

HSE MANUAL

This manual contains information for storage and handling of LPG at Plant. It is very important that the instructions contained in it are strictly followed and implemented.

1) Fire Fighting Installation & Training:

- **LPG Storage vessel threatened by fire will be kept sufficiently cool to prevent vessel failure.**
- **Adequate supply of water is necessary at all installations for fire protection.**
- **On site hydrants and fixed drench systems are to be checked from time to time so that in case of emergency the water flow can be controlled.**
- **All Fire fighting equipment on filling shed is to be checked before starting filling of cylinders.**
- **There is adequate drainage to deal with the water used for protection and firefighting purposes.**
- **Water sealed interceptors are to be installed in order to prevent LPG from entering into storm drains and sewers.**
- **All the portable fire fighting equipment and hose reels have to be installed adjacent to the Plant equipment so that in case of any emergency, direct throw of water can be made to lower down the extent of loss.**
- **Access to and around the installation has to be provided for fire fighting and is kept free at all times.**
- **All employees at plant are to receive adequate instructions with training appropriate to their responsibilities prior to induction.**
- **Fire brigade to be called immediately in case of an uncontrollable emergency.**

2) Loading / Unloading of LPG & Cylinder:

- **Responsibilities of all the personnel involved in loading/unloading have been properly defined.**
- **Vessel is checked to see how full it is before filling.**
- **Overfilling can have extremely serious consequences so any overfilling in Vessel /Cylinder will be removed immediately in a safe manner.**
- **Flexible hoses used for conveying LPG from road tankers into fixed piping are examined for wear and tear on every occasion prior to use.**

- The loading/unloading operation is only carried out when it is safe and is practically separated from other traffic movement.
- When a vehicle engine is used during loading/unloading, usually to drive a pump, an emergency cut-off device is installed so that engine should be switched off outside the cab.
- Hoses are not to run across the public foot path or pavement during unloading.
- Cylinders are to be stacked on the filling shed one on top of another in order to avoid any accident.
- Loading /Unloading area is clearly mentioned through signs.

3) Commissioning and de-commissioning:

- Before filling with LPG, the vessel and its fitting is tested, proved free of leaks, and fit for use.
- Care is taken that, during leak testing and purging, the vessel is not subject to pressure or temperature condition outside its design criteria.
- Before commissioning, vessel and its ancillary equipment are purged. Air in the vessel is removed by replacement with water, inert gas, LPG or by evacuation.
- Where inert gas is used for purging the vessel, the purge gas is removed with LPG.
- Before opening an LPG vessel it is emptied of any LPG.
- Where the drain line is used for emptying a vessel the drain connections have to be less than 50mm in diameter and fitted with two shut-off valves in series.
- All the pipelines are checked before de commissioning to ensure that there is no vapor pressure in the line.

4) Maintenance and Examination:

- The installation is properly maintained and checked by the technical supervisor on monthly and quarterly basis.
- Checklist for each and every installation i.e;(pipes, hydrants, Fire motors, sprinklers, generators etc) at plant is prepared on weekly, monthly and quarterly basis.
- Any significant deterioration or defects found and any remedial work undertaken is recorded on the examination report.
- Any repair or modifications undertaken are mentioned in the report.

Emergency Procedures:

A) In Case of Leakage :

If there is a leakage found, without the gas igniting the following actions are taken.

1. Any nearby source of ignition is extinguished
2. An attempt is made to stop the leakage by closing the shut off valve.
3. If the leakage cannot be stopped, the technical advisor or the responsible person is called to overcome the problem.
4. Access to the leakage area is prevented by setting up barriers.
5. If there is an extensive leakage then the area is evacuated and notices for No Naked Flame and Prohibiting smoking near that area are put up.

B) In Case of Fire:

In the event of a fire

1. The Alarm is to be sounded immediately
2. The vessel has to be cooled down by spraying with ample quantity of water. Anyone not involved with the fire fighting should be evacuated.
3. The fire brigade must be called immediately informing them that LPG is involved. If the flame from the leakage cannot be extinguished by turning off valves, fire fighting will only be carried out by trained personnel or the fire brigade. If the flame from the burning leak impinges the vessel and cannot be stopped the area will be evacuated immediately.