PROPANE education & research COUNCIL

DISPENSING PROPANE SAFELY

Motorhomes and ASME-Mounted Tanks

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

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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:

_____

_____

_____

_____

_____

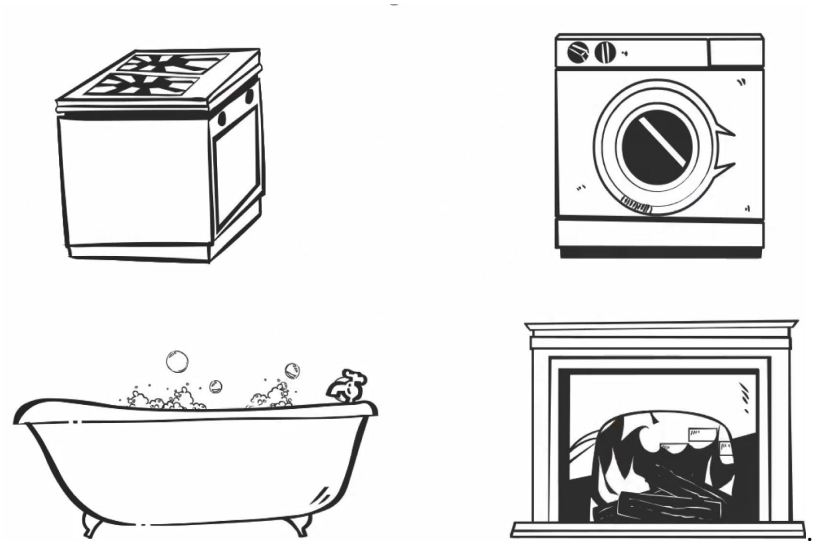
Sources of Propane

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

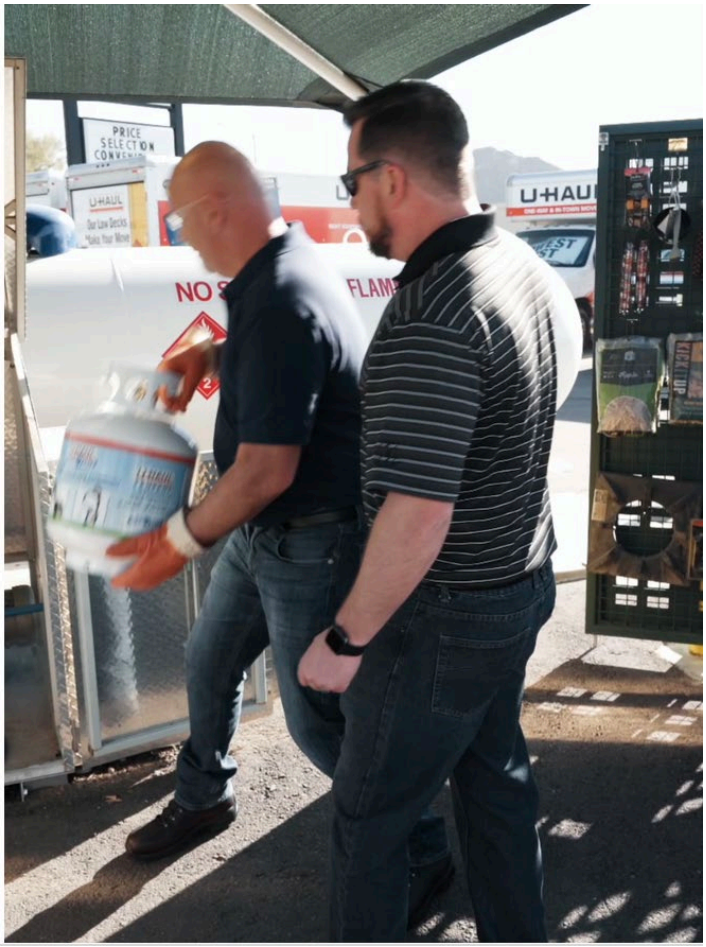
5. When the operator is not in attendance, the dispenser should be _____.
   - ❑ Maintained and lubricated
   - ❑ Shut down and secured
   - ❑ Calibrated and cleaned
   - ❑ Open to the public

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?

_____

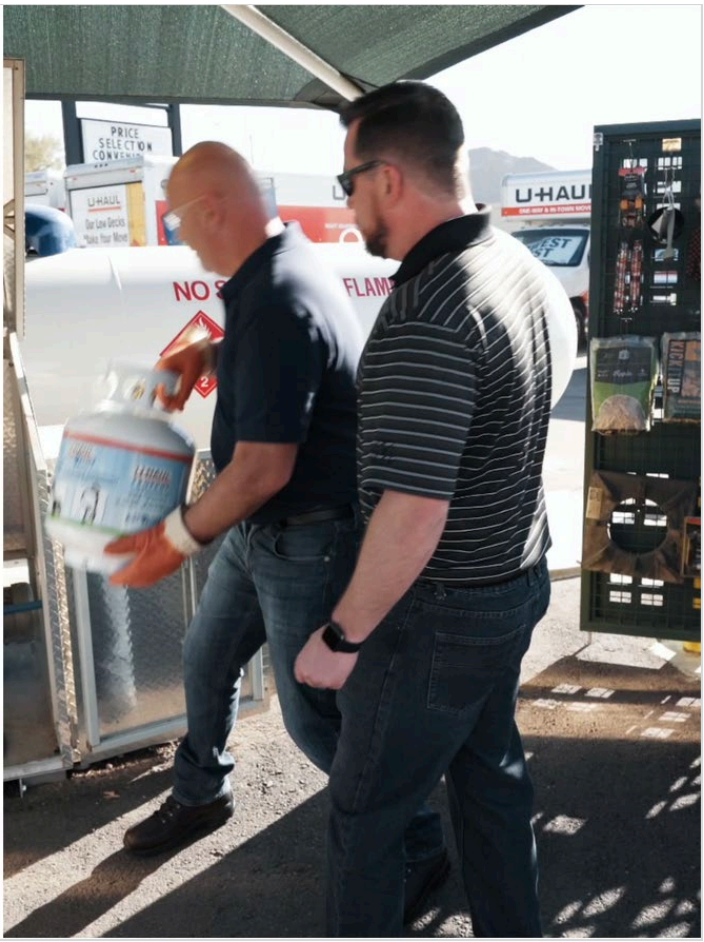
_____

_____

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 10: Filling Motorhome and ASME-Mounted Tanks

Larger propane containers are known as tanks. They have to be approved by ASME, which stands for:

A _____
S _____
M _____
E _____

Vehicle Mounted ASME Tank

Identify each of the components below by writing their name/description in the boxes.

EXERCISE: Tank Components

DIRECTIONS: Draw a line to connect each component with its purpose or function.

ASME data plate	Automatically opens and closes to maintain internal pressure inside the container from getting too high when something is not normal.
1 ¾" ACME filler valve	Indicates the liquid level at the point a container is filled to its maximum permitted filling limit.
Fixed maximum liquid level gauge (Bleeder Valve)	Identifies the container and lists the working pressure and other tank information.
Float gauge	Connects the dispenser filler hose to the container to allow for a liquid propane transfer.
Relief valve	Confirms the liquid level before and after filling.

Preparing to Fill a Motorhome Tank

When inspecting the tank and valves, the areas to inspect for damage are: filler valve threads or gaskets, fixed maximum liquid level gauge, vapor service valve, relief valve or pipe-away hose.

If damage is present _____.

Prior to filling the motorhome, you must first ensure:

1. No one is _____
2. The ignition is _____
3. Customers leave _____

Turn off appliance pilots and electronic ignition systems before starting the filling process.

Filling Procedure

1. Put on _____.
2. Set propane meter to _____.
3. Remove _____ cap.
4. Connect dispenser _____ to tank filler valve. Tighten.
5. Open the vent valve on the _____ gauge.
6. Start the _____ by turning on the electrical switch and SLOWLY open the _____ valve.
7. Immediately close the hose-end valve when _____ is emitted from the fixed maximum liquid level gauge, or the OPD stops the flow.
8. _____ the fixed maximum liquid level gauge.
9. Shut off the pump by turning off the _____.
10. SLOWLY loosen the _____ to vent the liquid propane trapped between the hose-end valve and the tank filler valve.
11. Wait until venting _____ before completely disconnecting the hose.
12. Store the _____.
13. _____ the tank filler valve.

If propane continues to vent, retighten the hose connector. Contact your supervisor. Do not remove the hose connector.

NOTES:

_____

_____

_____

_____

_____

Check Understanding

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

1. Permanently mounted tanks used in motorhomes are built to _____ specifications.:
   - ❑ DOT
   - ❑ ASME
   - ❑ NFPA
   - ❑ NPGA

2. All vehicle-mounted ASME tanks are equipped with a(n) _____? **Select all that apply.**
   - ❑ ASME data phase
   - ❑ Fixed maximum liquid level gauge
   - ❑ Relief valve
   - ❑ Emergency shutoff valve

3. If the data plate is missing from the ASME tank, it cannot be filled.
   - ❑ True
   - ❑ False

4. Motorhome and catering truck tanks are used to supply propane appliances; therefore, appliance pilots and electronic ignition systems must be _____ before beginning the filling operation.
   - ❑ Turned off
   - ❑ Inspected
   - ❑ Turned on
   - ❑ Leak-checked

5. While filling ASME tanks, and a white mist appears from the fixed maximum liquid level gauge, immediately close the _____.:
   - ❑ Fixed maximum liquid level gauge
   - ❑ Hose end valve
   - ❑ Service pump
   - ❑ Pump

6. The _____ is used to determine when the tank has been adequately filled.
   - ❑ Float gauge
   - ❑ Rotary gauge
   - ❑ Fixed maximum liquid level gauge
   - ❑ Relief valve

7. Which of the following should be completed immediately after the filling process?
   - ❑ Check for leaks with a non-corrosive leak detector solution.
   - ❑ Relight the customer's pilot light.
   - ❑ Verify that appliance pilots have been extinguished.
   - ❑ Inspect the tank data plate.

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