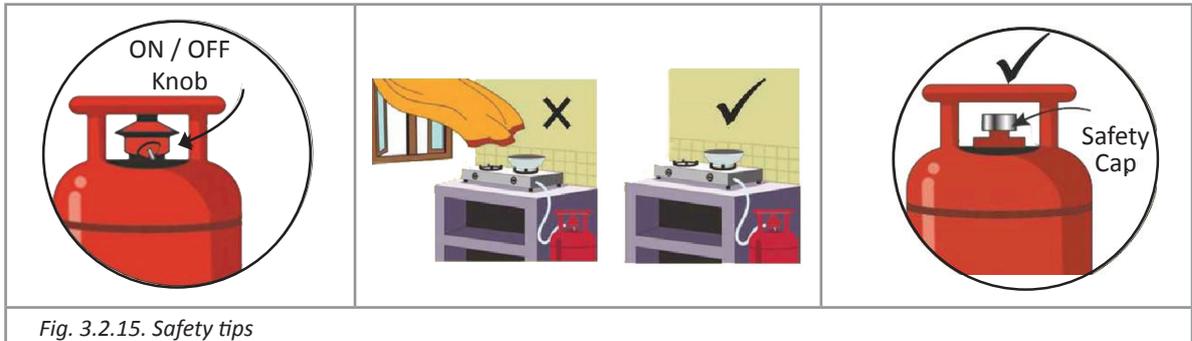


Fig. 3.2.14. Safety tips for LPG cylinder

- Keep the regulator switched OFF when the cylinder is not in use.

- Do not place the gas stove where the wind is strong.
- Always store the cylinder in a vertical position at a stable level in a ventilated area.
- Never keep the LPG cylinder in a closed cabinet.
- Never keep the LPG cylinder near source of ignition such as an induction cooker, lit lamp, etc.
- Turn the regulator knob OFF once you are done with cooking.
- Store the empty cylinders in a cool and airy spot.
- Ensure that the safety cap is placed on the valve of the cylinder.



- Keep the match stick lit/ lighter ready and then turn the knob ON.
- Change the suraksha hose after five years.
- Do not smoke near the cylinder or in the kitchen.
- Install an exhaust fan above the gas stove to dispense gas leaks.

UNIT 3.3: Emergency Procedures in Case of a Fire

Unit Objectives



At the end of this unit, you will be able to:

1. State the Fire Triangle
2. List the different types of fire
3. State the different types of fire extinguishers and their uses
4. Describe the DCP type fire extinguisher and its uses
5. Explain the procedure to use fire extinguisher

3.3.1. Fire Triangle

LPG is a highly flammable gas. Improper use and handling of LPG can cause a blast or any fire hazard that could harm both you and the customer.

To ensure you are prepared for any fires that may arise, always keep a fire extinguisher handy. Schedule routine fire extinguisher inspections to verify that they function properly.

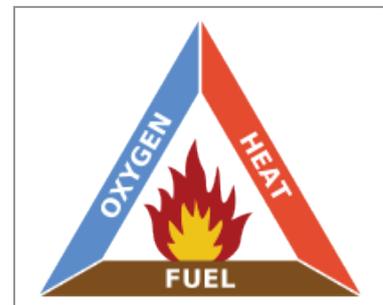


Fig. 3.3.1. Fire triangle

The Fire Triangle is a diagram used most often to explain the components needed to start a fire. The sides of the triangle show the necessary ingredients for a fire: heat, fuel and oxygen.

- Heat: The burning source
- Fuel: Solid, liquid, or gas that burns
- Oxygen: It supports the chemical process where fuel reacts with oxygen to produce fire.

If we take any one of these components away, the fire will get extinguished.

3.3.2. Types of Fire

Based on the materials involved, fires have been classified into 4 different types:

Fire Class Type	Description
Class A	Solids that are not metals – wood, paper, cloth, trash, plastics
Class B	Flammable liquids – petrol, oil, kerosene, alcohol, grease, acetone, solvents and paint
Class C	Flammable gas and Live Electrical Equipment— LPG, Natural Gas, Methane, etc. and Electrical Equipment – overloaded switchboards, faulty equipment and damaged wires
Class D	Metals—potassium, sodium, aluminium, magnesium

Note: Class B and C fire types are vital information for LPG Delivery Personnel, as they can happen at LPG godown, LPG showroom and customer premises.

Choosing the right extinguisher:

Choosing the right extinguisher can prevent property damage and save lives					
Types of Fire Extinguishers →		Water	Foam	CO ₂	Dry Chemical
Types of Fire ↓					
A	Class A: Paper, Wood, Plastic Fabric, Rubber, Trash				
B	Class B: Oil, Petrol, Some Paints and Solvents				
C	Class C: Electrical Equipment, Appliances, Computers				

Fig. 3.3.2. Types of fire and fire extinguisher

3.3.3 Types of Fire Extinguishers and their Uses

Different types of fire extinguishers are designed to fight different classes of fire. Each type has a label telling which type of fire it can extinguish. The five most common types of fire extinguishers are:

1. Sand Buckets
2. Water Spray
3. Mechanical Foam Type
4. Carbon dioxide (CO₂)
5. Dry Chemical Powder (DCP)

Types of Fire Extinguishers	Uses
	<ul style="list-style-type: none"> • These are used to extinguish Class B fires. • Sand is thrown on the fire. • Sand absorbs the fuel generating fire.

Fig. 3.3.3. Sand buckets

Types of Fire Extinguishers	Uses
 <p><i>Fig. 3.3.4. Water spray extinguisher</i></p>	<ul style="list-style-type: none"> • These are used to extinguish Class A fires. • The heat of vaporisation of water is much higher. • It reduces the volume of oxygen in the fire.
 <p><i>Fig. 3.3.5. Mechanical foam type</i></p>	<ul style="list-style-type: none"> • These are used to fight Class A and B fires. • Due to its fast spreading coverage action that takes over the fuel surface, it results in fast extinguishment.
 <p><i>Fig. 3.3.6. Carbon dioxide</i></p>	<ul style="list-style-type: none"> • These are used to fight Class B and C fires. • Carbon dioxide is a non-flammable gas that takes away the oxygen element of the fire. • Carbon dioxide is very cold as it comes out of the extinguisher, so it cools the fuel as well. • It is useful for offices and electrical fire.
 <p><i>Fig. 3.3.7. Dry Chemical Powder</i></p>	<ul style="list-style-type: none"> • These are designed for extinguishing Class A, B and C fires. • Dry chemical extinguishers put out fire by coating the fuel with a thin layer of dust. • It separates the fuel from the oxygen in the air.

Procedure to Use Fire Extinguisher

It is easy to remember how to use a fire extinguisher if you remember the **PASS** technique.

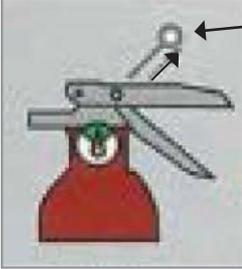
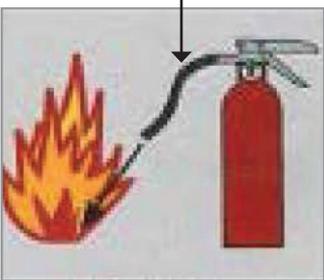
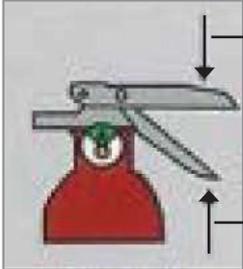
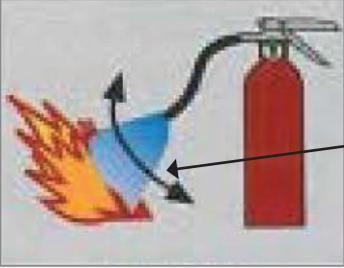
P - Pull	A - Aim	S - Squeeze	S – Sweep
<p>Step 1 – Pull: Pull the pin located at the top of the fire extinguisher. This will break the seal and unlock the fire extinguisher.</p>			
	<p>Step 2 – Aim: Aim low, pointing at the base of the fire. Do not aim in the opposite direction of air. Instead, aim from the direction of air. If this is not followed, there is a chance that person using the fire extinguisher can get hurt.</p>		
<p>Step 3 – Squeeze: Squeeze the handle to release the extinguishing substance to put out the fire.</p>			
	<p>Step 4 – Sweep: Start using the extinguisher from a safe distance away, and then slowly move forward. Using a sweeping motion, sweep the extinguisher from one side to another at the base of the fire until the fire is completely out. Once the fire is out, keep an eye on the area. If the fire re-ignites, repeat the steps 2, 3 and 4.</p>		

Fig. 3.3.8. Procedure to use fire extinguishers

Note:

- Maintain a safe distance (approximately 6 to 8 feet) while using a fire extinguisher.
- Ensure that you are standing in the same direction as the air flowing (if you stand in the opposite direction you might end up as the victim of fire).
- While aiming, point to the base of fire or root of fire ignited, because when you squeeze the extinguisher, it creates an foam surface on the fire, and stops one of the factors causing the fire.

Exercise

1. Select the correct safety measures that need to be followed when you smell LPG in air:

- Switch ON/OFF any electrical equipment
- Switch OFF the pressure regulator and open the windows and doors
- Repair or tamper with the cylinder
- Extinguish all flames or sources of fire
- Do not check the leakage with naked fire or lighted matchstick
- Safely detach the pressure regulator from the cylinder
- Never use a fire extinguisher in the kitchen
- Check the the connection of suraksha hose and pressure regulator with soap solution
- Use a LPG toll free emergency number and inform the LPG supplier

2. Read the questions and tick the correct option.

- The cylinders needs to be stacked in _____ in the LPG vehicle.
 - vertical position
 - horizontal position
 - diagonal position
 - inverted position
- Install or place the cylinder in proper a/an _____ area.
 - unventilated
 - ventilated
 - enclosed
 - airless
- Pull the regulator in a _____ direction and place the safety cap on the cylinder.
 - downward
 - upward
 - left
 - right
- Install a cylinder carefully so that the _____ is not disturbed due to the movement of the operator.
 - suraksha hose
 - pressure regulator
 - safety cap
 - self-closing valve
- The LPG cylinder is always placed on its _____ which is welded at the bottom.
 - shroud ring
 - foot ring
 - valve protected ring
 - top ring

3. Match the column

Column A		Column B	
a.	Class A	i	Metals- potassium, sodium, aluminium, magnesium
b.	Class B	ii	Flammable gas- LPG, Natural Gas, Methane
c.	Class C	iii	Flammable liquids- petrol, oil, kerosene, acetone etc.
d.	Class D	iv	Solids- wood, paper, cloth, trash

Hands-on practice sessions will be conducted at the LPG Showroom/Distributors/Godown.





4. Maintain Health and Hygiene

Unit 4.1 - Personal Hygiene Practices



Key Learning Outcomes

At the end of this unit, you will be able to:

1. State the habits to maintain personal health and hygiene
2. Explain the correct techniques of lifting and carrying a cylinder
3. Describe how to maintain dental hygiene
4. List the precautionary health measures

UNIT 4.1: Personal Hygiene Practices

Unit Objectives



At the end of this unit, you will be able to:

1. State the habits to maintain personal health and hygiene
2. Explain the correct techniques of lifting and carrying a cylinder
3. Describe how to maintain dental hygiene
4. List the precautionary health measures

4.1.1 Ways to Maintain Good Health

Very often, your performance and behaviour both at work and home depends on your health. An unhealthy person can easily fall ill due to improper diet, lack of hygiene and bad habits like smoking and drinking alcohol. It is, therefore, important to stay healthy. Following are the ways to maintain good health:

1. Maintain personal hygiene (cleanliness) at all times
2. Wash your hands or clean them using a hand wash or a sanitiser (a chemical gel that kills the germs present on the skin)
3. Have a balanced and healthy meal
4. Avoid junk food
5. Have a sound sleep of 6 to 8 hours daily
6. Exercise regularly to keep yourself fit
7. While on the job, do some jaw, shoulder, neck and back exercises to prevent any injuries
8. Stay away from pan masala, gutka, cigarettes, alcohol, etc. that will affect your health

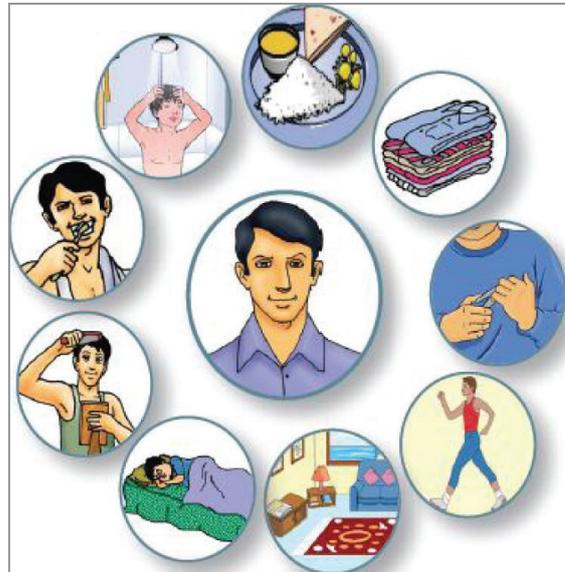


Fig. 4.1.1. Personal Hygiene

Physical Fitness

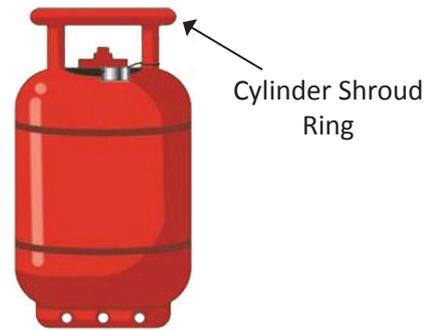
You have to be physically fit and strong to perform your daily activities at work. Following are the tips that can help you maintain physical fitness:

1. Eat well before leaving for work.
2. Do not skip any meals and eat at regular intervals.
3. Have a glass of milk daily.
4. Do regular physical exercises to make your body strong.
5. Do stretching exercises of hands, neck and shoulders before lifting any heavy objects.

4.1.2 Recommended Techniques for Lifting and Carrying Cylinders

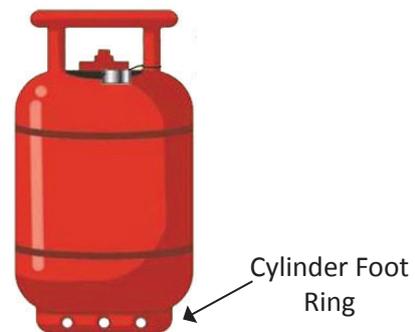
Lifting and carrying heavy cylinders with incorrect body posture can cause injuries such as back injury, shoulder injury, neck injury and hands and toes injury. Correct body posture and the right techniques can help prevent such injuries. Below are some recommended techniques to follow while performing these actions:

1. Stretching of hands, neck and back increases flexibility. So do the stretching exercises before lifting or carrying any heavy objects like gas cylinder.
2. Grip the object firmly before lifting it. Hold and grip the cylinder shroud ring and add the support of your forearms to lift it.
3. Do not keep your feet close to each other; keep a little distance between them while lifting the cylinder.
4. Bend your back and knees forward to lift the cylinder.



To carry the cylinder on your shoulder,

1. Push the cylinder sideways to an extent so that some portion of the base of cylinder foot ring is visible.
2. Grip the cylinder in such a way that your one hand is gripping the cylinder shroud and the other gripping the cylinder foot ring.
3. Lift the cylinder and place it slowly on your shoulder.



4.1.3 Personal Hygiene Practices

Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases. Hygiene is of utmost importance for everyone who wishes to be healthy. You have to maintain high standards of hygiene at all times. Remember, as LPG Delivery Personnel, you are representing your company and your personality will reflect the image of your company.

You must follow the following practices to maintain personal hygiene:

1. Bathe daily and shampoo your hair as often as necessary.
2. Do not spit at public places
3. Cover your nose and mouth while sneezing or coughing. Also, wash your hands immediately after sneezing.
4. Never dig your nose in public.
5. Trim your nails and keep them clean.
6. Wash your hands with soap and water before beginning work.
7. Wipe your hands with clean towel; never wipe your hands on your uniform.
8. Keep your uniform neat and tidy.
9. Wash your hands before and after meals.
10. Wash your hands with soap and water after visiting toilet.
11. When you are unwell, consult a doctor; avoid going to work if there are chances that your sickness may increase or the disease may spread.
12. Cover your wounds with a band-aid.

Personal Hygiene at a Glance

Body	Avoid body odour	<ul style="list-style-type: none"> • Take a bath daily. • Use a deodorant. 	
Mouth	Avoid bad breath	<ul style="list-style-type: none"> • Brush your teeth twice a day. • Do not smoke or drink alcohol or chew tobacco/gutka. • Use a mouth freshener. 	

Fig. 4.1.2. Personal Hygiene

4.1.4 Ways to Maintain Dental Hygiene

Good oral and dental hygiene can help prevent bad breath, tooth decay and gum disease and keep your teeth strong. Here are the ways to maintain dental hygiene:

1. Brush your teeth twice a day i.e. in the morning and at night.
2. Rinse your mouth well after each meal.
3. Do not drink alcohol and smoke cigarettes; do not chew tobacco or gutka.
4. Use a mouth freshener to prevent bad breath.
5. Visit a dentist in case of any dental related problems like cavities, gum diseases, bad breath, etc.



Fig. 4.1.3. Mouth freshener

4.1.5 Grooming

Wearing clean and tidy clothes and looking presentable is called grooming. Being well-groomed makes you feel confident. It not only helps to create a positive image of yourself but also of your company. Unclean or untidy people are not liked by anyone. Therefore, for a good impression, grooming is necessary.

What would customers think when they see you are well dressed and well-groomed?

- They will respect you
- They will perceive you are confident
- They will be comfortable to talk or interact with you
- They will be impressed by your overall appearance

To be well-groomed, an LPG Delivery Personnel needs to follow the practises listed below:

1. Always wear clean and well-ironed uniforms.
2. Wear your identity card at all times.
3. Keep hair short and well-combed.
4. Shave regularly.
5. Trim your nails and keep them clean.
6. Avoid wearing too many accessories and jewellery.
7. Wear proper footwear, shoes as part of inform.

4.1.6 Precautionary Health Measures

You need to be healthy and physically fit to perform various tasks at work place. Precautionary health measures need to be taken to prevent various diseases, injuries or any health related issues. There are certain precautionary health measures you need to follow while at work:

You must follow the following practices to maintain personal hygiene:

1. Inform and report on personal health issues related to injury and infectious diseases.
2. Use a tissue or a hand kerchief to cover your mouth while sneezing or coughing.
3. Turn away from people and food items while sneezing or coughing.
4. Wash or wipe your hands immediately after sneezing or coughing.
5. Undergo preventive health check-ups at regular intervals.
6. Take proper treatment from the doctor in case of illness and injuries.
7. Do stretching exercises involving your hands, neck and shoulders before lifting any heavy objects.
8. Have a general sense of hygiene and appreciation for cleanliness.

Exercise



1. Read the questions and tick the correct option

- a. Which one of these is a balanced and healthy meal?
 - i. Bread, sandwich, samosa, etc.
 - ii. Falooda, ice-creams, pastries etc
 - iii. Dal-rice with pickles
 - iv. Dal, rice, chapatti (roti), along with vegetables.
- b. To maintain dental hygiene, you should not chew tobacco or _____
 - i. chewing gum
 - ii. pan masala
 - iii. lollipops and cotton candies
 - iv. gutka
- c. Wearing clean and tidy clothes and looking presentable is called _____
 - i. hygiene
 - ii. organised
 - iii. well mannered
 - iv. grooming
- d. Why is there a need to take precautionary health measures?
 - i. To prevent diseases and accidents
 - ii. To prevent absenteeism and loss of job
 - iii. To increase sales of the business
 - iv. To prevent various diseases, injuries and health related issues
- e. When you are suffering from a contagious disease, you should not go to work because
 - i. There are chances that your sickness may increase or the disease may spread.
 - ii. There are chances that your boss will be happy and offer you better pay.
 - iii. There are chances that your colleagues will take care of you when you are at work.
 - iv. There are chances that you will get cured at work.

5. Assist in Upkeep and Maintenance of LPG Storage Area



Unit 5.1 - Role of an LPG Delivery Personnel in Upkeep and Maintenance of Storage Area

Unit 5.2 - Dos and Don'ts of Storage and Handling of LPG Cylinders



Key Learning Outcomes

At the end of this unit, you will be able to:

1. Explain the roles and responsibilities of an LPG Delivery Personnel in upkeep and maintenance of the godown
2. State the different markings printed on the LPG cylinders
3. List the dos and don'ts of LPG storage and handling
4. Describe the procedure to identify defective cylinders

UNIT 5.1: Role of LPG Delivery Personnel in Upkeep and Maintenance of the Godown

Unit Objectives



At the end of this unit, you will be able to:

1. Explain the role and responsibilities of the LPG Delivery Personnel in upkeep and maintenance of the godown
2. State the different markings printed on the LPG cylinders

5.1.1 Roles and Responsibilities of an LPG Delivery Personnel in Upkeep and Maintenance of the Godown

An LPG Delivery Personnel is a representative of the oil company. He is responsible for the delivery of the correct quality of LPG cylinder while providing excellent customer service. In the process, they also need to help in upkeep and maintenance of the LPG godown.

A delivery person needs to interact with the godown keeper or coordinator to verify the following delivery requisites as per the schedule:

- The upkeep and maintenance starts with safe handling of cylinders without causing damage and extends to proper stacking and storing.
- He should be able to identify, segregate and mark defective cylinders.
- He should be able to ensure timely collection of refills and return empty cylinders.
- He should be able to maintain proper account of cylinders collected and deposited.
- The LPG Delivery Personnel must ensure that the cylinder has the correct net weight and it is 100% ready for delivery to the customer premises.
- He needs to inspect and identify whether the cylinder is fit for delivery.
- He needs to check that necessary price tags are available on all commercial cylinders.

5.1.2 Marking on Cylinders

An LPG Delivery Personnel needs to know and check all the markings on the cylinders as part of the pre-delivery activities.

According to the Gas Cylinders Rules, 2004, all LPG cylinders should:

- be colour coded and marked with metal stamping on the shoulder. Stamping includes size, normal filling pressure, serial number, ownership, etc.
- have the name of the manufacturing company, its logo and the name of the owner.
- have a quality check mark on the foot ring of the cylinder.
- have the date due for testing on the shoulder ring.
- have the working pressure and test pressure marked on it.
- be marked with the proper tare weight. The tare weight should also include the weight of the valve fitted to the cylinder.



Fig. 5.1.1. Marking on Cylinder

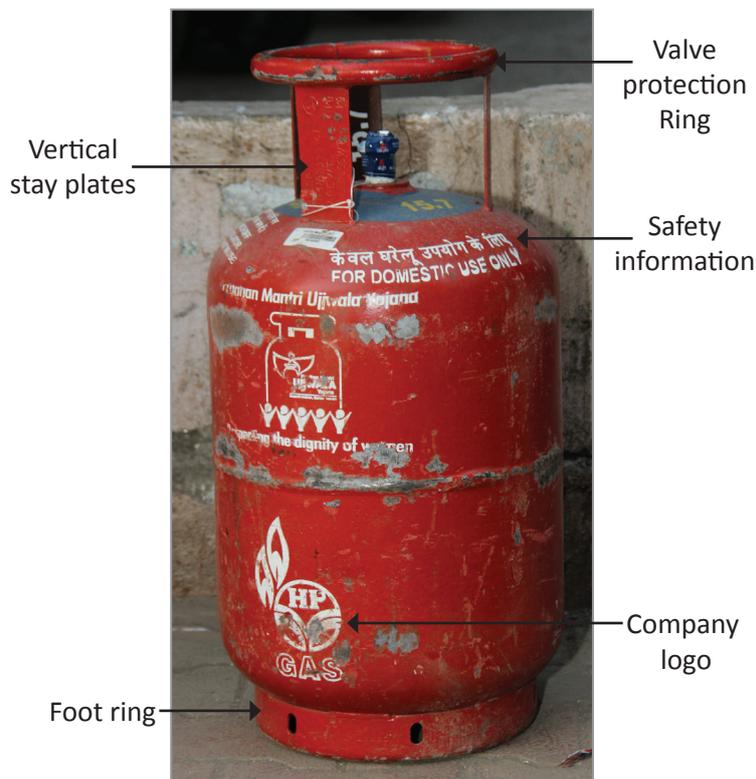


Fig. 5.1.2. Marking on cylinder

UNIT 5.2: Dos and Don'ts of Storage and Handling of LPG Cylinders

Unit Objectives

At the end of this unit, you will be able to:

1. List the dos and don'ts of LPG storage and handling
2. Describe the procedure to identify defective cylinders

5.2.1 Dos and Don'ts

It is important to store the LPG cylinders in a proper storage area, because unkept storage of the cylinder can cause a major accident.

The LPG Delivery Personnel needs to have knowledge on handling cylinders, storing cylinders, LPG delivery vehicles and related safety aspects.

Handling of Cylinders

- LPG cylinders should be handled or lifted using devices such as trolleys, cradles and conveyors.
- LPG cylinders should be handled carefully so that they do not fall one over the other as it may cause friction and result in static electricity.

Storage of Cylinders

- Separate areas should be marked for storing filled, empty and defective cylinders.
- Cylinders should be stored in a dry and well-ventilated area.
- Do not store LPG cylinders near boilers, open flames, steam pipes or any potential sources of heat.
- The LPG storage area or godown should be fire proof.
- Other types of cylinders containing flammable gases if stored need to be separated from LPG cylinders by an adequate distance or a suitable partition wall.
- In the storage area, ensure that all installed electrical meters, distribution boards, switches, and fuses installed are flame proof.
- Do not store cylinders under conditions which will cause them to corrode.
- The storage area should be at least 1 metre from a site boundary, building etc.
- Only LPG delivery vehicles should be allowed within 1 metre of the storage area.
- The storage area should have warning signs clearly displayed like "LPG / HIGHLY FLAMMABLE / NO SMOKING / NO NAKED LIGHTS" on a white background.



Fig. 5.2.1. Storage of cylinder



Fig. 5.2.2. LPG godown



Fig. 5.2.3. LPG godown

LPG Delivery Vehicle

- The delivery vehicle is used to transport LPG cylinders from the storage area to the registered customers.
- A suitable vehicle must be used to transport the cylinder from one place to another.
- Inspect the cylinders for any damage before loading them.
- Cylinders must be stored in an upright position at the rear end of the vehicle to prevent cylinder damage.
- Cylinders must be placed at the rear of the vehicle to provide proper ventilation in the event of any leak.
- Cylinders are to be protected from direct sunlight or excessive temperatures during transportation.
- Do not smoke in the vehicle while transporting LPG cylinders.
- Check the vehicle registration and update the schedule with:
 - Vehicle number
 - Types of cylinders
 - The time when the vehicle left the godown
 - The time when the vehicle reported back to the godown
- Ensure the vehicle driver follows road traffic and safety rules.
- Load and unload cylinders in the vehicle safely.
- Ensure the vehicle driver has a valid driving license.
- Ensure the vehicle has a valid pollution under check certificate



Fig. 5.2.4. LPG delivery vehicle

5.2.2 Identification of Spurious Cylinders

The cylinders which are not conforming to the design as per the LPG norms are spurious.

Spurious Cylinder Identification

- Examine the design of the LPG Cylinder.
- Examine the dimensions: height, diameter, markings as per the LPG design norm.
- Ensure that the valve protection ring is supported by three stay plates.
- Check the due date of testing on the stay plates.
- Examine whether the tare weight, net weight marked on the cylinder is as per the LPG design norm.
- Ensure that the two equal halves of the cylinder are welded evenly.
- Ensure that valves that are used are as per the design standard.

Exercise



1. Read the question. Tick on the correct answer.

- The cylinders which are not conforming to the design as per the LPG norm are _____.
 - spurious
 - authentic
 - accurate
 - defective
- The LPG cylinders need to be protected from _____ during transportation.
 - excessive temperature
 - moderate temperature
 - adequate temperature
 - suitable temperature



6. Core Generic Skills

Unit 6.1 - Reading and Writing Skills

Unit 6.2 - Communication Skills

Unit 6.3 - Plan and Organise Work

Unit 6.4 - Problem Solving Skills



Key Learning Outcomes

At the end of this unit, you will be able to:

1. State the importance of reading and writing skills for the job
2. State the scenarios where you need to apply your reading and writing skills
3. Develop listening and speaking skills
4. Communicate with your co-workers and customers effectively
5. Describe how to plan and organise
6. State the benefits of planning
7. State the benefits of organising
8. Explain what problem solving is
9. Solve your problems efficiently

UNIT 6.1: Reading and Writing Skills

Unit Objectives

At the end of this unit, you will be able to:

1. State the importance of reading and writing skills for the job
2. State the scenarios where you need to apply your reading and writing skills

6.1.1 Reading and Writing Skills

An LPG Delivery Personnel should be aware of the importance of safety and various safety symbols or measures while dealing with LPG. Additionally, helpline numbers like that of the ambulance, fire brigade, police, nearest hospital should be provided to the LPG Delivery Personnel; he can use these in case of emergencies.



Fig. 6.1.1. Reading Skills

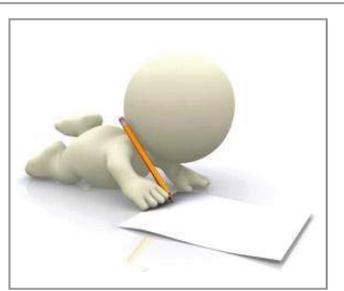


Fig. 6.1.2. Writing Skills

With the help of reading and writing skills, an LPG Delivery Personnel will be able to:

- read cash memos
- read safety instruction, signs and charts
- accept digital payment modes i.e. net banking, credit and debit card payment made by the customers

UNIT 6.2: Communication Skills

Unit Objectives

At the end of this unit, you will be able to:

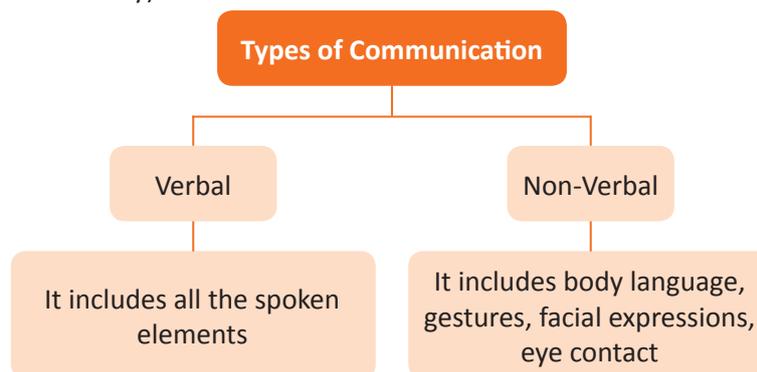
1. Develop listening and speaking skills
2. Communicate with your co-workers and customers effectively

6.2.1 Communication Skills

Oral Communication is clearly stating your thoughts or messages to others. It can be verbal and non-verbal. For this, you should speak, listen, observe, question, analyse and evaluate. You must convey your thoughts properly to a consumer. This will enable you to develop a good rapport with the consumer.

Good oral communication will enable you to:

- inform the customer about the safety tips and the latest schemes
- inform the customers about the emergency number, complaint number and the booking number printed on the cash memo, etc.
- ask for the customer's feedback
- apologise (when necessary) and thank the customer



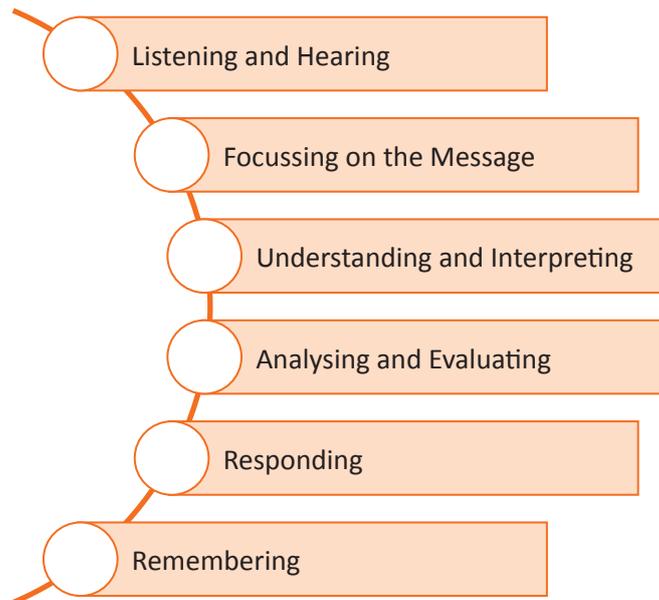
6.2.2 Listening and Speaking Skills

Listening Skills

Listening is the most important part of communication. It is a process that involves accurately receiving and understanding the message conveyed by the consumer. Additionally, it involves listening to what is being said as well as understanding what is unsaid or only partially said.

We listen to:

- obtain information
- understand
- and learn

Listening Involves:**Guidelines for Active Listening:**

- Stop talking and start listening
- Put the speaker at ease
- Avoid distractions
- Understand
- Be patient.
- Avoid being unfair
- Analyse the tone of the speaker
- Listen for ideas - not just words
- Examine non-verbal communication
- Ask the right questions to clarify any doubts

Speaking Skills

Speaking means to converse or express one's thoughts and feelings in spoken language. Without proper speaking skills, you will not be able to express yourself and people will find it difficult to understand you.

It is important for you to know the local language so that you are able to communicate with your customers and understand their queries easily.

Guidelines for Effective Speaking:

- Be an active listener.
- Speak slowly and clearly.
- Make eye contact and smile.
- Be respectful in your choice of words.
- Be patient and polite.

Non-Verbal Communication

Introduction to Body Language

Body language is the cues given to others by our body while we are communicating. It not only refers to movements in our body, but also to small gestures or facial expressions that we make while communicating with others. Body language must be the same as our words, otherwise your listener will be confused.

Attitude

- Right attitude engages your receiver and sender

Greetings

- Greet others genuinely, not overenthusiastically

Eye Contact

- Maintaining eye contact displays interest

Posture

- Standing and sitting straight displays confidence

Maintain Distance

- Standing too close may make others uncomfortable

UNIT 6.3: Plan and Organise Work

Unit Objectives



At the end of this unit, you will be able to:

1. Describe how to plan and organise
2. State the benefits of planning
3. State the benefits of organising

6.3.1 Plan and Organise Work

Planning and organising is the process of completing a given task efficiently and successfully. Organising and planning includes:

- Identification of activities
- Establishing a plan
- Measuring actual work progress at regular intervals
- Plan in such a way that multiple jobs are not assigned to the same timeline unless you are planning to multitask
- Comparing actual work done with the plan and identifying the gaps if any
- Coordination of work among the team
- Finding out the reasons (if any) for deviation from the schedule
- Taking corrective measures to rectify the deviation

Benefits of Planning:

- Gives us clarity on what we want to achieve
- Keeps us motivated
- Keeps us focused
- Makes us accountable
- Makes us more effective

UNIT 6.4: Problem Solving Skills

Unit Objectives



At the end of this unit, you will be able to:

1. Explain what problem solving is
2. Solve your problems efficiently

6.4.1 Problem Solving Skills

Problem solving is a process of working through the details of a problem to reach a solution. In every job, a person may have to take a decision at some point. Problem solving involves taking the right decisions in different situations.

How to Develop Problem Solving Skills

- Desire to actively participate in the process of improving a situation.
- Offer suggestions based on knowledge and experience to take decisions.
- Too much analysis of the situation results in delaying decisions.
- Respect other people's suggestions and recommendations.
- Analyse and calculate the risk and problems which may occur after taking a decision.
- Follow workplace rules and guidelines in situations involving high level of risk at work.
- Use your job specification to take an appropriate decision.
- Do not hesitate to consult your supervisors before arriving at a decision.
- Do not make workplace decisions based on emotions.
- Rational thinking is a must for taking decisions.

Exercise



Read the questions carefully and tick mark the correct choice.

1. The LPG Delivery Personnel requires reading and writing skills to:
 - a. update and maintain company's accounts.
 - b. update serial number, date of delivery in the consumer's book.
 - c. read and interpret relevant organizational policies, procedures and diagrams that identify good health and hygiene practices
2. Non-verbal communication includes:
 - a. Spoken elements
 - b. Listening
 - c. Speaking skills
 - d. Body language
3. Effective speaking involves speaking _____ and _____.
 - a. quickly and loudly
 - b. softly and slowly
 - c. slowly and clearly

4. Identification of activities, establishing a plan, measuring actual work progress, etc. are part of:
 - a. Decision making and Problem solving
 - b. Planning and Implementing
 - c. Meeting and Discussing
 - d. Planning and Organising
5. Organising includes:
 - a. Identifying and defining the problem
 - b. Identifying available resources
 - c. Monitoring the outcome of the action taken
6. The process of working through details of a problem to reach a solution is called _____.
 - a. planning
 - b. decision making
 - c. organising
 - d. problem solving
7. Whom should you consult before arriving to a decision point in the problem solving process?
 - a. Distributor
 - b. Colleague
 - c. Supervisor
8. Customer-centricity is an approach that focuses on providing a _____ customer experience
 - a. good
 - b. rich
 - c. personal
 - d. positive
9. To be customer centric, you need to display _____ and _____ behaviour.
 - a. passive and positive
 - b. assertive and aggressive
 - c. polite and courteous

Hands-on practice sessions will be conducted at the LPG Showroom/Distributors/Godown.

Tips



- With the help of reading and writing skills, an LPG Delivery Personnel will be able to read the bills, safety instructions, signs and charts, and accept digital payment modes.
- Good oral communication enables you to inform the customer about the safety tips and the latest schemes, ask for customer's feedback, apologise (when necessary) and thank the customer.
- Planning and organising includes identification of activities, establishing a plan, and measuring actual work progress at regular intervals. Plan in such a way that multiple jobs are not assigned to the same timeline unless you are planning to multitask.
- Problem solving skills include desiring to actively participate in the process of improving a situation, offering suggestions based on knowledge and experience to take decisions, respecting other people's suggestion and recommendations, analysing and calculating the risk and problems which may occur after taking a decision, following workplace rules and guidelines in situations involving high level of risk at work.



7. Annexure



S No.	Module No.	Unit No. and Name	Topic Name	Page No.	URL	QR Code (s)
1	Module 1	Unit 1.2 – Introduction to the Hydrocarbon Sector	Unit 1.2 – Introduction to the Hydrocarbon Sector	5	https://www.youtube.com/watch?v=RtURLOFW3KI	 Oil & Gas Sector
2	Module 1	Unit 1.4 – Role of an LPG Delivery Personnel	Unit 1.4 – Role of an LPG Delivery Personnel	12	https://www.youtube.com/watch?v=mKujqu9sbu8	 Indane Gas Show-Room Staff & Delivery Staff
3	Module 2	Unit 2.1 – About LPG Cylinders	Unit 2.1 – About LPG Cylinders	21	https://www.youtube.com/watch?v=YYZZjNeTNRU	 What is LPG How LPG cylinder works
4	Module 2	Unit 2.2 – Pre-Delivery Activities	Unit 2.2 – Pre-Delivery Activities	27	https://www.youtube.com/watch?v=sqR-ls5OVNA	 Pre Delivery Checks
5	Module 2	Unit 2.3 – Delivery Activities	Unit 2.3 – Delivery Activities	31	https://www.youtube.com/watch?v=4kLVGF7mojk	 LPG Pre Delivery Check
6	Module 3	Unit 3.1 Maintain Safe and Secure Working Environment (HYC/N 3102)	Unit 3.1 Maintain Safe and Secure Working Environment (HYC/N 3102)	47	https://www.youtube.com/watch?v=S8LO-95Pjg8	 Important safetytips for LPG cylinders at home
7	Module 3	Unit 3.3 – Emergency Procedures in Case of Fire	Unit 3.3 – Emergency Procedures in Case of Fire	55	https://www.youtube.com/watch?v=RSaXCvYNq58	 LPG cylinder blast and kitchen fire- fire fighting technique

S No.	Module No.	Unit No. and Name	Topic Name	Page No.	URL	QR Code (s)
8	Module 4	Unit 4.1 Maintain Health and Hygiene	Unit 4.1 Maintain Health and Hygiene	65	https://www.youtube.com/watch?v=WfPw5KAsuXE	 High Precision Gas Cylinder Cleaning
9	Module 5	Unit 5.1 – Role of an LPG Delivery Personnel in Upkeep and Maintenance of Storage Area	Unit 5.1 – Role of an LPG Delivery Personnel in Upkeep and Maintenance of Storage Area	75	https://www.youtube.com/watch?v=gUqSegDCcak	 Compressed Gas Cylinder Safety
10	Module 5	Unit 5.2 – Dos and Don'ts of Storage and Handling of LPG Cylinder	Unit 5.2 – Dos and Don'ts of Storage and Handling of LPG Cylinder	77	https://www.youtube.com/watch?v=YZhidn_Li1Q	 Indane LPG Safety



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