CHANGING AND FILLING FORKLIFT CYLINDERS

PROPANE SAFETY MEETING OUTLINE

Summary

This module covers procedures for exchanging forklift cylinders and for filling forklift cylinders from stationary storage.

Changing: Forklift cylinders should be filled or changed only by trained personnel using proper safety procedures.

Filling: Forklift cylinders are not required to be filled by weight and can be filled either on or off the forklift and either in a vertical or horizontal position.

Who should attend

- Forklift customer employees (changing)
- Cylinder plant employees (filling)
- Customer service representatives (front office staff)

NOTE: Employees in these job categories who do not attend this meeting should be trained on this subject as soon as possible.

Additional Material

- Video (available through AFRED's Video Lending Library) Manchester Forklift Cylinders (13:15 min)
- Material Safety Data Sheet (MSDS) (available from propane supplier)
- "Changing Forklift Cylinders," RRC Propane Safety Bulletin
- "Filling Forklift Cylinders," RRC Propane Safety Bulletin
- "Safe Use of Propane Forklift Cylinders," RRC Propane Safety Bulletin

Key codes and standards for this topic

National Fire Protection Association (NFPA) 58, *LP-Gas Code*, 2001 Edition, §8.3, Industrial (and Forklift) Trucks Powered by LP-Gas

Railroad Commission *LP-Gas Safety Rules*, April 2007 edition, §9.51(b)(4)

Company Standard Operating Procedures (SOP)

Note any additional materials used on the attached documentation form, or indicate not applicable.

A company SOP may provide information to forklift customers regarding proper supervision and training of employees who perform propane activities.

Documentation

Complete the attached documentation form listing the date, time and location of the safety meeting and the printed names and signatures of attendees, names of persons who need to attend but did not, and copies of any materials distributed, video shown, or visual aids used in a demonstration. These materials should be properly filed in a safe location.

Notice

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PROPANE SAFETY

RAILROAD COMMISSION OF TEXAS

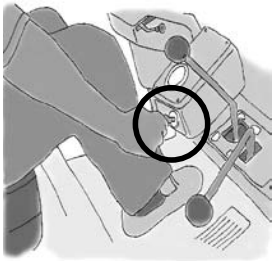
CHANGING AND FILLING PROPANE FORKLIFT CYLINDERS

PROPANE SAFETY MEETING HANDOUT

General rules

- Forklift cylinders should be filled or changed only by trained personnel using proper safety procedures.
- Follow any and all of your company's procedures relating to propane activities.
- Contact your supervisor immediately if you have any propane safety concerns or questions.
- Never attempt to change or fill a cylinder if you have not been properly trained to do so.
- Wear proper gloves and eye protection when performing propane transfer activities, including connecting, disconnecting or filling a cylinder.
- Avoid contact with liquid propane, as it can cause frostbite.
- Forklift cylinders are not required to be filled by weight and may be filled either on or off the forklift and in either the vertical or horizontal position.

Turn off the engine and engage parking brake.



STEP 1. (Change/Fill) Remove empty cylinder from the forklift.

- Turn the forklift engine off and set the parking brake.
- Close the cylinder's service valve by turning it to the right (clockwise).
- Disconnect the female quick-connect fitting from the male quick-connect fitting by turning it to the left (counterclockwise).
- Disconnect the toggle clamp that secures the propane cylinder to the forklift.
- Remove the cylinder from forklift, using proper lifting techniques.

STEP 2. (Fill only) Inspect the cylinder and its appurtenances.

- Inspect cylinder for proper DOT specification, such as, 4B-240, 4BA-240, 4BW-240 and 4E-240.
- Inspect cylinder for leaks, corrosion, denting, bulging, fire damage, or evidence of rough usage to the extent the cylinder is likely to be weakened appreciably.
- Inspect cylinder for retest date. Each cylinder must be requalified for continued use when 12 years have elapsed from the original cylinder test date. External visual inspection is required for an additional 5 years requalification period.
- Inspect the valves, valve protection (guard) and foot ring.
- Inspect the pressure relief valve and date, the 45º adapter, and the weather cap. A new pressure relief valve must be installed within 12 years of cylinder's manufacture date and every 10 years thereafter. Pressure relief valves must have an adapter unless the manufacturer installed the opening at 45º. A weather cap is required with or without an adapter.
- If the cylinder fails any part of this inspection, DO NOT FILL IT until the cylinder and/or the valve(s) have been repaired or replaced.

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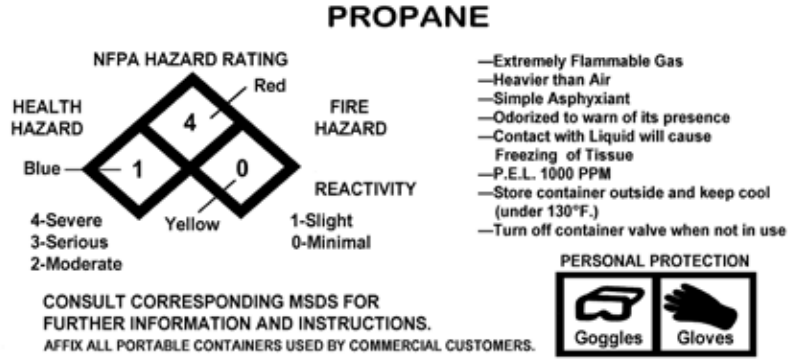
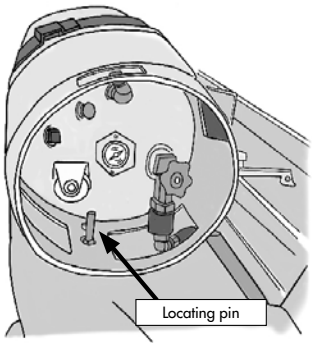
STEP 3. (Fill only) Fill the cylinder.

- Ensure that the stationary propane storage tank and related equipment are in a safe operating condition. No ignition sources within 25 feet of the point of transfer.
- Open the main liquid outlet valve on the storage tank. If it is a globe valve, turn it all the way to the left (counterclockwise) until it is fully open. If it is a ball valve, open it one-quarter turn.
- Connect the quick-acting hose-end valve to the cylinder fill valve by turning it to the right (clockwise).
- Slowly open the hose-end valve.
- Open the fixed maximum liquid level gauge.
- Fill only until a steady white mist or fog is first emitted from the fixed maximum liquid level gauge. NEVER OVERFILL A PROPANE CYLINDER.
- Close the hose-end valve.
- Shut off the pump.
- Close the fixed maximum liquid level gauge.
- Slowly loosen the hose-end valve. Wait until the propane stops venting and the pressure is relieved. Then completely disconnect the hose-end valve.
- Return propane hose to hanger.
- Close the main liquid outlet valve on the stationary storage tank.
- A legible Occupational Health and Safety Administration (OSHA) Hazard Communication Label must be affixed to each cylinder. This is the employer's responsibility.

Example:



Mount cylinders with the locating pin fully engaged.



Source: Railroad Commission of Texas, Texas Propane Training Module 2.1

STEP 4. (Change/Fill) Reinstall the full cylinder on the forklift.

- Lift the filled cylinder using proper lifting techniques and place it on the forklift with the locating pin properly inserted through the locating pin hole in the cylinder's neck ring.
- Reconnect the toggle clamp be sure the clamp properly secures the cylinder.
- Make sure the propane hose is not cut or chafed and the gasket and O-ring are properly installed in the male quick-connect fitting. Connect and tighten the male and female quick-connect fittings.
- Slowly open the cylinder service valve by turning it to the left (counterclockwise). Check for leaks using an approved leak-detector solution.
- Make sure the propane hose or cylinder does not extend beyond the forklift's sides or rear.
- Make sure the propane cylinder is properly secured against movement or displacement.
- Start engine and resume operation.

To store cylinders properly

- Store propane forklift cylinders in a location set forth in National Fire Protection Association (NFPA) 58, *LP-Gas Code*, 2001 edition, and the cylinders must be secured against tampering and damage.
- Do not store cylinders or park propane forklifts in areas of excessive heat or near sources of ignition.
- Store propane cylinders and unattended forklifts with their service valves closed and the cylinders positioned so that their relief valve is in direct communication with the vapor space of the cylinder.

Openings and Valves on a Forklift Cylinder

1 – Filler valve with dust cap
2 - Float gauge (not an approved gauging device)
3 – Liquid service valve with male quick-connect connector
4 – Fixed maximum liquid level gauge
5 – Pressure relief valve with weather cap
6 – Locating pin hole

PROPANE SAFETY MEETING
DOCUMENTATION FORM

Topic:		
Name of Company:	Location:	
City:	State:	Zip:
Date:		
Instructor (Print Name)	Instructor (Signature)	
If applicable, Instructor's Company/Address/Telephone and Cell Telephone No.:		
Materials used at meeting (Attach copies of any printed materials distributed)		

NOTES

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ATTENDEES

Clearly Print Name	Signature

ABSENTEE MAKEUP TRAINING

Date:

Instructor (Print Name)	Instructor (Signature)

If applicable, Instructor's Company/Address/Telephone and Cell Telephone No.:

ABSENTEES

Clearly Print Name	Signature