

# Propane Safety for Powered Industrial Trucks (Forklifts)

Propane plays an important role in many people's lives and occupations. Thousands of men and women work with propane every day because propane is a versatile, environmentally friendly fuel that has many applications in commercial and industrial businesses. The purpose of this bulletin is to provide guidance for those who utilize propane for their "Powered Industrial Truck," or forklift and other engine-powered applications where propane is used.

This bulletin will focus solely on the use of propane as a fuel for the forklift. As a commercial user of propane, you should share this information with your employees and coworkers to help keep everyone safe and to reduce the risk of serious injury, fire, or explosion.

## CODE REQUIREMENTS

NFPA 58 includes code requirements for the storage and handling of propane, such as filling containers, cylinder storage, handling, and exchange, as well as training when handling propane.

## TRAINING REQUIREMENTS

Training requirements under NFPA 58 state that persons must be provided with training that is consistent with the tasks performed in their job activities including proper handling and emergency response procedures.

If you intend to utilize a dispensing station to fill a propane container on or off the forklift, please refer to the PERC program "Dispensing Propane Safely" for more information on filling containers.

## SPECIFIC HAZARDS

**Liquid:** Propane in its liquid form is a frostbite/freeze burn hazard.  
**Vapor:** Propane, when released into the air, can become flammable.

Carbon monoxide (CO) can be produced by incomplete combustion of nearly any type of fuel generated by internal combustion engines that are defective or improperly installed, operated, or maintained. While this condition is not common, the potential is there, especially when operating poorly maintained equipment indoors. High levels of this dangerous gas will make a person dizzy, give a person a headache, or cause flu-like symptoms.

## IF YOU SMELL GAS OR SUSPECT A LEAK

Know the smell of propane. Propane vapor is naturally invisible. For safety, propane has a distinct odor to alert you to leaks. To find out what propane smells like, ask your fuel supplier to help you perform a sniff test.

If you suspect a leak, follow the following precautions:

- ▶ NO FLAMES OR SPARKS!
- ▶ LEAVE THE AREA IMMEDIATELY!
- ▶ SHUT OFF THE GAS AT THE CONTAINER.
- ▶ REPORT THE LEAK.
- ▶ DO NOT RETURN TO THE BUILDING OR AREA.
- ▶ CHECK THE ENTIRE PROPANE SYSTEM.

## CYLINDER STORAGE

NFPA 58 has specific requirements related to storage of cylinders awaiting use. When storing cylinders outdoors, cylinders must be located to minimize exposure to excessive temperature rises, physical damage, or tampering.

- ▶ The maximum quantity of propane allowed in one inside storage location cannot exceed 300 pounds propane gas. If additional storage locations are required on the same floor within the same building, they must be separated by a minimum of 300 feet.
- ▶ Ensure all flammable materials are stored away from propane equipment and containers.
- ▶ Cylinders should not be located near exits, stairways, or in areas normally used, or intended to be used, for the safe exit of the building's occupants.
- ▶ Never store propane cylinders near a heating appliance.
- ▶ Certain cylinders can be stored either vertically or horizontally, such as forklift or mower cylinders. If you store these cylinder types in the horizontal position, the relief device must be in the 12 o'clock position.
- ▶ Protect cylinders from accidentally being struck or falling.
- ▶ Store cylinders in safety cages or cabinets in level areas.
- ▶ When stored upright, protect cylinders from falling by using a chain or other supports.
- ▶ Fire extinguishers should be placed within easy access of propane storage.

## CYLINDER EXCHANGE

- ▶ Take precautions when exchanging motor fuel cylinders:
  - Do so in a designated area.
  - Inspect the container prior to exchange.
  - If a container is damaged, do not use; seek help.
  - Verify there are no gas leaks, using an approved method.
  - Never smoke or have any ignition sources in the area while handling or exchanging cylinders.
  - Be sure to wear your personal protective equipment (PPE) in accordance with your company policy.

### Removing a used cylinder:

- ▶ Ensure the cylinder service valve is closed.
- ▶ Disconnect the gas line by unscrewing the forklift connection counterclockwise. A small amount of gas may be released upon disconnect.
- ▶ Release the brackets that secure the cylinder.
- ▶ Remove the empty cylinder from the bracket. Be sure to use safe lifting practices.
- ▶ Store the used cylinder in a designated safe storage area. Always store the cylinder with the relief valve at the highest point. If placing the cylinder in a cage backwards, make sure the relief valve is in the 12 o'clock position.

### To install a replacement cylinder:

- ▶ Make sure the service valve is closed. Inspect the O-ring and rubber gasket in the male forklift connector. If it is missing or damaged, set the cylinder aside and notify your supervisor.
- ▶ Make sure the cylinder has the correct safety labeling.
- ▶ Place the cylinder in the forklift bracket with the locating pin in the appropriate hole in the collar. Reinstall the restraints.
- ▶ Connect the forklift connector clockwise, hand tighten.
- ▶ Turn on the service valve, test for leaks using an approved method.



contact your  
**propane supplier**

Consult with your propane supplier or your Authority Having Jurisdiction (AHJ) to help with compliance and training, or if you have any questions.

ENERGY FOR EVERYONE  
**propane**  
propane.com