PROPANE education & research COUNCIL

DISPENSING PROPANE SAFELY

Small Cylinders

Participant WORKBOOK

propane
ENERGY FOR EVERYONE

ENERGY FOR EVERYONE propane
Propane Education and Research Council
1140 Connecticut Ave., NW, Suite 1075
Washington, DC 20036
www.Propane.com

Design and development assistance provided by:
VETTER SOLUTIONS
www.VetterSolutions.com

Created in U.S.A.
February, 2022

NOTICE AND DISCLAIMER CONCERNING LIABILITY

The Propane Education & Research Council (PERC) is a non-profit 501(c)6 trade organization authorized by the Propane Education and Research Act of 1996 (PERA), Public Law 104-284. PERC was created to enhance consumer and employee safety and training, to provide for research and development of clean and efficient propane utilization equipment, and to inform and educate the public about safety and other issues associated with the use of propane." PERC is governed by a 21-member Board of Directors appointed by the National Propane Gas Association (NPGA) and the Gas Processors Association (GPA). PERC program beneficiaries include propane retail marketers, producers, transporters, and agricultural cooperatives, as well as representatives of allied service and supply industries (the industry members). The recommendations, standards, or recommended practices, as reflected in this document, were developed by independent consultants retained by PERC. While PERC administers the process of obtaining the information, it does not independently test or verify the accuracy of the information or methods used to collect the data that supports the conclusions or recommendations reflected in this document. PERC, NPGA, GPA, and the industry members disclaim any and all liability for any personal injury, property damage, business losses, or other damages of any nature whatsoever, whether special, indirect, consequential, or compensatory, directly or indirectly resulting from the publication, use, or reliance on this document, or any information, apparatus, method, process, or similar item disclosed in this document. This disclaimer of liability shall apply even if such loss or damage results, in whole or in part, from any acts or omissions of or by any negligence on the part of PERC, NPGA, GPA, the industry members, or any persons who contributed to the development of the information contained in this document. PERC, NPGA, GPA, and the industry members make no warranty or guaranty as to the accuracy or completeness of any information published in this document. Text and code references found in this document are based on the 2020 edition of NFPA 58: Liquefied Petroleum Gas Code and the 2021 edition of NFPA 54: National Fuel Gas Code. The procedures and information in this document are intended to implement the standards set forth in the documents referenced with capabilities of the personnel and equipment available. It does not create new standards or criteria for compliance. The order of steps in any procedure may or may not be of importance. This material is not sold nor is it a product of any consulting or engineering activity. Users of this document should consult the law of their individual jurisdictions for codes, standards, and legal requirements applicable to them. This document is not intended nor should it be construed to (1) set forth policies or procedures that are the general custom or practice in the propane industry; (2) to establish the legal standards of care owed by propane distributors to their customers; or (3) to prevent the user from using different methods to implement applicable codes, standards, or legal requirements. By disseminating or publishing this document, PERC is not undertaking to render any professional or other service to or on behalf of any person or entity. PERC, NPGA, GPA, and the industry members are not undertaking to perform any duty owed by any person or entity to any third party. Anyone reading or using this document should rely on his or her own judgment or, as appropriate, should seek the advice of a competent professional in determining the exercise of reasonable care in any and all circumstances.

Table of Contents

Using this Workbook

This workbook is designed to enhance your learning as you participate in this class. Please note the following icons which will be used to flag various kinds of learning opportunities:

Learning Activities: These activities help engage you as a learner by promoting discussion of application of the content presented in the training.

Checks for Understanding: Throughout the program you will be asked to confirm that you have grasped key concepts. These are a variety of true/false, multiple choice, multiple response, and matching questions.

This same icon is used for **discovery exercises** and **lab Activities**. These provide hands-on practice and encourage you to explore some of the features of their own test equipment.

Important safety messages will be located in boxes next to this symbol. When you see this symbol pay special attention to the safety message next to it.

Final Knowledge Quiz: At the end of the program you'll complete a final knowledge quiz to test your recall of the key concepts presented throughout the training.

You may wish to use ***sticky notes*** to keep track of your place in the workbook as you progress through the program or to mark pages you may wish to come back to.

Feel free to **make notes and highlight text** throughout this workbook. It's yours to keep, so make it as valuable of a resource as you can. Try to fill-in all the blanks as you proceed through the module.

oops!

See a **MISTAKE**!
. . . Let us know:

As you proceed through the program, make notes about **any changes needed** within the materials. Then, please copy and share this information with PERC:

Safety Team
Propane Education & Research Council
1140 Connecticut Ave., NW Suite 1075
Washington, DC 20036
T: 202.452.8975
safety@propane.com

Program Overview

Dispensing Propane Safely consists of three sub-programs. Depending on your job duties you may take some or all of the following modules:

Program 1: Dispensing Propane Safely – *Small Cylinders*
This program consists of modules 1-8. There is an optional module 9 that covers *Purging Cylinders*.

Program 2: Dispensing Propane Safely – *Motorhome and ASME tanks*
This program starts with modules 1-3 (from program 1) and then wraps-up with module 10.

Program 3: Dispensing Propane Safely – *Dispensing Autogas*
This program consists of modules 1 and 3 (from program 1) as well as modules 11 and 12.

Taking all modules 1-12 covers all of the topics included in all three programs.

Objective/Goal

After you complete this ***Dispensing Propane Safely*** program you will be able to dispense propane into small cylinders, ASME tanks and motorhomes, and/or Autogas. This program is geared to non-industry professionals.

Topics

- Propane Safety
- Propane Fires and Uncontrolled Gas Release
- Identifying cylinders
- Purging cylinders
- Filling ASME tanks and motorhomes
- Dispensing autogas

Module 1: Introduction to Propane

Propane is a gas that is _____

and _____ .

It is used as a _____ because it will burn

under the right conditions.

Touching propane can cause frostbite or freeze burns. Always wear the appropriate personal protective equipment or PPE.

Notes:

_____

_____

_____

_____

_____

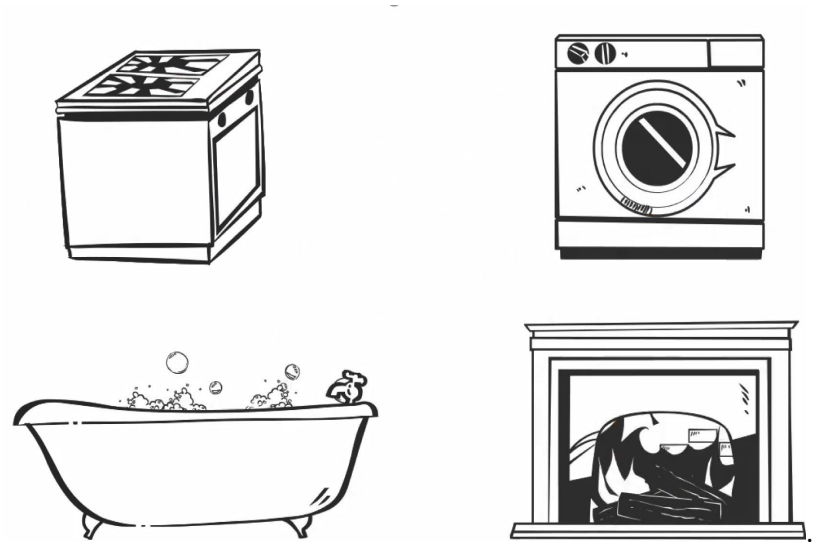
Sources of Propane

Most propane comes from _____ _____ and _____ _____.
Some of it is created through the _____ _____ process.

Propane is stored underground until it's transported by train, truck, or pipe to secondary storage, called a bulk plant. At the bulk plant, propane is stored in large steel tanks.

From there, it's shipped in smaller trucks called bobtails to millions of customers throughout the United States.

Uses for Propane



Module 2: Dispensing Station Equipment

Match the part of the dispenser with its definition and use:

Scale	Provides secure, gas-tight and flexible connection between the dispensing station and the cylinder.
Valve(s)	Measures the quantity of liquid propane that flows through it when dispensing propane.
Hose	Weighs the cylinder and assembly, to assure the correct amount of propane is distributed.
Meter	Designed to separate and stop the flow of propane from leaking into the atmosphere
Breakaway Device	Controls the passage of propane from the dispensing station to the cylinder.

Notes about YOUR Dispensing Station

At my station I can fill:
___ Small Cylinders
___ Motorhomes and ASME tanks
___ Vehicles (Autogas)

At my station, the storage tanks are:
___ Vertical
___ Horizontal

Personal Protective Equipment (PPE)

My company requires the following Personal Protective Equipment (PPE) when I dispense propane:

_____

_____

_____

_____

_____

Starting up the Dispenser

1. Unlock the Dispenser.
2. Put on appropriate PPE.
3. Slowly open the liquid outlet valve.
4. Open the liquid downstream manual valve.
5. Inspect all valves, piping, transfer hose, and fittings.
6. Inspect the threads of all connection adapters for excess wear.
7. Check “O” ring and gaskets.
8. Inspect for leaks.

If a part of the system does not appear to be in good working order, close all valves and contact your supervisor and do not use the system until it has been determined to be safe to use.

NOTES:

_____

_____

_____

_____

_____

Check Understanding

Check your understanding of the content in this module by answering the following questions.

1. Most propane dispensers include a(n) _____ that supplies the liquid propane to the dispensing equipment.
   - ❑ ASME storage tank
   - ❑ Metering system
   - ❑ Breakaway device
   - ❑ Platform scale

2. The two common types of propane dispensing set-ups include horizontal tank dispensers and _____.
   - ❑ Underground tank dispensers
   - ❑ Vertical tank dispensers
   - ❑ Mobile tank dispensers
   - ❑ Round tank dispensers

3. Most dispensers have a(n) _____ to stop the flow of propane in an emergency.
   - ❑ Shutdown system
   - ❑ Alarm
   - ❑ OPD (overflow protection device)
   - ❑ Hose-end valve

4. The _____ control the flow of propane through the piping system of a dispenser.
   - ❑ Plugs
   - ❑ Gears
   - ❑ Valves
   - ❑ Meters

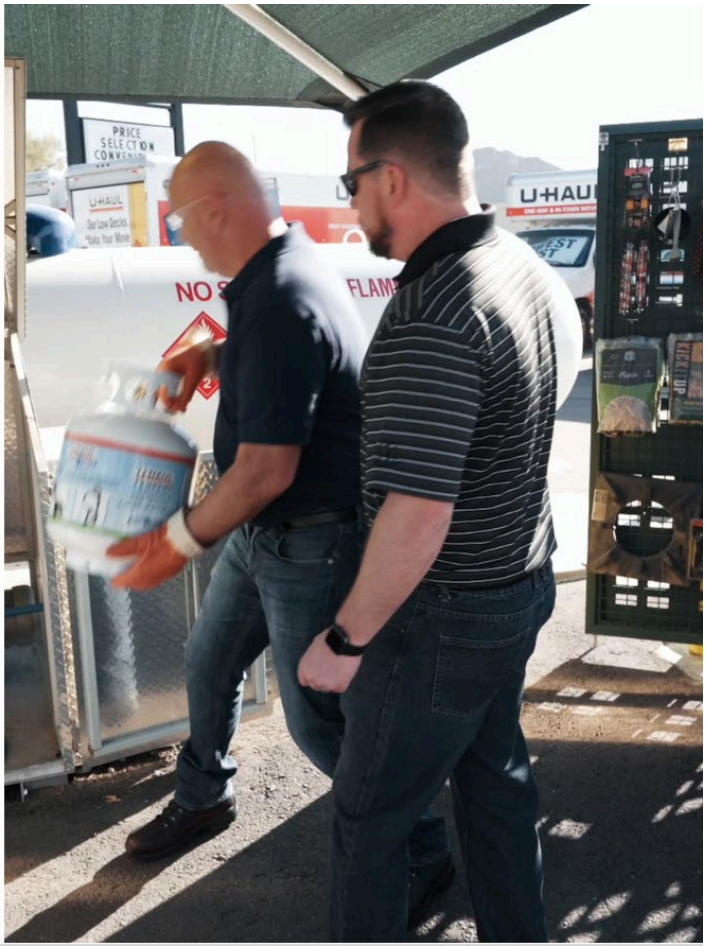
5. When the operator is not in attendance, the dispenser should be _____.
   - ❑ Maintained and lubricated
   - ❑ Shut down and secured
   - ❑ Calibrated and cleaned
   - ❑ Open to the public

Module 3: Uncontrolled Propane Release and Fires

Scenario

Select the best answer

- Close the propane emergency shutoff valve (ESV) and turn off the electrical supply.
- Tell the customers to evacuate away from the area.
- Move away from the leak area and call 911 even if the leak stops right away.



Which situation is correct?

_____

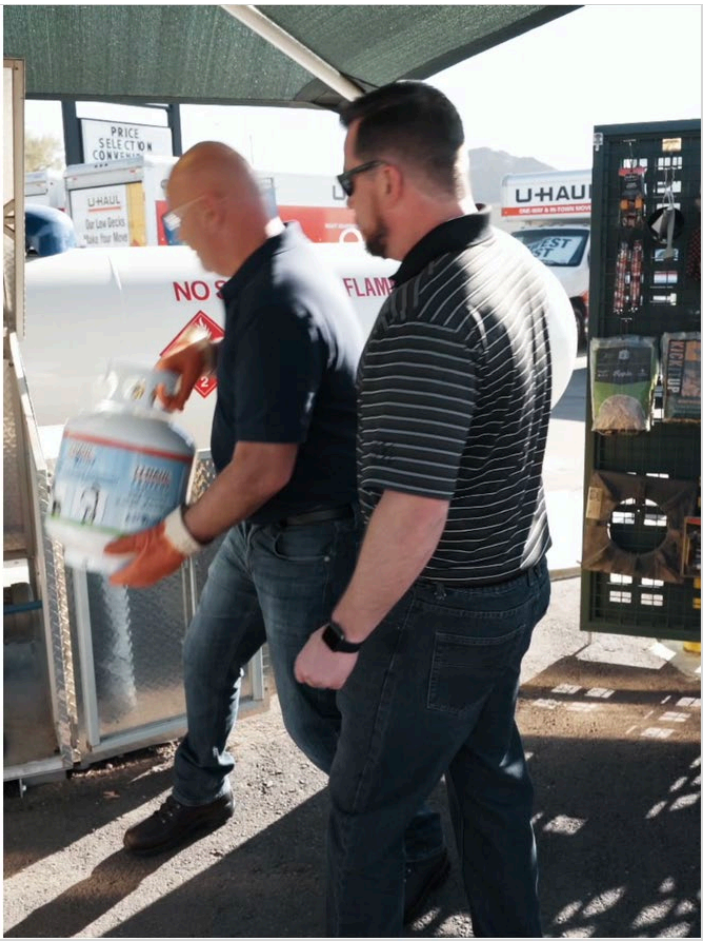
_____

_____

Continuing the Scene

Select the best answer

- Close the propane emergency shut off valve.
- Call 911
- Turn off the electrical supply.



How should you proceed?

Steps to Complete During an Uncontrolled Propane Release

1. Take Action – Evacuate
2. Be aware of your surroundings
3. Get help

Responding to the Uncontrolled Propane Release

- Do not re-enter the area around the propane leak.
- Do not endanger yourself or others.
- Wait for **emergency responders.**

Able to stop propane release

- Notify your Supervisor

Unable to stop uncontrolled release

- Call 911
- Your name
- Your company name
- Location of the uncontrolled propane release
- Your contact information
- Any other information: kind of container, size of container, if anyone has been injured
- Notify your supervisor

What should be inspected every time you use the dispenser?

_____

_____

_____

_____

Summary

- Be prepared to handle an emergency in an efficient and safe manner to minimize potential risks.
- You should never attempt to respond to any emergency unless you have been properly trained to do so.
- Evacuate the area, be aware of your surroundings, and call for help.

Check Understanding

Check your understanding of the content in this module by completing the following.

1. In the event of an uncontrolled propane leak or fire, what should you do? (Select all that apply.)
   - ❑ Shut down the dispenser, if safe to do so.
   - ❑ Evacuate the area immediately.
   - ❑ Call for help.

2. What might be causes of an uncontrolled release of propane? (Select all that apply.)
   - ❑ Damaged container component
   - ❑ Piping failure
   - ❑ Damaged hose
   - ❑ Broken valve

3. What is the FIRST thing you should do in the event of an uncontrolled release at a propane dispenser?
   - ❑ Call 911.
   - ❑ Evacuate customers.
   - ❑ Shut off the propane.
   - ❑ Shut off the electrical system.

4. How do you decide which direction to evacuate during an uncontrolled propane release?
   - ❑ Get above the propane release, like on a hill.
   - ❑ Go to the largest open area, like a parking lot.
   - ❑ Go to the nearest building, like the service center.
   - ❑ Upwind from the propane release.

5. What's the minimum distance to evacuate in the event of an uncontrolled propane release?
   - ❑ 30 feet
   - ❑ 130 feet
   - ❑ 330 feet
   - ❑ 5,280 feet (1 mile)

6. What do you need to tell the 911 operator about an uncontrolled propane release? (Select all that apply.)
   - ❑ Your name
   - ❑ Your boss's name
   - ❑ Your location
   - ❑ Description of any injuries

Module 4: Cylinder Components

Refillable Cylinders

Size (lbs.)						
Purpose						
Is it Refillable?						

Not all 1 lb. cylinders are refillable.

Cylinder Materials

	Material	Notes
	Aluminum	
	Steel	
	Composite	

Parts of the Cylinder

Label the parts of this cylinder

Cylinder Markings

Identify each of these Cylinder Markings on the photo example:

1. Requalification Identification Number
2. Requalification Date
3. Manufacturer Name
4. Manufacturer Serial Number
5. Date of Manufacture
6. Cylinder Tare Weight
7. Cylinder Water Capacity
8. Cylinder DOT Specification
9. Dip Tube Length

NOTES:

Check Understanding

Check your understanding of the content in this module by answering the following questions.

1. An OPD serves as a _____.
   - ❑ Primary means of preventing overfilling of cylinders.
   - ❑ Secondary means of preventing overfilling of cylinders.
   - ❑ Means of protection for the cylinder valves.
   - ❑ Handle for lifting the cylinder.

2. To protect the valves, portable cylinders use a _____.
   - ❑ Foot ring
   - ❑ NTP fitting
   - ❑ Collar
   - ❑ OPD (overfill prevention device)

3. The _____ is a wide metal band welded to the bottom of the cylinder and used to protect the cylinder body from corrosion or damage.
   - ❑ Foot ring
   - ❑ Valve opening
   - ❑ Pressure-relief valve
   - ❑ OPD (overfill prevention device)

Module 5: Pre-Fill Inspection

Before starting the cylinder filling operation, follow these steps to help ensure the safety of you, your customers, and fellow employees.

Cylinder Verification

Let's start by verifying that the cylinder is designed to be filled with **propane**. If the cylinder does not have one of these codes it cannot be used for propane.

DOT Cylinder Code Chart

DOT/ICC Cylinder Codes for Propane Service	Typical Cylinder Material	Cylinder Construction	Service Pressure (PSIG)
3A	Steel	Seamless	240 or 300
3AA	Steel	Seamless	240 or 300
3B	Steel	Seamless	240 or 300
4B240	Steel	2 or 3 pc., Welded, or Brazed	240
4BA240	Alloy Steel (Prescribed)	2 or 3 pc., Welded, or Brazed	240
4BA260	Alloy Steel (Prescribed)	2 or 3 pc., Welded, or Brazed	260
4BA300	Alloy Steel (Prescribed)	2 or 3 pc., Welded, or Brazed	300
4BW240	Steel (Prescribed)	3 pc., Welded	240
4BW300	Steel (Prescribed)	3 pc., Welded	300
4E240	Aluminum	2 pc.,Welded	240
4E300	Aluminum	2 pc., Welded	300
39-240/300 (Non-refillable)	Steel	Welded	240
*ICC 26-150	Steel	Welded	150
*ICC 26-300	Steel	Welded	300

*NOTE: Cylinders are no longer manufactured under this code; however, cylinders manufactured under this code are still in use today. Also, the term "service pressure" for these codes had a different meaning at the time the code was written.

Length of the Qualification Period

The date and letter stamped on the cylinder tell you whether the cylinder is still qualified to be filled with propane.

CYLINDER REQUALIFICATION METHODS	
EXTERNAL HYDROSTATIC EXPANSION	
LETTER STAMP	**NEXT REQUALIFICATION**
NONE	12 YRS
DATE 10/15	DATE 10/27
PROOF PRESSURE TEST	
LETTER STAMP	**NEXT REQUALIFICATION**
S	10 YRS
DATE 10/15 S	DATE 10/25
EXTERNAL VISUAL INSPECTION	
LETTER STAMP	**NEXT REQUALIFICATION**
E	5 YRS
DATE 10/15 E	DATE 10/20 E

When reading the original date or requalification markings:

- A **date without a letter** indicates the next requalification must be within 12 years.
- The **letter "S" following the date** indicates the cylinder must be requalified within ten years of the marked date.
- The **letter "E" following the date** indicates that requalification is required again within five years of the marked date.
- The most recent requalification date must be marked on the cylinder.

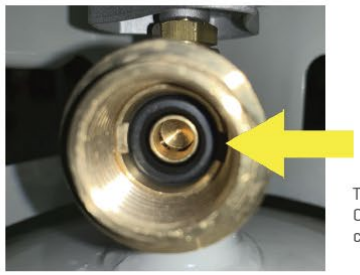
If you have reason to believe that a cylinder has been opened to the atmosphere or if a new cylinder was not vacuum-purged by the manufacturer, you should not proceed with the filling process until the cylinder has been properly purged. To learn how to properly purge a propane cylinder, be sure to complete the module for purging.

2020 NFPA 58 UPDATE:

FACE SEAL INSPECTION GUIDE

PROPANE
EXCEPTIONAL ENERGY®

Does the cylinder valve look like this?



This is a 20 lb cylinder equipped with an OPD valve and a face seal that is in good condition.

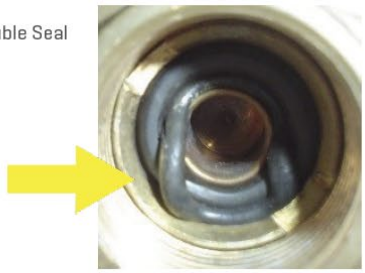
YES? THEN YOU NEED TO INSPECT THE FACE SEAL.

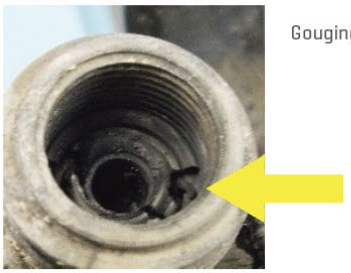
These are some examples of damage. If the face seal doesn't look like the one above, or if you are concerned:

DO NOT FILL THE CYLINDER.

Advise the cylinder owner that the cylinder must be removed from service.

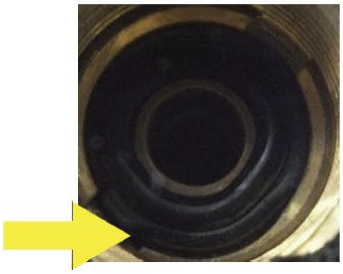
Filling Double Seal

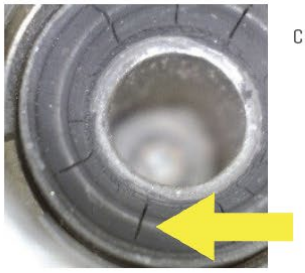




Gouging / Tearing

Roping





Cracking

FOR MORE INFORMATION

To learn more about NFPA 58 and the Propane Education & Research Council, visit **www.propane.com**.

Propane Education & Research Council / 1140 Connecticut Ave. NW, Suite 1075 / Washington, DC 20036
P 202-452-8975 / F 202-452-9054 / propane.com

PROPANE EDUCATION & RESEARCH COUNCIL

The Propane Education & Research Council was authorized by the U.S. Congress with the passage of Public Law 104-284, the Propane Education and Research Act (PERA), signed into law on October 11, 1996. The mission of the Propane Education & Research Council is to promote the safe, efficient use of odorized propane gas as a preferred energy source.

Check Understanding

Check your understanding of the content in this module by answering the following questions.

1. Always verify the cylinder you are preparing to fill is a propane cylinder by reviewing the design code specification markings on the cylinder.
   - ❑ True
   - ❑ False

2. If a cylinder cannot be filled because of rust damage it must be stored; the customer is not allowed to take the damaged cylinder with them.
   - ❑ True
   - ❑ False

3. Match the **letter stamp** and requalification method with the next requalification year.

External Hydrostatic Expansion (**None**)	5 years
Proof Pressure Test (**S**)	10 years
External Visual Inspection (**E**)	12 years

Module 6: Filling Cylinders by Weight and Volume

Now you're ready to start filling cylinders. The steps involved in this process may vary depending on the type of equipment involved at your facility.

Method for filling determined at the local level.
Regulations from Federal and NFPS 58:

- Less than 200 lb. water capacity, transported in commerce = WEIGHT
- 200 lb. or more water capacity = VOLUME
- Less than 200 lb. water capacity, used at fill site = VOLUME

At my location, I can fill by (circle applicable response): WEIGHT VOLUME

Filling by Weight

• Confirm cylinder is in good _____ _____ • Confirm qualification date	• Clear Scale • Calculate fill _____ • _____ scale • Select adapter if required • Attach _____ to cylinder • Connect _____. • Set _____ register to zero, if applicable	• Turn on _____ • _____ hose end valve, if needed • Watch _____	• Immediately _____ the hose end valve • Turn off _____ • Close _____ valve. • Disconnect _____ • _____ hose. • Disconnect _____ (if applicable)

Calculate Cylinder Capacity and Filled Weight

Part 1: Using the information provided below determine the Propane Capacity (in pounds) for each of the cylinders described. Remember the formula:

Water Capacity (lb.) x .42 = Propane Capacity (lb.)

	Cylinder Water Capacity	Math Calculation	Propane Capacity
1	23.9 lbs.		
2	95.3 lbs.		
3	72.4 lbs.		

Part 2: Using the information provided below calculate each propane cylinder's **filled weight** (in pounds). Use the above formula to find Propane Capacity; then use this formula:

Propane Capacity (lb.) + Tare Weight = Total Filled Weight

	Cylinder Water Capacity	Cylinder Tare Weight	Math Calculation	Filled Weight
4	12 lbs.	11 lbs.		
5	238 lbs.	69.4 lbs.		
6	103 lbs.	33.9 lbs.		

Part 3: Now calculate the Scale Set Point with a hose and fitting.

Propane + Tare Weight + Hose/Fitting = Scale Set Point

	Cylinder Water Capacity	Propane Capacity	Cylinder Tare Weight	Hose & Fitting Weight	Scale Set Point
7	71.4 lbs.		25 lbs.	4.5 lbs.	

Filling By Volume

• Confirm cylinder is in good condition • Confirm qualification date	• Verify the _____ _____ _____ Level Gauge (FMLLG) is operational • Select _____ , if required • Attach adapter to _____ • Connect hose • Set meter _____ to 0 if applicable	• Turn on _____ • Open _____ valve, if needed • Open FMLLG – If _____ appears, the cylinder is full • Open _____ end valve • _____ FMLLG	• When liquid (_____ _____) escapes, immediately close the hose end valve • Turn off _____ • _____ service valve • Disconnect _____ • _____ hose • Disconnect _____ , (if applicable)

Do not attempt to fill a cylinder by volume if the fixed maximum liquid level gauge is damaged or inoperable.

Check Understanding

Check your understanding of the content in this module by answering the following questions.

1. What is the first step in filling a cylinder by weight?
   - ❑ Inspect the cylinder.
   - ❑ Set the register to 0.
   - ❑ Identify the needed adapters.
   - ❑ Calculate the scale set point.

2. Whether you can fill by weight or volume is determined by
   - ❑ Federal Regulations.
   - ❑ Regulations at the local level.
   - ❑ NFPA 58.
   - ❑ The availability of trained staff.

3. What is the first step in filling a cylinder by volume?
   - ❑ Inspect the cylinder.
   - ❑ Set the register to 0.
   - ❑ Identify the needed adapters.
   - ❑ Confirm that the FMLLG is operating properly.

4. When filling by the volume you can confirm that the FMLLG is working by opening it and _____.
   - ❑ See liquid coming out.
   - ❑ Listening for a hissing sound.

5. When filling by volume the meter register is used to determine when the cylinder is full of liquid propane.
   - ❑ True
   - ❑ False

6. To calculate the propane capacity:
   - ❑ Add water capacity plus the tare weight then multiple by 0.42.
   - ❑ Add the tare weight to the water capacity.
   - ❑ Multiply the water capacity.

7. The fixed maximum liquid level gauge is used to determine that the cylinder is full when filling by volume.
   - ❑ True
   - ❑ False

8. Calculate the scale set point of a 20 lb. cylinder. Water capacity: 47.6 lbs., Tare Weight: 16.6 lbs., Hose Weight 4 lbs.
   - ❑ 40 lbs.
   - ❑ 41 lbs.
   - ❑ 58 lbs.
   - ❑ 59 lbs.

Module 7: Post- Filling Cylinders

Now let's discuss what you will do immediately after filling any cylinder. First, you need to ensure there are no leaks. You'll also need to label the cylinder and secure the dispenser.

Shut Down the Dispenser

1. Close liquid outlet valve
2. Place cap on filling adapter
3. Store filler hose
4. Close and lock cabinet

Check Understanding

Check your understanding of the content in this module by answering the following questions.

1. If a cylinder warning label is not legible or if the paper or if the plastic sleeve is removed during inspection, before releasing the cylinder to the customer, _____.
   - ❑ Place a new cylinder warning label on it.
   - ❑ Have the customer sign a waiver.
   - ❑ Orally deliver safety information.
   - ❑ Contact the supervisor.

2. Consumer information/warning labels must be on all portable refillable cylinders not filled on site and with _____ pounds propane capacity or less.
   - ❑ 20
   - ❑ 33
   - ❑ 45
   - ❑ 100

3. Regulations require that cylinder be labeled clearly with _____.
   - ❑ Total filled weight
   - ❑ Shipping name and hazard class
   - ❑ Personal Protection Equipment (PPE) requirements
   - ❑ No smoking warning

Module 8: Transporting DOT Cylinders

Many of us have cylinders at home. How did they get there? The cylinders were transported over the road. You can legally transport a propane cylinder in a passenger vehicle or in a pickup but there are legal requirements that you should be aware of.

Type of Vehicle	Maximum individual cylinder weight	Maximum total cylinder weight
		
		

Local Regulations for transporting DOT Cylinders:

_____

_____

_____

_____

_____

Check Understanding

Check your understanding of the content in this module by answering the following questions.

1. Cylinders should be position in the customer vehicle so that the _____ is in the vapor space.
   - ❑ Fixed maximum liquid level gauge
   - ❑ Pressure relief valve
   - ❑ Float gauge
   - ❑ Dust Cap

2. Many jurisdictions limit close-bodied vehicles such as passenger cars and vans to a maximum of ___ pounds propane capacity, with no single container having a capacity of more than ___ pounds.
   - ❑ 80/30
   - ❑ 90/45
   - ❑ 100/50
   - ❑ 150/75

Module 9: Purging New Cylinders

Why do we purge cylinders?

_____

_____

_____

_____

The Purge System

Steps to Purging Cylinders:

1. Connect vapor hose.
2. Pressurize the cylinder with propane vapor to 15 psig.
3. Bleed off the pressure in the cylinder.
4. Repeat the purging process.
5. Final Purge.
6. Fill Cylinder.

The purging process mut be completed a total of 5 times to be sure that 97% or more of the air has been purged from the cylinder.

Check Understanding

Check your understanding of the content in this module by answering the following questions.

1. Why would you need to purge a cylinder? **Select all that apply.**
   - ❑ The cylinder was not purged by the manufacturer.
   - ❑ The cylinder was opened to the atmosphere.
   - ❑ The cylinder is being refilled.

2. What does it mean to purge a cylinder? **Select all that apply.**
   - ❑ Propane vapor is added to the cylinder.
   - ❑ Moisture is removed from the cylinder.
   - ❑ Moisture is added to the cylinder.
   - ❑ Air is removed from the cylinder.

3. What happens if a cylinder that has not been purged is used? **Select all that apply.**
   - ❑ Too much air will cause the appliance burners to work improperly.
   - ❑ Too much air might make it so the appliance burner will not light.
   - ❑ Too much air and moisture may cause propane to lose its smell.
   - ❑ Too much air will cause the cylinder to corrode on the outside.

4. What level if PSIG do you pressurize the cylinder to when purging?
   - ❑ 10 PSIG
   - ❑ 15 PSIG
   - ❑ 25 PSIG
   - ❑ 50 PSIG

5. When venting the propane vapor during the purge cycles, what PSIG do you decrease toward?
   - ❑ 0 PSIG
   - ❑ 5 PSIG
   - ❑ 15 PSIG
   - ❑ 20 PSIG

6. How many times do you need to complete the purging process?
   - ❑ 3
   - ❑ 5
   - ❑ 7
   - ❑ 9

Propane Education & Research Council
1140 Connecticut Ave. NW, Suite 1075
Washington, DC 20036
www.propane.com

Version: February, 2022