PROPANE education & research COUNCIL

# DISPENSING PROPANE SAFELY

- Dispensing Propane Safely - Small Cylinders
- Filling Motorhome and ASME-Mounted Tanks
- Dispensing Autogas

# Instructor Guide

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# Check for Program Updates at

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## *Changes and Recommendations*


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:

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# Table of Contents



  

  

## Using This Instructor Guide

The Instructor Guide (THIS document) provides everything you need to know to teach this material in a LIVE classroom setting. Get familiar with following annotations which are used throughout the guide:

**00:00 – 00:30 (30 Min.)** — **Schedule/Timeframes:** The suggested time required for modules or various activities is only an estimate, so adjust as needed. First number indicates running clock time from start of session (0:00) through end of day.

**Question and Answer:** The question mark icon is used to identify suggested discussion questions or just to remind you to ask the class if they have any questions. Add your own discussion questions at these points too!

**Bold text** — **Boldface text** identifies points to emphasize. This may include points that are often misunderstood as well as safety warning boxes.

Underlined text — **Fill-in within Workbook:** The Participants' Workbooks have blanks for learners to fill in while listening. Underlined words in this guide are words participants should fill in.

**Break:** The stop sign indicates you've reached a natural break in the program, and this is an ideal spot for a break in the session.


**Handout:** The symbol (with the name of the document or page number) indicates a handout to be referenced by participants, either in their existing materials, or something that you may distribute during the session, such as a knowledge exam.

**Exercise or Learning Activity:** Throughout the program you'll find participant exercises designed to actively engage the learners.

**Check Understanding:** This symbol is used throughout on slides and in the workbook to indicate one or more review questions participants should be prepared to answer after content has been shared.

**Flipchart:** From time to time it's suggested that you (or participants) capture key points on a flipchart (or a whilteboard).

 


**Prizes:** You can promote fun and participation by providing small prizes throughout your training to encourage participation and friendly competition. These may be candy bars or small bags of treats that can be *shared* for group prizes.

**Enter (Return).** This symbol indicates when to press the ENTER button on your PC to activate the next bullet or slide animation in your PowerPoint presentation.

**Play Video.** This symbol indicates that current slide as an embedded video clip that you can play by moving your cursor over the presented slide and clicking the arrow.

Please add your own notes with stories, examples, or questions to this Instructor Guide. You may want to jot down notes during the class to remind you of things you'll address either later or in future classes. For example, you may want to:

- Jot down the time you start a lesson or module and when you finish it.
- Make a note to pass around a sample component or something else related to the lesson topics.

Feel free to use *colored pens* or highlighters to mark up the guide to help you facilitate this course.

  

# Program Overview

The ***Dispensing Propane Safely*** program was developed by the Propane Education & Research Council (PERC) and many others as part of the industry's commitment to promote the safe and efficient handling of propane.

***Dispensing Propane Safely*** consists of a total of 12 modules – See next page for a brief description of each. Modules may be delivered in various combinations to meet the needs of different learners. Commonly the instructor will present one of the following three programs:

**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 goes to 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. To ensure the learning builds on prior concepts, the order of deliver is Module 1, 11, 3, and then 12.

Presenting modules 1-12 sequentially covers all of the topics in all three programs.

## Program Objectives/Goals:

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.

## Modules in This Program

See the pages that follow for details regarding facilitating each module.

| Modules | Description |
|---|---|
| **1: Introduction to Propane** | Safety is an industry-wide responsibility that extends to anyone who works in propane. This module introduces propane to a non-industry member. |

  

| | |
|---|---|
| **2: Dispensing Station Equipment – Small Cylinder** | This module explains the parts of the dispensing station for filling small cylinders and ASME mounted tanks. |
| **3: Uncontrolled Propane Release and Fires** | This module explains how to handle emergency situations, like an uncontrolled release of propane and fires. |
| **4: Cylinder Components** | There are numerous kinds and sizes of cylinders that can hold propane. This module helps you identify the differences between the kinds of cylinders and what that means for filling them. |
| **5: Pre-Fill Inspection** | Prior to filling a cylinder, this module covers the inspection process to ensure the safety of the cylinder. |
| **6: Filling Cylinders by Weight & Volume** | Cylinders can be filled by weight or by volume depending on local legislation and the size and location of the filling. This module helps you identify which one is the legal way to fill the cylinder and how to do it. |
| **7: Post Filling Cylinders** | Following filling a cylinder, this is the procedure to ensure the cylinder is safe for use and transportation. |
| **8: Transporting DOT Cylinders** | This module covers the how to safely transport propane and the maximum limits for transportation based on the type of vehicle. |
| **9: Purging New Cylinders (OPTIONAL)** | This is an optional module for the *Dispensing Propane Safety Small Cylinder* Certificate. In this module, you learn how to purge a cylinder. Not all locations have the materials or are legally able to purge cylinders, which is why this is optional. |
| **10: Refueling Motorhomes and Other ASME-Mounted Tanks** | This module covers the inspection of Motorhomes and ASME tanks and how to fill them. |
| **11: Dispensing Station Equipment – Autogas** | This module explains the parts of the dispensing station for filling Autogas. |
| **12: Dispensing Autogas** | This module explains how to inspect and fill Autogas. |

The pages that follow provide details regarding facilitating each of the above modules. You may teach only some of these modules, depending on your learners' job function and needs.

 

## Program Timeline

This program is designed to be presented in modules, which can be customized to fit your audience or company need. Company managers scheduling the course for their own employees who have flexible scheduling options may choose to spread-out the modules; others may wish to progress through several or all the modules in a program in one sitting.

The following chart provides guidance for pacing the course. Time breakdowns for each module and lesson are listed on the following pages, but *modify the schedule as needed to work with your available timeframe*.

| Dispensing Propane Safely – Small Cylinders | Estimated Time | Clock Time |
|---|---|---|
| Module 1 – Introduction to Propane | 30 Min. | 0:00 – 0:30 |
| Module 2 – Dispensing Station Equipment | 30 Min. | 0:30 – 1:00 |
| **Break** | 10 Min. | 1:00 – 1:10 |
| Module 3 – Uncontrolled Propane Release and Fires | 25 Min. | 1:10 – 1:35 |
| Module 4 – Cylinder Components | 45 Min. | 1:35 – 2:20 |
| **Break** | 10 Min. | 2:20 – 2:30 |
| Module 5 – Pre-Fill Inspection | 35 Min. | 2:30 – 3:05 |
| Module 6 – Filing Cylinders by Weight and Volume<br>** This time is for teaching both weight and volume, teaching weight or volume individually decreases the time.* | 35 Min. | 3:05 – 3:40 |
| **Break** | 10 Min. | 3:40 – 3:50 |
| Module 7 – Post Filling Cylinders | 20 Min. | 3:50 – 4:10 |
| Module 8 – Transporting DOT Cylinders | 35 Min. | 4:10 – 4:45 |
| Module 9 – Purging New Cylinders<br>* Optional Module for Small Cylinders | 35 Min. | 4:45 – 5:20 |
| Program Summary and Wrap-up | 5 Min. | 5:20 – 5:25 |
| Small Cylinder Quiz | 40 Min. | 5:25 – 6:05 |

| Dispensing Propane Safely – Motorhomes and ASME-Mounted Tanks | Estimated Time | Clock Time |
|---|---|---|
| Module 1 – Introduction to Propane | 30 Min. | 0:00 – 0:30 |
| Module 2 – Dispensing Station Equipment | 30 Min. | 0:30 – 1:00 |
| **Break** | 10 Min. | 1:00 – 1:10 |
| Module 3 – Uncontrolled Propane Release and Fires | 25 Min. | 1:10 – 1:35 |
| Module 10 – Filling Motorhome and ASME-Mounted Tanks | 45 Min. | 1:35 – 2:20 |
| **Break** | 10 Min. | 2:20 – 2:30 |
| Program Summary and Wrap-up | 5 Min. | 2:30 – 2:35 |
| Filling Motorhome and ASME-Mounted Tanks Quiz | 25 Min. | 2:35 – 3:00 |

  

| Dispensing Propane Safely – Auto Gas | Estimated Time | Clock Time |
|---|---|---|
| Module 1 – Introduction to Propane | 30 Min. | 0:00 – 0:30 |
| Module 11 – Dispensing Station Equipment - Autogas | 30 Min. | 0:30 – 1:00 |
| **Break** | 10 Min. | 1:00 – 1:10 |
| Module 3 – Uncontrolled Propane Release and Fires | 25 Min. | 1:10 – 1:35 |
| Module 12 – Dispensing Autogas | 60 Min. | 1:35 – 2:35 |
| **Break** (Optional, if doing Quiz) | [10 Min.] | |
| Program Summary and Wrap-up | 5 Min. | 2:35 – 2:40 |
| Dispensing Autogas Quiz (Optional) | [35 Min.] | |
| Wrap-up the Session | 10 Min. | 2:40 – 2:45 |

  

# Pre-Work/Preparation

This section contains tips and reminders regarding what needs to be done prior to the training, including any pre-training communication and any follow-up required.

## Materials/Equipment

### *Standard Supplies for Every Course:*

- ❑ Course crate stocked with supplies
  - ❑ Markers (2 boxes)
  - ❑ 1 dozen pens
  - ❑ Masking tape (1 roll)
  - ❑ Name Tents or Name Tags
  - ❑ Sign-in sheets
  - ❑ Evaluation forms (unless printed in back of workbook)
- ❑ Flipchart paper (1 pad)
- ❑ Yellow sticky notes
- ❑ Refreshments (within budget)
- ❑ Prizes for activities

### *Unique Supplies for This Course:*

- ❑ Participant Workbooks – Instructor responsible for getting printed copies for learners
- ❑ [Optional] Final Exams for each module – Masters provided in final section of this guide

### *Room and Equipment:*

- ❑ Book room large enough to accommodate participants
- ❑ Seating: table-groups of 4-6; small table (front and center) for laptop and projector; refreshment table at back/side
- ❑ Laptop (w/ PPT slides loaded), projector, and screen
- ❑ Flipchart easel
- ❑ Music playlist and player/speaker

### *Flip Charts created in Advance:*

- ❑ Introductions – List of things to share
- ❑ Program Topics/Agenda – See program schedule (customize for your delivery)

  

- ❑ Parking Lot – To capture topics for later discussion
- ❑ [Optional] Any other flip charts unique to the module/s you will deliver

### *Environment:*

- ❑ Be sure the room is set-up to accommodate the number of participants you expect, and the layout supports the planned activities.
- ❑ Play background music to soften the cold, sterile feeling when participants enter the room.
- ❑ Display the PowerPoint Welcome/Title Slide.
- ❑ Mingle and greet participants as they arrive.

## Communication/Administration

### *Pre-class*

- ❑ Set up course in the Learning Center
- ❑ Enroll learners in the course in the Learning Center
- ❑ Send participant notifications (automated by Learning Center)
- ❑ Send follow-up reminder (automated by Learning Center)
- ❑ Contact facilities to obtain parking passes for participants if necessary
- ❑ _____
- ❑ _____

### *Post-class*

- ❑ Update training records
- ❑ Process the evaluation forms
- ❑ Send follow-up memo to managers of participants the week following the class, reminding them to meet with employees to ask what they learned (encourage them to have the employees share something they learned at an upcoming staff meeting).
- ❑ _____
- ❑ _____

## Background Resources for this Program

- ❑ Company materials/policies, if applicable to the topic/audience
- ❑ _____

  

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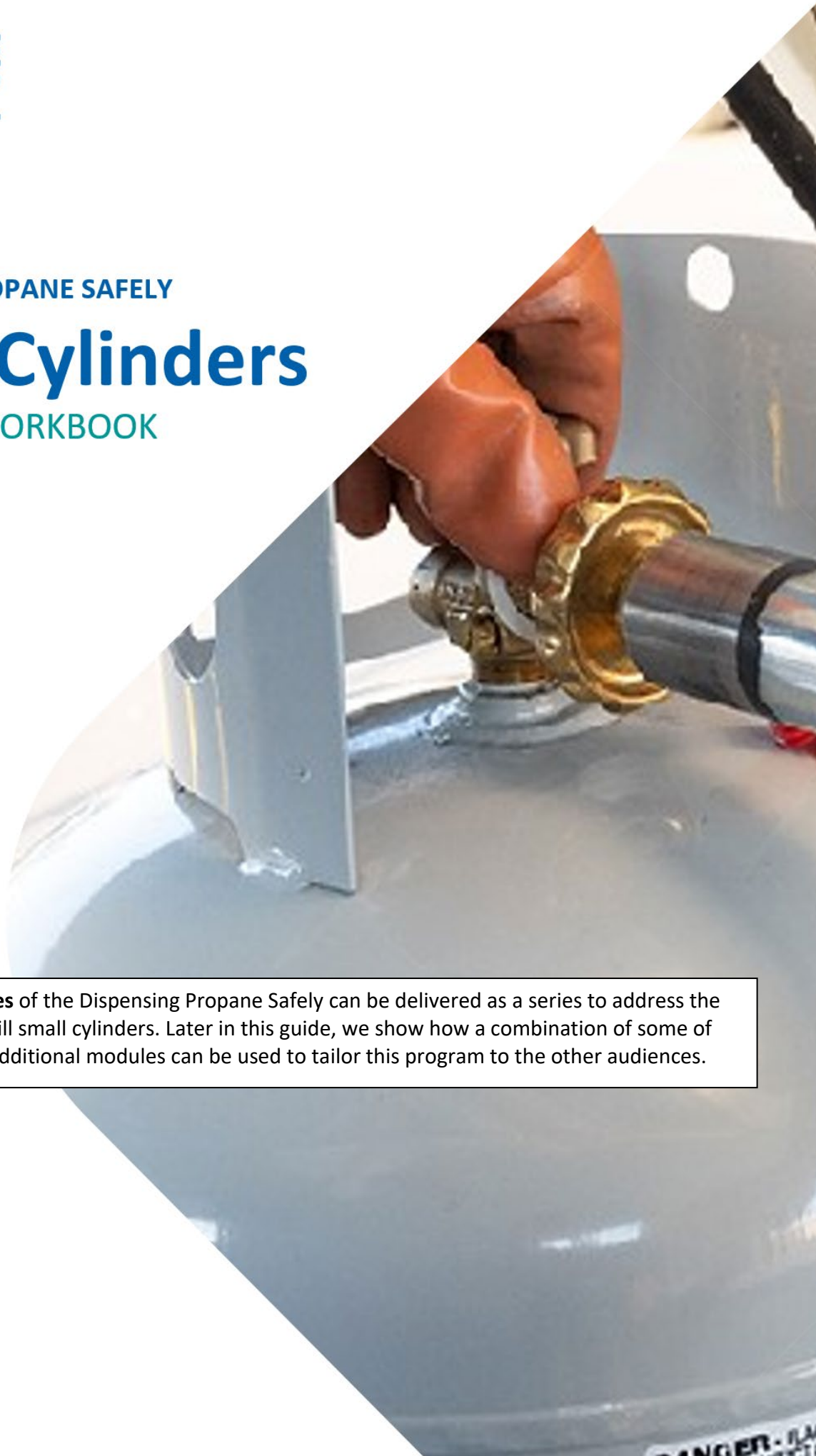
DISPENSING PROPANE SAFELY

# Small Cylinders

## Participant WORKBOOK



The **first nine modules** of the Dispensing Propane Safely can be delivered as a series to address the needs of those who fill small cylinders. Later in this guide, we show how a combination of some of these modules plus additional modules can be used to tailor this program to the other audiences.

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# Instructor Notes

**0:00 – 0:30 (30 Min.)**

## Module 1: Introduction to Propane


**0:00 – 0:15 (15 Min.)**

### *Welcome and Introductions*

Display the course title slide as participants are arriving. Prior to start time wander around the room greeting and informally getting to know participants as they arrive. This creates a warm and welcoming atmosphere.

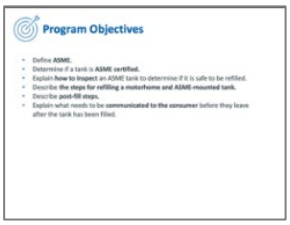
**OPTIONAL**: At start time, *welcome* everyone and ask participants to introduce themselves by sharing the following: (You may list these on a flipchart.)

- Name
- Company and Current Job
- Previous jobs
- What you are looking forward to in this job

Introduce yourself, sharing the same information and what qualifies you to be an instructor for this course.

**0:15 – 0:20 (5 Min.)**

### *Objectives and Agenda*




Use the next slides to provide a foundation for the rest of the class.

- Review the **Objectives** for the course.
- Review the **Topics** to be covered. NOTE: Since the topics – the modules – will vary depending on the program you chose to deliver, you might wish to list the module topics on a flip chart, which you can post and check-off as you progress through the training.

You might **SAY**:

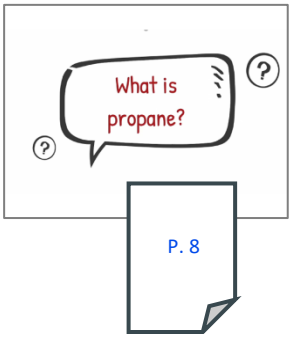
- This program is intended to prepare you to dispense propane to motorhomes and ASME tanks.
- It provides a FOUNDATION for learning these important job functions.
- It is important to note that this is the classroom part of this program, which also includes on-the-job training, which will be done onsite at the dispenser.

  **TX:** Now that we're all settled-in and know where we are headed, let's dive into our first topic – What is Propane?

**0:20 –0:25**
**(5 Min.)**

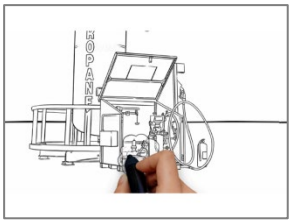
## *What is Propane*




**ASK**: **What do you know about propane?**

Field responses, such as: It's a gas that is colorless and odorless. It is used as a fuel because it will burn under the right conditions. **NOTE**: *Underlined words indicate blanks in the workbook that participants should complete as the class progresses.*

**TX**: Let's look at how we define propane.



Play the videos on these two slides.

**ASK**: **What safety considerations do we need to take when working with propane?**

Field responses, such as:

- It's flammable so we need to mitigate ignition sources.
- It's cold to the touch so we need to wear PPE.
- It's heavier than air so we need airflow to allow it to dissipate.

**TX**: Let's take a look at where propane comes from.

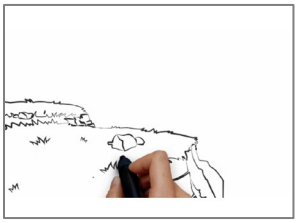
**0:25 – 0:30**
**(5 Min.)**

## *Sources of Propane*

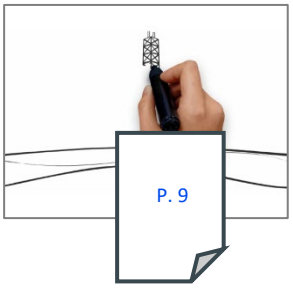
**ASK**: **What do you know about where propane comes from?**

Field responses, such as:

- It's from the oil refining process.
- It's naturally occurring.
- It's a byproduct from natural gas production.



Play the videos on the next two slides.




Most propane comes from natural gas and oil extraction. Some of it is created through the oil refining process.

**ASK**: **What are some uses of propane?**

Field responses, such as:

- Cooking
- Space heating
- Water heating
- Clothes drying
- Outdoor living
- Pool and spa heating
- Forklifts
- Farm irrigation
- Fleet engines
- Buses


You are an ambassador for the industry. Your knowledge and work with propane is integral to the use of this green energy source.

**0:30 – 1:00 (30 Min.)**

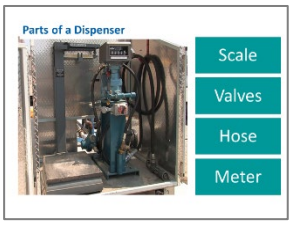
**0:30 – 0:45 (15 Min.)**

## Module 2: Dispensing Station Equipment


**TX:** Next, we are going to discuss Dispensing Station Equipment that is used to fill small cylinders.

### *Parts of a Dispenser*

Click the slide to highlight and identify the four parts. On the slides that follow you'll take a look at each of these.



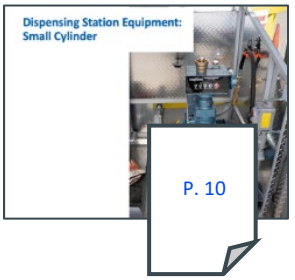

Here's an example of a type of dispenser. Let's identify the parts here and define the use of each one.

### *Dispenser Components*

Dispenser Components (4 slides)
- Scale
- Valves
- Hose
- Meter

Use the next four slides to define each part. Show and describe each component.

- **Scale**: Used to weigh the cylinder and assembly, to assure the correct amount of propane is distributed.
- **Valves**: Control the passage of propane from the dispensing station to the cylinder.
- **Hose**: Provides secure, gas-tight, and flexible connection between the dispensing station and the cylinder.
- **Meter**: A device that measures the quantity of liquid propane that flows through it when dispensing propane.




**TX**: There are some additional components you should also know about.

### *Additional Dispenser Components*

Dispenser Components (3 slides)
- Pump
- Main Internal Liquid Outlet Valve
- Liquid Flow Control

- **Pump**: A device that moves liquid propane from one container to another.
- **Main Internal Liquid Outlet Valve:** A valve installed in the liquid outlet of the propane dispenser tank and serves as the primary shutoff valve. This valve is controlled remoted with some type of operator or actuator.
- **Liquid Flow Control Valves- manual and hose-end:** A **manual valve** and the **hose-end valve** basically serve the same purpose which is to start and stop the flow of propane by a person manually opening or closing it.

**TX**: There are similar components found on both small cylinder and Motorhome and Autogas dispensing stations.

## *Small Cylinder, Motorhome, and Autogas Dispenser*


With the small cylinder dispenser, there was a single hose and nozzle option. In order to fill larger tanks, other dispensers have a few additional features and parts:

- **Hose**: A longer hose is used to connect to a motorhome or a car. It provides a secure, gas-tight, and flexible connection between the dispensing station and the cylinder on the motor home or automobile.
- **Breakaway Device**: A safety device that is designed to separate and stop the flow of propane from leaking into the atmosphere, in case a vehicle pulls away from the dispenser with the hose still connected.

Dispenser Components
(2 slides)
- Hose
- Breakaway Device

## *Types of Tanks*

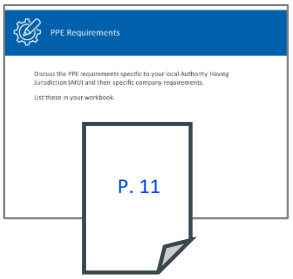
Your facility may have either vertical or horizontal tanks.


**0:45 – 0:50**
**(5 Min.)**

## Safety Considerations

Let's look at a video discussing the safety considerations for using the dispenser. *Play video on the slide. (25 seconds)*

**EXERCISE: PPE Requirements**
Divide into small teams (by company if multiple groups are participating). Ask learners to discuss the PPE requirements specific to your local Authority Having Jurisdiction (AHJ) and their specific company requirements.




**TX**: The final thing we want to look at is how to start-up the dispensing station equipment.

**0:50 – 0:55**
**(5 Min.)**

## Dispensing Station Start up

Play videos on the next five slides.

TX: Now let's review and wrap-up this module.

Videos (Showing Dispensing Station Start-up) – There are 5 slides, each with a 10-15 second video.

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**0:55-1:00**
**(5 Min.)**

## *Review*

Use the next few slides to do a quick review of the key points just covered.

Participants can complete this in their workbooks or as a group using the slide.

Show the question, field responses from the group; then after it's been answered click to the next slide to reveal the correct answers.

Quiz Slides
5 slides, each with answer key following the question (10 total) slides)

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**1:00 – 1:10**
**(10 Min.)**

## *Break*

Dismiss participants for a short break. Remind them to be back at _____.

Display slide for the next section.

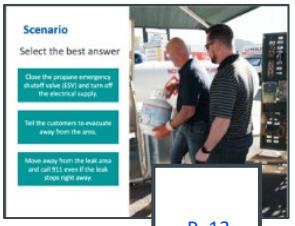
**1:10 – 1:35 (25 Min.)**

**1:10 – 1:25 (15 Min.)**

## Module 3: Uncontrolled Propane Release and Fires


Let's discuss what to do in the event of an emergency.
*Play slide 2.*

### *Scenario 1*

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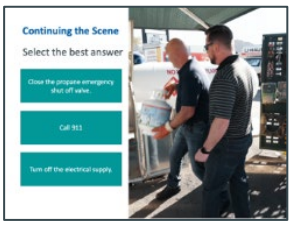
There are scenarios where you will be responsible for your and your customers safety. Let's take a look at one of these situations and how we might respond.
*Play slide 3 and 4.*
Have the class vote on which answer is the right answer. Respond to the incorrect answers about what makes them incorrect and why the correct answer is slide 7.
Invite discussion from the group.

### *Scenario 2 (continuing)*




*Play slide 8.*
Have the class vote on which answer is the right answer. Respond to the incorrect answers about what makes them incorrect and why the correct answer is slide 1.

### *Reasons for an Uncontrolled Release*

P. 13

There are a number of ways you might experience an uncontrolled release of propane. These include overfilling a cylinder, a valve that won't close, a punctured or damaged hose, among others.
Ideally you'll be able to stop the release of propane by closing a valve, or using the Emergency Shutoff Valve, or ESV.

P. 14

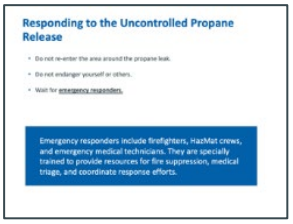
- The first step in any emergency situation is to take action. Evacuate the affected area. EVERYONE should leave the area immediately and stay upwind of the leak.
- Everyone should be at least 330 feet away in all directions from the leak. That is over a football field in length distance in every direction. For larger releases, evacuate a mile in distance.
- As you evacuate, see if you can identify the source of the leak. If it is safe to do so, activate the emergency shut off valve. This may be a switch, lever, or button.
- Once you are 330 feet away, call for assistance. Call 911 and tell them your name, your company name, the location of the uncontrolled propane release, your contact information, and any information you know about the uncontrolled propane release. For example, the kind of container and

what size, and whether or not anyone has been injured.
- After calling 911, notify your supervisor of the situation.

To introduce slide 16 you might **ASK:**

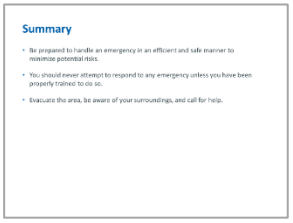
- **Why do you not re-enter the propane leak area?**
- **Are there exceptions to when you would re-enter the leak area?**
- **Who is authorized to enter the leak area?**




P. 15

⌦ Emergency responders include firefighters, HazMat crews, and emergency medical technicians. They are specially trained to provide resources for fire suppression, medical triage, and coordinate response efforts.

## *Summary*




Propane is a safe, economical, lean-burning, and versatile fuel. However, because it is flammable, emergency situations can and do arise.

⌦ Be prepared to handle an emergency in an efficient and safe manner to minimize potential risks to you and the public.

⌦ You should never attempt to respond to any emergency unless you have been properly trained to do so.

⌦ In the event of an uncontrolled release of propane, you should evacuate the area, be aware of your surroundings, and call for help. You should notify your supervisor as soon as it is safe to do so.

**TX:** Now, let's do a quick review to check your understanding.

**1:25 – 1:35 (10 Min.)**

## *Check Understanding*

Use slides 21-32 to do a quick review of these topics. Participants can complete this in their workbooks or as a group using the slide. Then use the next slide to reveal the correct answers.

Quiz Slides
6 questions, each with answer following the question (12 sides total)

P. 16-17

**1:35 – 2:20 (45 Min.)**

## Module 4: Cylinder Components


**1:35 – 1:50 (15 Min.)**

To establish the students' familiarity with propane cylinders,
**ASK**: *How many of you own a propane cylinder? Tell me about it*

- Field answers about barbecue cylinders, camping cylinders.
- If someone talks about an ASME tank, either at their home or in a motorhome, let them know that they are correct, that those are propane containers, but not the kind we're talking about filling in this program.

**ASK**: How many of these cylinders can you identify?

- Go through each one and its name and purpose.

⌦ Click to fly-in each label below the canisters as they are identified by the participants.


P. 18

NOTE: Participants can capture this information in the chart found in their workbook.

*Show slides 3-5. Discuss specific features of each cylinder to help the learner differentiate between them. Specifically call out how a learner can differentiate between a refillable and non-refillable 1-lb. camping stove cylinder.*

- A cylinder might be brought to you that shouldn't be filled with propane.
- To identify if a cylinder is approved to fill with propane, it will have certain markings.



**1:50 – 1:55 (5 Min.)**

## Cylinder materials


P. 19

*Show slide 6.*
Portable propane cylinders in use today are manufactured according to Department of Transportation (DOT) specifications and are commonly referred to as "DOT cylinders." Some cylinders made in the U.S. may have Transport Canada TC markings in addition to the DOT markings. We will focus on DOT markings.
Cylinders are typically made from aluminum, steel, or composite.


*Show slide 7:* Aluminum: Light weight. Corrosion resistant.


*Show slide 8:* Steel: Most common. Subject to corrosion if not maintained properly.


*Show slide 9:* Composite: Requires special cleaning requirements. Propane visible through the cylinder in some composites.

**1:55 – 2:00 (5 Min.)**

## Parts of the Cylinder

*If possible, show an actual cylinder to demonstrate, close up, the various features as being discussed.*

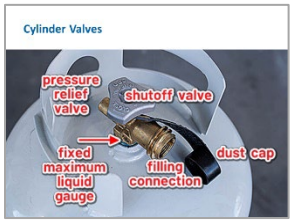

*Show slide 10: A*ll cylinders have a **foot ring.** It is used to protect the bottom of the cylinder body. It serves as a stand or base.

The location of the foot ring or base will help you establish if the cylinder is designed to be stored vertically or horizontally.


*Show slide 11:* At the top of the cylinder, there is a wide metal band called a **collar**. Collars protect the valves of the cylinder and often include handles for lifting and moving. Collars will either be welded to the cylinder or be threaded onto the cylinder so it can be removed if necessary.

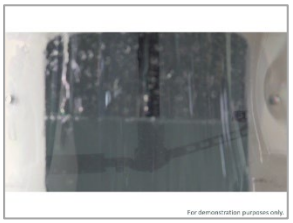
*Show slide 12: I*nside the collar, the number of **valves and fittings** depends on how the cylinder will be used.




Portable and exchange cylinder usually have one combination service valve and pressure relief valve screwed into the top of the cylinder.

*Show slide 13.*
Vertical cylinders between 4 and 40 pounds of propane capacity must be fitted with an **overfilling prevention device or OPD**. Some existing cylinders such as forklift and mower cylinders are not required to be fitted with an OPD. OPD cylinder valves are distinctively marked and equipped with a unique handwheel in the shape of a modified triangle.


**Show video on slide** 14 (30 seconds)
It illustrates how the float valve closes off the service valve and shuts off the propane supply when the cylinder has reached is maximum filling level.



**2:00 – 1:10 (10 Min.)**

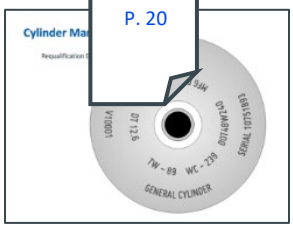
## Cylinder Markings

*Show slide 15.*
Markings are required by DOT and are the way to identify the cylinder.

- Markings must be legible and clearly and permanently marked on the collar or cylinder body.
- The markings must include the cylinder specification design code, service pressure, cylinder tare weight, water capacity in pounds, manufacturer name, and test or requalification date.

*Show slides 16-24 to show how each marking is displayed on the cylinder.*


P. 20



(total of 9 slides)

**2:10 – 2:20 (10 Min.)**

## *Review*

Use the next several slides to do a quick review of these topics. Participants can complete this in their workbooks or as a group using the slide. Then use the next slide to reveal the correct answers.

Quiz Slides
6 slides, each with answer key following the question
(3 question slides)

P. 21

**2:20 – 2:30**
**(10 Min.)**

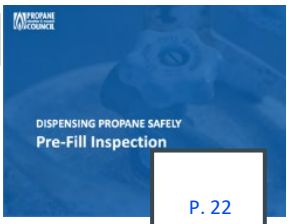
## *Break*

Dismiss participants for a short break. Remind them to be back at _____. Display slide for the next section.

**2:30 – 3:05 (35 Min.)**

## Module 5: Pre-Fill Inspection

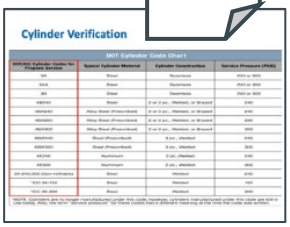



P. 22

**2:30 – 2:35 (5 Min.)**

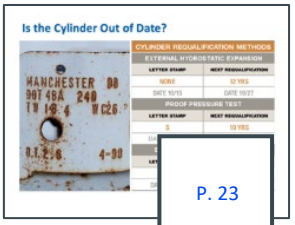
Before starting the cylinder filling operation, follow these steps to help ensure the safety of you, your customers, and fellow employees.

*Show slide 2:* Let's start by verifying that the cylinder is designed to be filled with **propane**.




The collar of the cylinder will be stamped with a **DOT** Code. Ensure it is one of the ones listed here as appropriate for propane storage.

*Show slide 3:* Now that you've established it is designed to hold propane, look at the cylinder date markings to ensure it is not out of date.




P. 23

Use the table on the slide to review the Letter Stamps and what they indicate in terms of the qualification periods.

**2:35 – 2:40 (5 Min.)**

### *EXERCISE: Is this Cylinder Qualified?*

Exercise Slides
3 examples, each with photo and question; followed by an answer slide (6 total slides)

Using the table in your student book, let's look at a few examples and decide if we can or cannot refill them.
*Show slides 4-9 and explain in each case why a cylinder can or cannot be refilled.*
ANSWERS:

1. This cylinder was requalified in 2016 by the proof pressure test method (S). It is not due for requalification until 2026.
2. This cylinder is out of date and should have been requalified in 2018.
3. This cylinder cannot be refilled. It should have been requalified within 12 years of its manufacture date, in 2011.

### *Purging Cylinders*


*Show slide 10* as an example of a cylinder that needs to be purged.

- 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 optional module for purging.

**2:40 – 3:00 (20 Min.)**

## *Visual Inspection*


**TX:** Now that you've verified the cylinder is within the qualification dates, you'll need to complete a visual inspection of the cylinder.

*Show slide 12:* If equipped, remove the plastic or paper sleeve from around the cylinder to spot any problems.


Problems that prevent refilling a cylinder include:

- Cracks or leaks
- Bulging, serious denting, or gouging (*Show slide 13)*
- Defective valves (*Show slide 14)*
- Damaged inner face seal of an OPD valve (*Show slide 15)*
- Damaged pressure relief device (*Also on slide 15)*
- Damage to the cylinder valve, valve protection, and cylinder foot ring (*Show slide 16)*
- Evidence of physical abuse, fire or heat damage, or excessive rusting or corrosion, and finally (*Show slide 17)*
- Out of date requalification (Also on slide 17)

Five additional slides Showing a variety of cylinder issues

*Show slide 18:* After inspection, if any of these issues are found, the cylinder must not be refilled and should be marked or tagged and set aside in a designated safe area.


## *Face Seal Inspection*


*Show slide 19.*

In your student Workbook, there is a copy of the *Face Seal Inspection Guide*. This can help you as you complete a visual inspect of a cylinder prior to filling it.

P. 24

*Show slide 20:* Valves and accessories should also be inspected prior to filling. They should be checked regularly for signs of wear.


Never look directly into a relief valve opening to inspect it. Instead, use a mirror to safely inspect the relief valve.

The cylinder owner has the right to take the defective, damaged, or out of date cylinder with them. However, the customer should be notified of the reason you didn't fill it, according to your company policy.

**If you encounter a cylinder with XXXs over the DOT specification number or marked "Condemned" on the shoulder, collar, or head, do not refill. Instead, mark and set aside in a designated safe area.**

*Show slide 21.*


Valves may also become damaged through improper cylinder maintenance. For example, personnel may fail to use proper brushes around cylinder openings when painting them. As a result, gauge faces "weep" holes in filler valves, and discharge openings of relief valves may be blocked with paint.

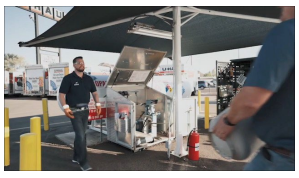
*Show slide 22.*


If you find a blue-green stain on the brass portion of the cylinder valve, the cylinder may have come in contact with anhydrous ammonia, which is often used to manufacture illegal drugs. Contact between a brass valve or component and anhydrous ammonia may cause the brass to corrode and could create a potential safety hazard. If you encounter this situation, don't fill the cylinder, set it aside in a designated safe area, contact the local fire or police department, and let your supervisor know.

*Discuss any specific company policies related to how your organization specifically handles containers that may have been used in making drugs.*

P. 22

*Play slide 23 video* which shows a customer brining in a cylinder that is disqualified and tagged by the attendant (30 seconds, but the VIDEO DOES NOT HAVE SOUND)

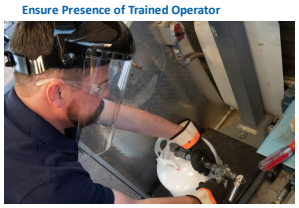


***SAY*** *the following concurrently with this video:*

- In the event that a cylinder should not be filled, provide the cylinder owner written notification so they understand what the issue is, according to company policy.
- You'll need to tag the cylinder and set-it aside, unless the customer insists on taking it with him/her.
- Your supervisor will provide the proper document used in your company. *Include where your organization keeps these forms and how to use them.*

*Show slide 24.*
Please remember that a trained operator must be present during the entire filling procedure. Always put on the appropriate personal protective equipment before filling cylinders.




**3:00 – 3:05**
**(5 Min.)**

## *Review*

Use the next 6 slides to do a quick review of these topics. Participants can complete this in their workbooks or as a group using the slide. Then use the next slide to reveal the correct answers.

Quiz Slides
3 question slides, each with answer key following the question (Total of 6 slides)

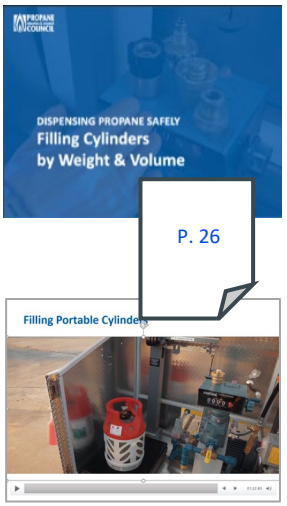
P. 25

**3:05 – 3:40 (35 Min.)**

**3:05 – 3:20 (15 Min.)**

## Module 6: Filling Cylinders by Weight and Volume

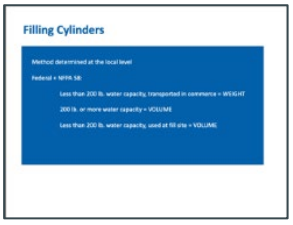



TX: Now you're ready to start filling cylinders. The steps involved in this process may vary depending on the type of equipment involved at your facility.

**NOTE: You will want to edit the content of this section based on what is done at your facility. This program encompasses both filling by weight and by volume (called out by the headings. Edit the student book to match. You do not need to edit if you do both. We do recommend regardless that you explain to the students the reasons for filling by weight or volume.**

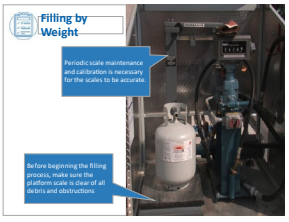
*Play slide 2 video (1:25)* which explains the two methods for filling a cylinder: by weight and by volume.

The way cylinders can be filled is determined at the local level.




- Federal regulation along with NFPA 58 code requires any propane cylinder <u>less than 200-pound</u> water capacity (84 pounds propane capacity) that will be filled and transported over the road be **filled by weight**, not by volume.
- These same regulations and code specify that any propane cylinder or tank of <u>200 pounds or more</u> water capacity (84 pounds propane capacity) **may be filled by volume**.
- In addition to this requirement, any propane <u>cylinder less than 200 pounds</u> water capacity (84 pounds propane capacity) <u>not transported over the road</u> but rather used at the fill site, **may be filled by volume** as well.

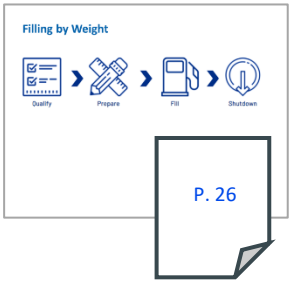
### Filling by Weight




**TX:** Now, let's look at the process for filling a cylinder by weight.

#### *Check the Scale*

- Before beginning the filling process, make sure the platform scale is clear of all debris and obstructions.
- Periodic scale maintenance and calibration is necessary for the scales to be accurate. **Note any specific calibration requirements and their frequency for the learners.**




#### *Four Main Steps*

Use the next slide to introduce the four main steps for filling small cylinders: Qualify, Prepare, Fill, and Shutdown. *As you progress*

*more detail will be provided on each step. Participants can capture notes in their workbook as you explain each step.*


## *STEP 1: Qualify (slide 6)*

When you qualify, confirm that the cylinder is in good physical condition and that it is within qualification date. This is what we covered in pre-fill inspection.

## *STEP 2: Prepare (slide 7)*


When preparing to fill, you will

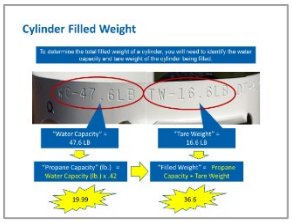
- Clear the Scale
- Calculate fill weight
- Set the scale
- Select an adapter if required
- Attach the adapter to cylinder
- Connect the hose
- Set the meter register to zero, if applicable

*Play videos on the next two slides:*
*Slide 8: Make sure the scale is prepared/calibrated (18 seconds)*
*Slide 9: Make sure cylinder Valves are closed (3 seconds)*

2 slides, each with a short video clip.

**TX:** Now, let's talk about how we calculate the fill weight.

## *How to Calculate Cylinder Filled Weight*




***SAY:*** **We're going to need both the water capacity and tare weight to calculate the cylinder filled weight, both of which we can find on the cylinder.**

**ASK:**
**Who can tell me the water capacity of this cylinder?**
⌦ Fly-in correct answer: 47.6 pounds.

**What is the tare weight of this cylinder?**
⌦ Fly-in correct answer: 16.6 pounds.

**How many pounds of propane can this cylinder hold?**
⌦ To calculate this we have to multiple the water capacity by the magic formula of 0.42

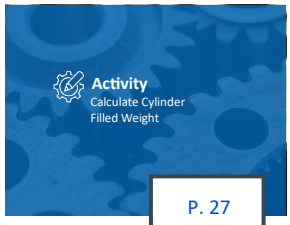
**So, who can calculate the propane capacity in pounds?**
⌦ Fly-in the Answer: 19.99 pounds

**If we put this cylinder on the scale and fill it with propane, at what total weight would it be FULL?**
⌦ To calculate filled weight we have to add the propane capacity to the tare weight of the cylinder.

**So, do the math . . . how many total pounds will this cylinder register on the scale when it has reached the maximum allowable level of propane?**
⌦ Fly-in the Answer: 36.6 pounds

**TX:** So, you can see how important it is that you understand this math in order to fill cylinders by WEIGHT. Let's do some additional practice in our workbooks to sharpen our skills with this.

## *EXERCISE: Calculate Cylinder Filled Weight*




P. 27
Exercises 1-3

Have participants complete the series of exercises in the workbook either individually or working with a partner. Each group will need to use their mobile phone's calculator.

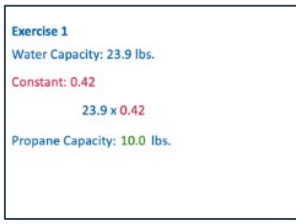
Have them stop after completing the first three exercises. After all are finished use the slides that follow to go over the answers for each.

*Exercise 1:*

**ASK:** If we have a water capacity of 23.9, what is the propane capacity? [Field responses and follow-up by asking how they calculated that.]

- ⌦ So first we need the constant: 0.42.
- ⌦ Then we multiply the water capacity by the constant.
- ⌦ That gives us 10.0.

We don't need to go beyond the tenths place. **Always round down. You do not want to overfill.**




*Exercise 2:*

**ASK:** Who can tell me the answer? Again, ask how they got it. Then use the slide and animations to show the process.

*Exercise 3:*

**ASK:** Who can tell me the answer? Again, ask how they got it. Then use the slide and animations to show the process.


**TX:** Are there any questions about completing this equation before we move on to the next three which are slightly more complex.

## *Calculate TOTAL Filled Weight*

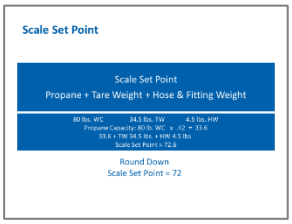
Now that you've got the propane capacity, the next step is to determine total filled weight of the cylinder. That would be the propane capacity plus the tare weight.


Show the next two videos which explain:

- How to calculate the hose weight (45 seconds)
- How to determine total filled weight (25 seconds)

Use the slide to walk them through another example:

- Like before, we'll compute the propane capacity from the water capacity.
- Then we'll add the tare weight to that. In this example, the water capacity is **80 lbs.**
- That makes the propane capacity 80 times 0.42 = **33.6.**
- Then we add the tare weight, 34.5, and the hose weight of 4.5 pounds, for a total filled weight of **72.6 lb**.




Most scales will not allow you to set that precisely, round down to the nearest whole number, so we'd set the scale at 72

**TX:** Now, let's practice doing these additional calculations.

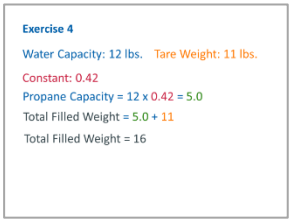
## *EXERCISE (Continue with 4, 5, 6, and 7):*

P. 27
Exercises
4-7

As before, when participants have finished working in their workbooks, use the next four slides (with animations) to review the correct answers.

*Exercise 4:*

**ASK:** Who can tell me the answer? Again, ask how they arrived at that answer.
Then use the slide and animations to show the math calculations to arrive at the answer.



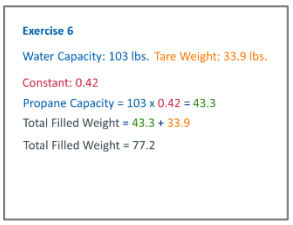

  

*Exercise 5:*

**ASK:** Who can tell me the answer? Again, ask how they arrived at that answer.
Then use the slide and animations to show the math calculations to arrive at the answer.

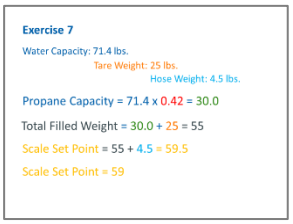

*Exercise 6:*

**ASK:** Who can tell me the answer? Again, ask how they arrived at that answer.
Then use the slide and animations to show the math calculations to arrive at the answer.




*Exercise 7:*

**ASK:** Who can tell me the answer? Again, ask how they arrived at that answer.
Then use the slide and animations to show the math calculations to arrive at the answer.




**Making the Connections**

**SAY:** Now that we know the scale set point, we've only got to make sure that these final few preparation steps are completed . . .

Use the video on the next slide to show the final preparation steps. *(20 seconds)*

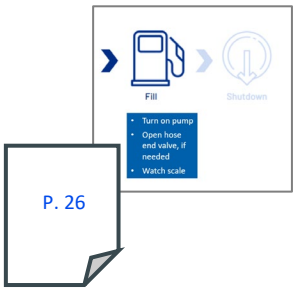
**TX:** Now we're ready to move on to the FILL step.

## *STEP 3: Fill (slide 23)*

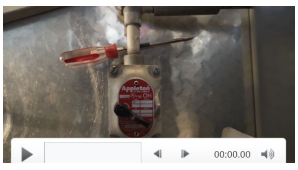
The fill step includes these activities:

- Turn on pump
- Open hose end valve if needed
- Watch scale

*Participants should fill-in the blanks in their workbooks.*

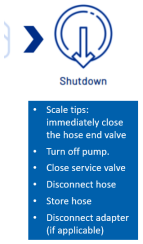



Show the short videos (less than 10 second) on the next two slides, which explain the Fill step.



### *STEP 4: Shutdown (slide 26)*




P. 26

**TX:** Finally, one of the most important steps is shutting down and securing the dispenser. Let's review the steps.

The fill step includes these activities:

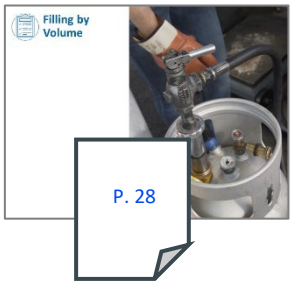
- When scale tips immediately close the hose end valve
- Turn off pump
- Close service valve
- Disconnect hose
- Store hose
- Disconnect adapter (if applicable)

Show the video on the next slide, which illustrates the shutdown steps. (30 seconds)

**TX:** Sometimes the cylinders with an OPD valve could stop the flow of propane before the desired weight is reached.

Show the video on the next slide which indicates how to handle these situations.

## Filling by Volume

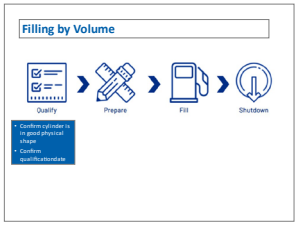



P. 28

**TX:** Now let's talk about how this process varies when we're filling by volume.

Instruct participants to follow-along in their workbooks, and fill-in the missing words as you briefly discuss the four steps.

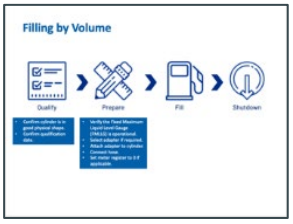
### *Step 1: Qualify*




The qualify step is identical regardless of how we fill our cylinders, so let's start with prepare.

## *Step 2: Prepare*



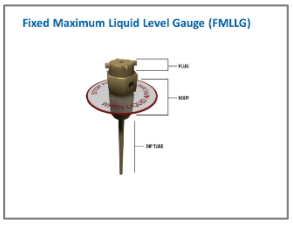

Use the next slide to present the steps of prepare:

- Verify the Fixed Maximum Liquid Level Gauge (FMLLG) is operational
- Select adapter if required
- Attach adapter to cylinder
- Connect hose
- Set meter register to 0 if applicable

Use the videos on the next two slides to illustrate the preparation steps:

- The Overflow Protection Device (13 seconds)
- Before filling . . . (30 seconds)

## *Fixed Maximum Liquid Level Gauge*



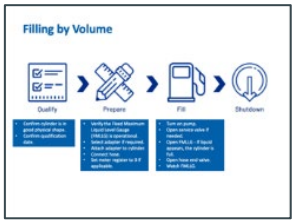

Use the next slide to show what the Fixed Maximum Liquid Level Gauge looks like.

*Play video on the next slide* to explain the steps to take to prepare the cylinder for filling. (30 seconds)

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

**TX:** Now we're ready to fill the cylinder. Let's review the filling steps.

## *Step 3: Fill*




Use the next slide to present the steps to fill the cylinder:

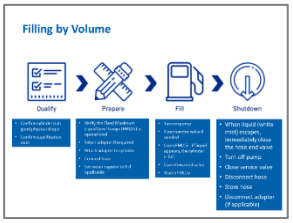
- Turn on pump
- Open service valve if needed
- Open FMLLG – If liquid appears, the cylinder is full
- Open hose end valve
- Watch FMLLG

Reinforce these steps by playing the video on the next slide. (14 seconds)

**TX**: Not too difficult right, now we're ready for shut down.

## *Step 4: Shutdown*




Use the next slide to present the steps to fill the cylinder:

- When liquid (white mist) escapes, immediately close the hose end valve
- Turn off pump
- Close service valve
- Disconnect hose
- Store hose
- Disconnect adapter (if applicable)

**TX**: Not too difficult right, now we're ready for shut down.

Reinforce these steps by playing the videos on the next three slides:

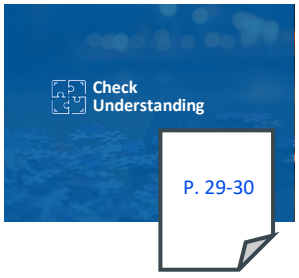
- White mist escapes; close fixed valve (11 seconds)
- Shut off pump (14 seconds)
- Make sure service valve is close, check that valves are closed and nothing is venting (39 seconds)

ASK: Are there any remaining questions about filling by volume? (Discuss and provide additional information as needed.)

**TX**: OK, let's take a minute to review what we've learned.

**3:20 – 3:40**
**(20 Min.)**

## *Check Understanding*




Use the next 16 slides to do a quick review of these topics. Participants can complete this in their workbooks or as a group using the slide. Then use the next several slides to review the questions, get their responses, and reveal the correct answers.

Quiz Slides
8 question slides, each with answer key following the question (16 total slides)

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.

**3:40 – 3:50**
**(10 Min.)**

## *Break*

Dismiss participants for a short break. Remind them to be back at _____.

Display slide for the next section.

**3:50 – 4:10 (20 Min.)**

**3:50 – 4:05 (15 Min.)**

## Module 7: Post Filling Cylinders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**TX:** Now let's discuss what you will do immediately after filling any cylinder.

### *Check for leaks*

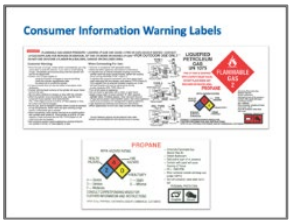
First, you need to ensure there are no leaks before the filled cylinder is released to the owner. Your supervisor will provide you with a suitable leak detection solution.

Play the video which explains how to check for leaks. (26 seconds)
*Play slide 2 video.*

**ASK**: What are the specific actions your organization follows when a cylinder is leaking? *(Discuss as appropriate.)*

### *Ensure Proper Labeling*

Now that the cylinder is filled, you'll need to label the cylinder and secure the dispenser.




Cylinders used to transport propane must be clearly and durably marked with proper shipping name and hazard class.


*Play the video on the next slide to reinforce the labeling requirements. (19 seconds)*

**SAY**: Sometimes the consumer information can no longer be read or has been removed. This information is required on all small cylinders.


Play the video on the next slide (18 seconds):

> *Be sure to apply an appropriate warning label if the original manufacturer's label is not present or clearly legible.*

*Be aware that if you removed a paper or plastic sleeve to inspect the cylinder before filling it, you may need to apply new warning labels as the sleeve may have had the warnings listed on it.*

*Show the specific labels required by your AHJ. Discuss if participants are to use different ones for different situations.*

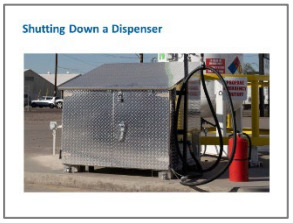
Optional: Show samples of various labels

## *Replace Caps*

Show video to emphasize the need to replace caps. (7 seconds)

## *Shut Down Dispenser*

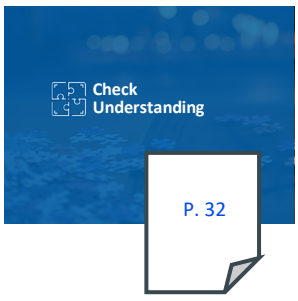
When the dispenser is not in use or when an operator is not present, the dispenser should be shut down and secured.




Show the video on the next slide to illustrate the shutdown process. (18 seconds)

**4:05 – 4:10**
**(5 Min.)**

## *Check Understanding*




Use the next 6 slides to do a quick review of these topics. Participants can complete this in their workbooks or as a group using the slide. Then use the next several slides to review the questions, get their responses, and reveal the correct answers.

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.

Quiz Slides
3 question slides, each with answer key
(6 total slides)

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

**4:10 – 4:45 (35 Min.)**
**4:10 – 4:35 (15 Min.)**

## Module 8: Transporting DOT Cylinders


**ASK:**

- **How many of you have propane cylinders at your house - for camping stoves or a barbecue?** (Expect many raised hands.)
- **How did those cylinders get to your house?** (*Field answers: I drove them, they were delivered.)*

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In all of these situations, the cylinders were transported over the road. As you know, you can legally transport a propane cylinder in your car.

### *Consumer Vehicle – Enclosed*

**ASK:**

- **Can anyone tell me how big of a propane container you legally transport in your car?**
  ⌦ fly-in correct answer: 45 lbs.
- **How about the maximum total weight of the load?**
  ⌦ fly-in correct answer: 90 lbs.


Encourage participants to capture requirements in their workbook.

**SAY**:

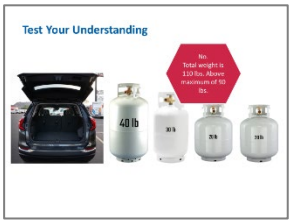
- Typically, consumers will have enclosed vehicles, such as a passenger car or SUV. In an enclosed space, industry code specifies the largest amount of propane that can be transported is 90 pounds, with no single cylinder greater than 45 pounds.
- When calculating the weight for transportation reasons, the weight of the propane is used, not the total weight including the weight of the cylinder.

**TX**: Now, let's see how this works out in practice.

### *EXERCISE: How Much Propane Can be Transported?*

Use next two slides as a group exercise.

**Situation 1**:
A customer brings in a 40-lb, a 30-lb, and two 20-lb cylinders.
**ASK: Can they take the cylinders home in their enclosed car after you fill them?**
⌦ *Fly-in the answer (no).*



**Situation 2**:
A customer brings in three 20-lb cylinders.
**ASK: Can they take the cylinders home in their enclosed car after you fill them?**

⌦ *Fly-in the answer (yes).*


## *Consumer Vehicle – Open Bed*

If the customer has an open bed vehicle, like a pickup truck…

⌦ …they can transport a maximum capacity of 1000 lbs. gross aggregate weight.

⌦ Gross aggregate weight is the weight of the cylinder plus the weight of the gas in the cylinder.


## *Local Jurisdiction Requirements*

**TX:** We've talked about the broad legal requirements but some local jurisdictions have other requirements.

**Discuss the specific local requirements for filling in your location.**


## *Company Policies – Loading and Unloading*

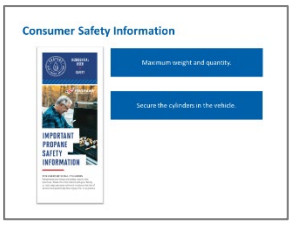
*To introduce this topic. Show the short, silent video on the next slide (12 seconds)*

**Discuss the specific company policies related to loading and unloading consumer cylinders.**

### Consumer Education

*Use the next slide as a placeholder while you briefly discuss consumer education.*

- Consumer safety pamphlets like the one shown here can be downloaded and printed from the web site. You may want to pass out copies of additional pamphlets.
- Discuss the expectation for distributing any consumer safety information after filling a cylinder.



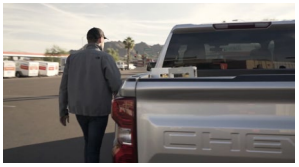

OPTIONAL: Pass out copies of consumer education flyers

Fly-in the blue boxes on the slide:

⌦ The first key point to share with customers about transporting their propane cylinders, are the maximum weight and quantity.

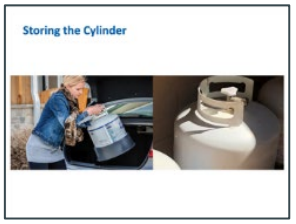
⌦ Then it's how to secure the cylinders in the vehicle.



Show the short video (28 seconds) to illustrate the key points of properly securing cylinders for transport.

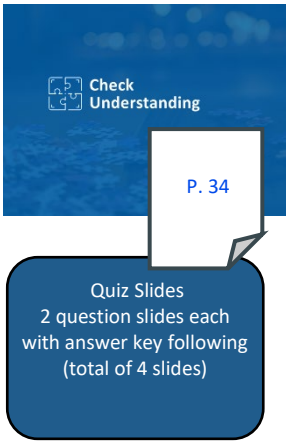
## *Storing the Cylinder*




- Propane cylinders need to be stored in a cool, dry place with lots of air flow.
- As the pressure of propane will increase with temperature, propane cylinders should be stored outdoors, out of direct sunlight, and not near any ignition sources.
- It is recommended that the cylinder owner travel directly to where the cylinder will be unloaded, and that a cylinder should never be left in an enclosed vehicle. Enclosed vehicles can heat up inside quickly, which may cause the pressure to increase inside the cylinder and could lead to the pressure relief valve opening, leaking propane inside the vehicle. This must be avoided for the safety of everyone near the vehicle.

**4:35 – 4:45**
**(10 Min.)**

## *Check Understanding*




Use the next 4 slides (slides 13-16) to do a quick review of these topics. Participants can complete this in their workbooks or as a group using the slide. Then use the next slide to reveal the correct answers.

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

If you are not doing the additional purging module, take a break, and then continue with the summary and quiz as outlined below. Otherwise move to the final module and then do the wrap-up activities.

**4:45 – 4:50 (5 Min.)**

**SKIP THIS if teaching Module 9 – You will summarize and wrap-up after you complete that final module.**

## Program Summary and Wrap-up

The information in this program was developed to explain how to safely dispense propane to a small cylinder.

**Review Program Objectives**

Now that you've completed this program you should be able to:

- Identify the **purpose for each type of cylinder** by its size and components.
- Determine whether a **cylinder can safely be refilled.**
- Describe the steps of a **cylinder pre-fill inspection**.
- Demonstrate how to **fill a cylinder by weight or volume** based on local regulations and company policies.
- Describe how **to close the valves on the dispenser** and secure it.
- Explain how to **load and secure DOT cylinders for transportation**.
- Explain storage **recommendations as they would be told to a consumer**.

**4:50 – 5:30 (40 Min.)**

**DELAY THIS if teaching Module 9 – You will do this after you complete that final module.**

### *Final Quiz for the Program*

In order to receive the certificate for this course, either have the learners take the correct quiz online or print the final knowledge quiz at the back of this instructor guide. The three choices align with the specific method of filling at your location: weight, volume, or weight and volume. Learners who score 75% or higher should be given the certificate of completion. Choose the appropriate certificate and provide to passing participants.

***Following this program, complete the On-the-Job training worksheets for this material.***

**4:45 – 5:20 (35 Min.)**

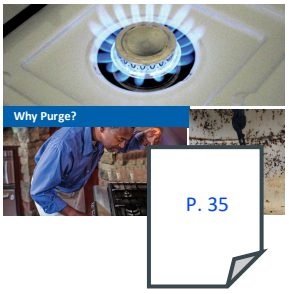
**4:45 – 5:00 (15 Min.)**

## Module 9 [OPTIONAL] - Purging New Cylinders


**NOTE: This module is only for organizations that have the capacity, legal ability, and interest in purging cylinders at their location. If you have questions about this capacity, please contact your propane supplier.**

### *Module Introduction*

New propane cylinders that haven't been vacuum purged by the manufacturer or have been opened to the atmosphere must be purged of air and moisture before they are placed into service.




**Partner Discussion**: Have participants work in pairs to answer the question in their workbooks:
WHY do we purge cylinders?

Allow a couple minutes for discussion. Then bring the group back together and **ASK: So, who knows WHY we purge cylinders?** (Field responses from a cross section of groups.)

**Make the following points about WHY purging is necessary:**

- Air inside the cylinder will have some moisture content, and this moisture may cause the cylinder to corrode. It is the moisture in the air that causes corrosion not air itself.
- Appliance burners may not burn properly because too much air is supplied, causing an improper gas/air mixture. Also, appliances may not ignite when air is present in the propane.
- Air and moisture inside a propane cylinder may cause the odorant in propane to lose its smell."

Fly in the labels on the three photos as you review the reasons for purging


**TX**: So, we understand that we don't want air in a cylinder, so . . .

**ASK***: WHAT do we use to purge a cylinder? (Propane, of course!)*

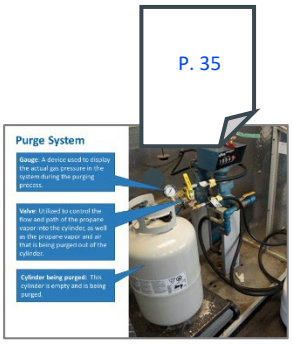

**SAY**: When purging a cylinder, you will use propane vapor from another propane source. Never use liquid propane to purge a propane cylinder. It's not effective, and may cause any moisture inside the cylinder to freeze.

**TX:** To accomplish this we need some special equipment.

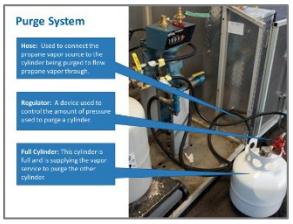
  

## *The Purge System*

*Use the next two slides to discuss the parts of the purging system. Encourage participants to note these on the diagram in their workbooks.*




- **Gauge**: A device used to display the actual gas pressure in the system during the purging process.
- **Valve**: Utilized to control the flow and path of the propane vapor into the cylinder, as well as the propane vapor and air that is being purged out of the cylinder.
- **Cylinder being purged:** This cylinder is empty and is being purged.




- **Hose:** Used to connect the propane vapor source to the cylinder being purged to flow propane vapor through.
- **Regulator:** A device used to control the amount of pressure used to purge a cylinder.
- **Full Cylinder:** This cylinder is full and is supplying the vapor service to purge the other cylinder.

**ASK**: Are there any questions about any of these components?

## *The Purging Process*

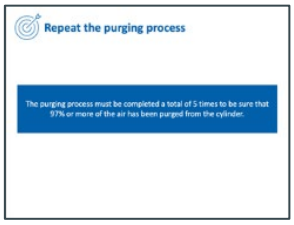
**TX**: Now that we understand the components, let's talk about how these are used in the purging process.

*Play and discuss as necessary the videos on the next three slides which illustrate the purging process.*

- Video 1: Securely connect the hose (14 seconds)
- Video 2: Pressurize the cylinder; open values, check for leaks (35 seconds)

- Video 3: Bleed off the pressure; vent-off pressure and air; prevent ignition (1 min.)

Use the next slide to emphasize this key point:
The purging process must be completed a **total of five times** to be sure that 97% or more of the air has been purged from the cylinder.

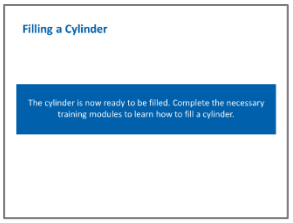



*Continue with the video on the next slide:*

- Video 4: Leave the vapor hose connected; pre-pressurize, Close valves and check for leakage. (20 seconds)

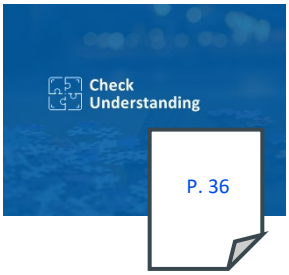
Show the final slide to wrap-up the process.
**SAY**: The cylinder is now ready to be filled.




**TX:** Now, let's take a moment to review what you've learned in this module.

**5:00 – 5:20**
**(20 Min.)**

## *Check Understanding*




Use the next several to do a quick review of the key points in this module. Participants can complete this in their workbooks or as a group using the slide. Then use the next slide to reveal the correct answers.

Quiz Slides
6 question slides each with answer key following (total of 12 slides)

**Note this is the only test of this content. For certifying employee understanding, you may choose to collect and grade these individually. The test is in the Participant Workbook.**

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

**5:20 – 5:25 (5 Min.)**

## Program Summary and Wrap-up

The information in this program was developed to explain how to safely dispense propane to a small cylinder.

**Review Program Objectives**

Now that you've completed this program you should be able to:

- Identify the **purpose for each type of cylinder** by its size and components.
- Determine whether a **cylinder can safely be refilled.**
- Describe the steps of a **cylinder pre-fill inspection**.
- Demonstrate how to **fill a cylinder by weight or volume** based on local regulations and company policies.
- Describe how **to close the valves on the dispenser** and secure it.
- Explain how to **load and secure DOT cylinders for transportation**.
- Explain storage **recommendations as they would be told to a consumer**.

**5:25 – 6:05 (40 Min.)**

### *Final Quiz for the Program*

In order to receive the certificate for this course, either have the learners take the correct quiz online or print the final knowledge quiz at the back of this instructor guide. The three choices align with the specific method of filling at your location: weight, volume, or weight and volume. Learners who score 75% or higher should be given the certificate of completion. Choose the appropriate certificate and provide to passing participants.

**(5 Min.)**

### *Wrap-up the Session*

Review the list of **expectations** from the beginning of the training session.

Refer to the **Parking Lot flip chart** and address any 'open items' from the class session. If any items remain open, advise group how you will communicate answers to them after the training session. Thank participants for coming and for their active participation throughout the session. Hand out the ***Certificates of Completion*** to each participant. NOTE: These need to be completed by the instructor prior to this point. One suggestion is to do this while

Certificates of Completion

participants are completing the final quiz, so they are ready to hand out.


OPTIONAL: Hand out the ***Course Evaluation*** and ask participants to leave these _____ on their way out.

**Following the Session**

## *Post-Session Clean-up*

Following the close of the session be sure participants get credit for completing the program.

- Mark students as **complete** for attendance.
- Following this program, complete ***the On-the-Job training worksheets*** for this material.
- OPTIONAL: To have the learner's completion of this course recorded in their Learning Center transcript send the class roster to learning@propane.com. It will take up to 3 business days to update the transcript.

**NOTE**: You will find instructions for how to do this in the Instructor Toolkit and on the LMS.

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DISPENSING PROPANE SAFELY

# Motorhomes and ASME-Mounted Tanks

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# Filling Motorhome and ASME-Mounted Tanks

Complete the introduction and **first three modules** from the Small Cylinder modules. Then, open PowerPoint: DPS10_FillingMotorhomeAndASMEmountedTanks and continue as directed below.

**1:35 – 2:20 (45 Min.)**

**1:35 – 1:50 (15 Min.)**

NOTE:
[*ii page numbers*] are for program 2 workbook for learners focused on motorhomes and ASME-mounted tanks

## Module 10: Filling Motorhome and ASME-Mounted Tanks


P. 37
[ii – p18]

There are larger size propane containers that you may be asked to fill. These can be found mounted to the vehicle frame on motorhomes and food trucks to supply propane vapor for:

- heating appliance,
- heating the water,
- cooking or
- generating electricity.

*Learners capture this in their workbook*

These larger propane containers are known as tanks. They have to be approved by ASME, which is the American Society of Mechanical Engineers.

Show photo on next slide of a typical ASME tank mounted on a motor home.


**TX:** Let's begin by reviewing the components you'll find on one of these tanks.

### Parts of the ASME Tank

Use the next five slide to review each of the parts of the ASME tank. Compare to the DOT cylinders if the learners also took the Small Cylinders course.

Vehicle-Mounted ASME Tank (5 slides)

P. 37
[ii – p18]

Encourage participants to capture notes on the diagram in their workbook.

**ASME Data Plate:**

- The ASME data plate identifies the container and lists the working pressure and other tank information.
- If the data plate is missing or illegible or shows a working pressure other than 250 or 312 psi, the tank must not be filled.

**1 3/4" ACME Filler Valve:**

- This valve is used to connect the dispenser filler hose to the container to allow for a liquid propane transfer.
- Typically the filler valve is also equipped with an internal automatic stop-valve that acts as an overfill prevention device or OPD.

**Relief Valve:**

- A device installed within the vapor space of a propane container
- Automatically opens and closes to maintain internal pressure inside the container from getting too high when something is not normal.

**Fixed Maximum Liquid Level Gauge:**

- A device that indicates the liquid level at the point a container is filled to its maximum permitted filling limit.
- This device is commonly referred to as a bleeder valve.

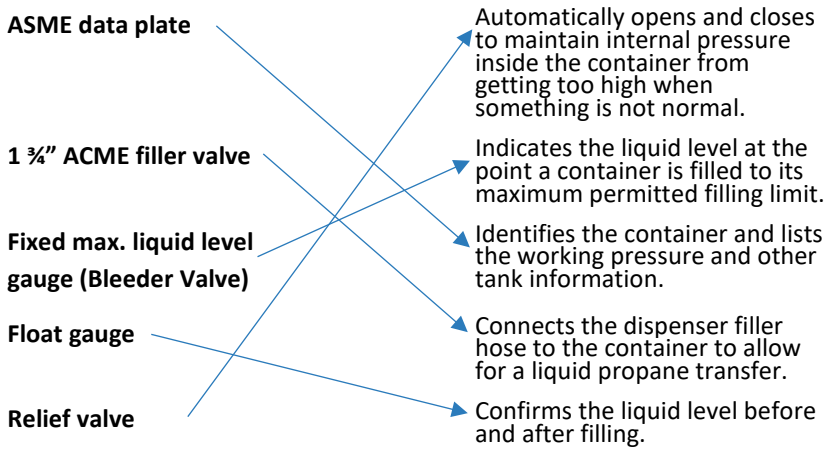
**Float Gauge:**

- Used to confirm the liquid level before and after filling.
- They are not used for filling, but to let owner know when it is time to refill.

## *EXERCISE: Tank Components*

Direct participants to take a moment to review the components of an ASME tank by completing the matching exercise in their workbooks. Then review the answers as a group.


P. 38
[ii – p19]



**1:50 – 1:55**
**(5 Min.)**

## Filling Motorhomes

Use the videos on the next seven slides to review the process for filling the tank of a motorhome.

- *Visually Inspecting the Tank (29 seconds)*
- *Inspect for Dents or Gouges (9 seconds)*
- *Make sure no-one is inside, have customer leave area (13 seconds)*
- *Appliance pilots (and electronics) need to be turned off (29 seconds)*
- *Put on PPE Required, Set meter to Zero, Remove Fill cap, Connect Dispenser fill hose connecter, open vent valve (54 seconds)*
- *Start the pump, open hose-end valve, when white mist is emitted immediately close the hose-end valve (26 seconds)*
- *Close the Fixed Max Liquid Level gauge…several additional steps (Black screen during middle) ends with replacing filler cap. (54 seconds)*

There are a total of 7 slides, each with a video as described here in the middle column. Encourage participants to fill-in the blanks in their workbook as they watch the videos.

PP. 38-39 [ii – p19-20]

**TX**: Let's circle back to your workbooks to see if you captured the key points there during the video.

## *ACTIVITY: Filling a Motorhome Tank*


Take a couple minutes to review the steps involved in preparing to fill a motorhome tank by going over the blanks at the bottom of page __ in the workbook. (Astute participants may have completed this as they watched the videos; but likely not everyone did.)

PP. 38-39 [ii – p19-20]

**ASK**: What did you put in this blank? (as you read each statement)

If damage is present ___DO NOT FILL THE TANK_____.

Prior to filling the motorhome, you must first ensure:

1. No one is __INSIDE THE VEHICLE_____
2. The ignition is __TURNED OFF_____
3. Customers leave __THE IMMEDIATE AREA_____

**TX**: Now, let's see if you have the steps of the filling procedure well in mind.

## *Filling Procedure*

**ASK**: What did you put in this blank? (as you read each statement)

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

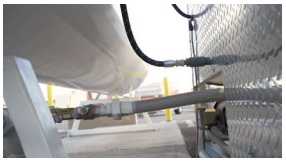
**1:55 – 2:00**
**(5 Min.)**

## *Company Policies*


Discuss your specific company policies which may vary from those described up to this point. Discuss the company policy regarding lighting the pilot light on vehicles and why an employee may or may not do this.

Play video on next two slides:

- *When dispenser is not in use – shut down and secure it (15 seconds)*
- *Shutdown procedures (15 seconds)*



**ASK**: What are the company policies and shut down procedures specific to your organization? *Discuss as appropriate*.

**TX:** If there are no other questions, let's take a moment to check your understanding of the key points made in this module.

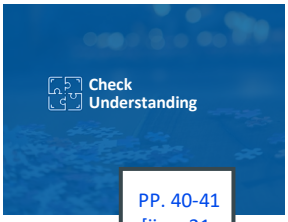
  

**2:00 – 2:20**
**(20 Min.)**

## *Review*

Participants can complete the review questions in their workbooks individually, with a partner, or as a group using the slides.

Use the next several slides to reveal the correct answers.




PP. 40-41 [ii – p21-22]

7 Quiz questions, each with answer key following the question (14 slides total)

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 plate**
   - ❑ **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.

**2:20 – 2:30 (10 Min.)**

## *Break*

Dismiss participants for a short break.
Remind them to be back at _____.

- During this break prepare for the final quiz.

**2:30 – 2:35 (5 Min.)**

## Program Summary and Wrap-up

The information in this program was developed to explain how to safely dispense propane to a motorhome or ASME-mounted tank.

**Review Program Objectives**

Now that you've completed this program you should be able to:

- Define **ASME.**
- Determine if a tank is **ASME certified.**
- Explain **how to inspect** an ASME tank to determine if it is safe to be refilled.
- Describe the **steps for refilling a motorhome and ASME-mounted tank.**
- Describe **post-fill steps.**

- Explain what needs to be **communicated to the consumer** before they leave, after their tank has been filled.

**2:35 – 3:00 (25 Min.)**

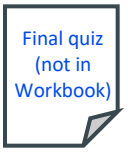
## *Final Quiz for the Program (Optional)*

A final quiz is provided and can be a great learning tool to motivate better concentration throughout the class – we all focus more when we know *there's going to be a test*! There are a few options for the final quiz:

1. You may **SKIP the quiz** – it is not required.
2. **Use the final quiz as a classroom activity.** Hand out the quiz and allow time for completion. After all have finished, ask the learners swap tests.
    a. Have each read a question (depending on reading level of learners or read yourself) and provide an answer.
    b. Discuss correct/incorrect answers and ask if anyone has questions.
    c. Repeat process until all questions have been reviewed.
    d. Have learners mark incorrect answers, put score at top, and hand back to the quiz taker.
    e. After a moment for review by the original quiz taker, collect the graded tests.
3. You might also choose to administer the quiz, and then **collect the completed quizzes to be graded later**.
4. OPTIONAL: Record the final quiz scores in the learner's training record, if required.

**NOTE**: In order to receive the certificate for this course, either have the learners take the quiz online or print the final knowledge quiz at the back of this instructor guide. Learners who score 75% or higher should be given the certificate of completion.

**NOTE**: The final quiz and answer key are located at the back of this guide.




**NOTE**: If you administer the quiz, you will need to ensure you have reproduced enough copies to give one to each learner.

**(5 Min.)**

## *Wrap-up the Session*

Review the list of **expectations** from the beginning of the training session.

Refer to the **Parking Lot flip chart** and address any 'open items' from the class session. If any items remain open, advise group how you will communicate answers to them after the training session. Thank participants for coming and for their active participation throughout the session. Hand out the ***Certificates of Completion*** to

each participant. NOTE: These need to be completed by the instructor prior to this point. One suggestion is to do this while participants are completing the final quiz, so they are ready to hand out.


OPTIONAL: Hand out the ***Course Evaluation*** and ask participants to leave these _____ on their way out.

**Following the Session**

## *Post-Session Clean-up*

Following the close of the session be sure participants get credit for completing the program.

- Mark students as **complete** for attendance.
- Following this program, complete ***the On-the-Job training worksheets*** for this material.
- OPTIONAL: To have the learner's completion of this course recorded in their Learning Center transcript send the class roster to learning@propane.com. It will take up to 3 business days to update the transcript.

**NOTE**: You will find instructions for how to do this in the Instructor Toolkit and on the LMS.

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DISPENSING PROPANE SAFELY

# Auto Gas


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# Dispensing Autogas

Complete the introduction and first module from the Small Cylinder modules.
Then, open PowerPoint: *DPS11_DispensingStationEquipment-Augogas* and continue as directed below.

**0:30 – 1:00 (30 Min.)**

**0:30 – 0:35 (5 Min.)**

## Module 11: Dispensing Station Equipment Autogas


In this module we are going to discuss Dispensing Station Equipment and how to use it to refill a vehicle that runs on Autogas.

**TX:** *First, let's find out what kind of equipment you are working with…*

### Identify YOUR Dispensing Station Equipment


P. 42
[iii P.10]

Begin by getting familiar with the equipment used by the participants in the class.

**ASK**: What kind of dispensing equipment do you have? (Briefly describe the two examples shown on the slide.)

Ask participants to check-off in their workbooks the kind of equipment at their site. After all have done this poll the group to see who has what equipment.

NOTE: Page numbers in brackets are for the program 3 workbook.

**TX:** *So, let's begin by acquainting ourselves with the features of the equipment.*

**0:35 – 0:40 (5 Min.)**

### *Parts of the Dispenser*

*NOTE: Choose the dispenser type available at your organization. If both are available, show both. Autogas only - slide 3; Small Cylinder and Autogas - slide 4.*

These are the two types of dispensers that can dispense Autogas. Use the next two slides to show and describe the parts.

### *Autogas only parts*


Fly-in each callout on the slide as you discuss the component's function:

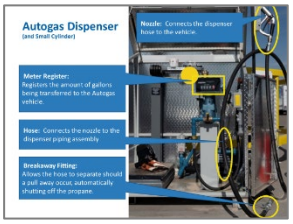
- **Electronic head:** Allows the operator to enter driver and vehicle information. It also registers the quantity of liquid propane being dispensed into an Autogas vehicle for inventory purposes.
- **Pump:** A device that moves liquid propane from one container

to another.

- **Hose**: Provides secure, gas-tight and flexible connection between the dispensing station and the cylinder.
- **Nozzle:** Connects the dispenser hose to the vehicle.

## *Small Cylinder, Motorhome, and Autogas Dispenser*




With the small cylinder dispenser, there was a single hose and nozzle option. In order to fill larger tanks, other dispensers have a few additional features and parts:

- **Electronic head:** Allows the operator to enter driver and vehicle information. It also registers the quantity of liquid propane being dispensed into an Autogas vehicle for inventory purposes.
- **Pump:** A device that moves liquid propane from one container to another.
- **Hose**: Provides secure, gas-tight and flexible connection between the dispensing station and the cylinder.
- **Nozzle:** Connects the dispenser hose to the vehicle.
- **Breakaway device**: A safety device that is designed to separate and stop the flow of propane from leaking into the atmosphere, if a vehicle pulls away from the dispenser with the hose still connected.

## *EXERCISE: Parts of the Dispenser*


Direct participants to take a moment to review the components of the dispenser by completing the matching exercise in their workbooks. Then review the answers as a group.

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[iii P.11]

| | |
|---|---|
| **Scale** | Provides secure, gas-tight and flexible connection between the dispensing station and the cylinder. |
| **Valves** | A device that measures the quantity of liquid propane that flows through it when dispensing propane. |
| **Hose** | Used to weigh 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** | Control the passage of propane from the dispensing station to the cylinder. |

**0:40 – 0:45 (5 Min.)**

## Dispensing Autogas


Dispensing propane Autogas is very similar to filling a vehicle with gasoline or diesel. If you've ever done either of these, it will feel familiar. Just like with gasoline, the liquid propane flow will

automatically stop when the tank is full.


- Different applications require specific nozzles or adapters to connect the dispenser to the vehicle's propane tank.
- Propane, unlike gasoline, is a fuel that is **under pressure.** The hose-end nozzle is a shutoff valve that keeps the pressurized propane inside the hose when not being dispensed.
- Some nozzles are screwed on and off, while others are designed as a quick connect and disconnect. Be certain to use the matching nozzle connection to the vehicle tank you dispense propane into. If not, a leak may occur, presenting an unsafe condition that could lead to personal injury or a fire.

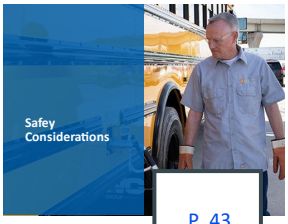
We'll discuss this in greater detail in the next module.


**OPTIONAL:** Replace the Dispenser Instructions slide with the specific instructions for your dispenser.

- Discuss specific considerations of your organization's equipment. Each dispenser is unique.
- Use the instructions printed on the dispenser to ensure correct use.

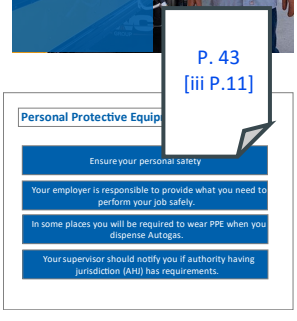
**0:45 – 0:50 (5 Min.)**

## *Safety Considerations*




**TX:** Let's talk about safety. As you know your personal safety as well as the safety of all those around is a primary consideration whenever we are working around propane. (Show the topic slide)

Show the next slide as you make the following points.

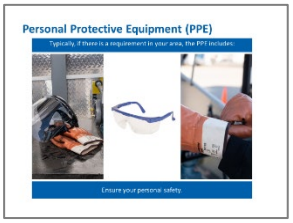



- With any job that you have, you want to ensure your personal safety. What you wear is generally called PPE or Personal Protective Equipment
- Your employer is responsible to provide what you need to perform your job safely.
- In some places, you will be required to wear PPE when you dispense Autogas.
- Your supervisor should notify you in the event that the AHJ or Authority Having Jurisdiction has requirements.

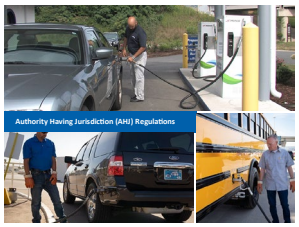
Typically, if there is a requirement in your area, the PPE includes: safety glasses and PVC or vinyl-coated gloves. Avoid fabric gloves

because they do not give the proper protection and could be an ignition source.




**OPTONAL Discussion:** Discuss the PPE requirements specific to your local Authority Having Jurisdiction (AHJ) and company requirements.




**0:50 – 0:55 (5 Min.)**

## *Dispensing Station Start up*

*Use the next slide to introduce the final topic of this module.*

*TX: Now, let's talk briefly about how we start-up the equipment.*


## *Startup Steps*

Use the next slide to briefly review the steps involved in starting up the equipment. Encourage participants to fill-in the missing information on the blanks in their workbooks.


P. 43
[iii P.11]

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.

**TX**: Before we wrap-up let's talk about what do in the event of an emergency.

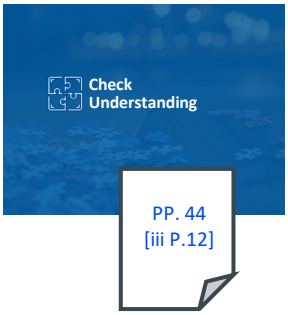
## *Emergency Procedures*

Show the video on the next slide (20 seconds)
In event of an emergency, you need to be aware of the location of the fire ex, the propane emergency shutdown, and the emergency electrical shut-off. Your supervisor will review with you the steps to take in the event of an uncontrolled gas release or fire.

**0:55-1:00**
**(5 Min.)**

## *Check Understanding*




Refer participants to the Check Understanding page in the Workbook.
Use the following slides to show the answers and discuss as necessary.

Quiz Slides
5 slides, each with answer key following the question (10 total slides)

1. Autogas is propane that has had additives added to it to make it compliant for vehicle use.
   - ❑ True
   - ❑ **False**

2. When filling vehicles with autogas the flow of propane will shutoff automatically when the tank is full.
   - ❑ **True**
   - ❑ False

3. Insulated cloth gloves are adequate to protect your hands from liquid propane burns when dispensing propane into an Autogas vehicle tank using an ACME screw-on connection.
   - ❑ True
   - ❑ **False**

4. PPE requirements are set by national regulations.
   - ❑ True
   - ❑ **False**

5. There are multiple types of filling nozzles for dispensing autogas.
   - ❑ **True**
   - ❑ False

**1:00 – 1:10**
**(10 Min.)**

## *Break*

Dismiss participants for a short break. Remind them to be back at _____.

- Display slide for the next section.

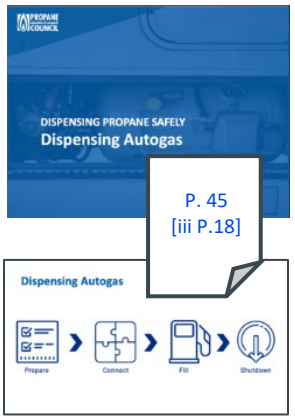
**NOTE: Next, complete Module 3 from DPS – Small Cylinders before continuing with Module 12, below.**

**1:35 – 2:35 (60 Min.)**

**NOTE: Workbook page numbers in brackets are for the program 3 workbook.**

## Module 12: Dispensing Autogas



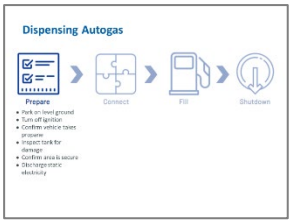

When a vehicle is fueled by propane, it is known as Autogas.

Use the slide to briefly mention the four steps involved in dispensing Autogas: prepare, connect, fill and shutdown.

**TX:** Throughout this module we'll step through each of these, and you'll be able to fill-in the blanks under each of these so that by the end you'll have all the steps documented in your workbook.

**1:35 – 1:50 (15 Min.)**

### Step 1: Prepare




⌦ Click ADVANCE to **highlight the PREPARE step** and reveal the following steps:

- Park on <u>level</u> ground
- Turn off <u>ignition</u>
- <u>Confirm</u> vehicle takes propane
- Inspect tank for <u>damage</u>
- Confirm <u>area is secure</u>
- <u>Discharge</u> static electricity

**ASK**: How may of you *have completed the small cylinder and motorhome refilling modules? How do these steps compare with dispensing Autogas? .*

Show the video on the next slide (24 Seconds): *Park on level ground; turn off ignition, have everyone exit the vehicle.*

**ASK**: How do we even know if a vehicle accepts propane or not? (Field responses and then show the next slide.)

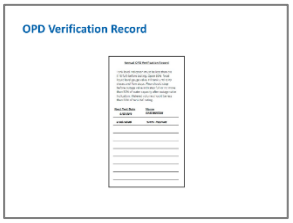

**SAY**: Just go to the back of the vehicle and look in the lower right-hand corner for a propane decal. This is required for all propane-powered vehicles.

Show the video on the next slide to demonstrate the inspection process (25 seconds).

**1:50 – 1:55 (5 Min.)**

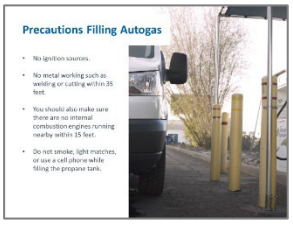
## *OBP Verification Record –*




Use the next slide to show the *Annual OPD Verification Record.*

**SAY:**
When filling via the OPD, verify the annual OPD verification record is current. A label will be placed in a location acceptable to the AHJ.

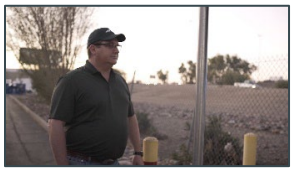
## *Precautions*




Before filling the vehicle tank, turn off the ignition key and have everyone exit the vehicle and leave the immediate filling area while the liquid propane transfer is taking place.

Ensure that there are no ignition sources within 25 feet and no metal working such as welding or cutting within 35 feet. You should also make sure there are no internal combustion engines running nearby within 15 feet. Do not smoke, light matches, or use a cell phone while filling the propane tank.

Show the video on the next slide (31 seconds) to reinforce the precautions, including discharging static electricity and putting on PPE as appropriate/required.



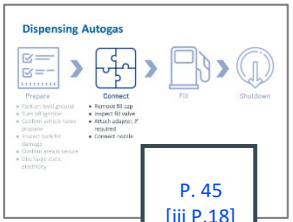
**1:55 – 2:00 (5 Min.)**

## Step 2: Connect

**ASK**:

- How many of you have filled a car with gasoline or diesel? (*Take a poll of the class.)*
- What differences do you anticipate when filling Autogas? (*Field answers such as: need to wear PPE, different forms of tank connection, different types of nozzles)*

Generate list of differences on a flip chart




P. 45
[iii P.18]

*Show/Discuss the "Connect" step – Again, participants should fill in the blanks in their workbooks (in the second column under "Connect."*

**SAY**: You'll see that filling with Autogas is fairly similar to the experience you already have filing with gasoline or diesel.

- Remove fill cap
- Inspect fill valve
- Attach adapter, if required
- Connect nozzle

**TX:** Let's look at each of these steps in more detail.

*Play the video on the next slide (40 seconds) to demonstrate the 'connect' steps.*

**2:00 – 2:05 (5 Min.)**

## *Connectors (and Adapters)*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[iii P.20]


Use the next two slides to briefly review the two types of connectors in use in the industry. *(Note that each of these has still photos of the nozzle and a short video set to auto-play when you advance to the slide, that shows the connection being made.)*

- Quick Connect
- Threaded

**NOTE: You may choose to edit this section based on what is offered by your organization for Autogas. You may need to edit the Participant Workbook to match.**

*Possible CUSTOMIZATION of this content:*

- Discuss the specific types of nozzles and adapters that are available at your site/s.
- Talk about your company policy for dealing with customers who have vehicles that are not compatible with your set- up (if applicable).


*Use the next two slides to show a close-up of the nozzle and the tank connection for each of the two types.*

- You can identify the tank connection for a threaded nozzle by the inset of the tank connection with the O-ring.
- You'll want to ensure that the ring is undamaged prior to filling the vehicle. *(Slide 16 show video of this connection.)*
- All newer vehicles will have quick connect tank connections. Notice that you do not see the O-ring here as it is built into the nozzle side.


Show the videos on the next two slide to demonstrate how each nozzle set-up is used in actual situations:

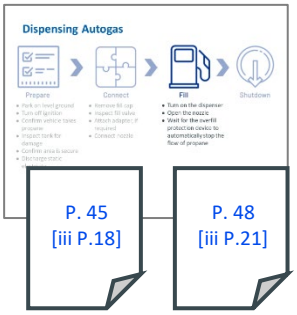
- Pickup truck being refueled via a threaded nozzle (29 seconds).
- School bus being refueled using a quick connect nozzle (19 seconds).

**TX**: Now that the connection has been established, it's time to fill the vehicles.

**2:05 – 2:15 (10 Min.)**

## Step 3: Fill

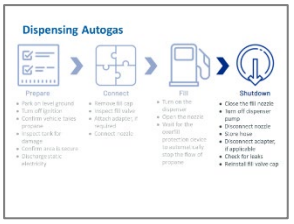



We will now start dispensing propane. The three steps to filling are:

- Turn on the dispenser
- Open the nozzle
- Wait for the overfill protection device to automatically stop the flow of propane

Use the video on the next slide to demonstrate the Fill steps. (26 seconds)

**ASK**: Are there any questions on the Fill step? (Answer/Discuss as necessary.)



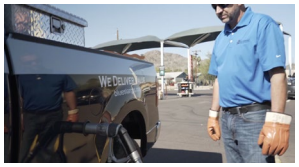

**TX:** We're finally to the point of shutting down the system. Whenever the dispenser is not in use, it should be properly shut down and locked.

- Close the fill nozzle
- Turn off dispenser pump
- Disconnect nozzle
- Store hose
- Disconnect adapter, if applicable
- Check for leaks
- Reinstall fill valve cap

*(As before, encourage participants to fil-in-the-blanks on their workbook page to complete their notes.)*

Then, show the videos on the next three slides to further illustrate the Shutdown process:

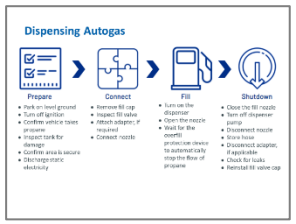
- When OPD stops the flow, release the nozzle and return it; turn off the dispenser pump. (12 seconds)
- If using threaded nozzle, slowing loosen to bleed off any propane, and then disconnect the filler nozzle, and return it to the dispenser. (15 seconds)
- Check for leaks at the filler valve; replace the cap. (10 seconds)



## *Review of all Four Steps*

Show the four steps of Dispensing Autogas one more time as a final review of the steps.




**2:15 – 2:30**
**(15 Min.)**

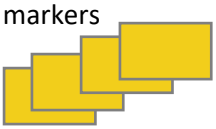
## *Review Activity*

To further reinforce the steps, divide the class into small groups and have each write out the various steps listed on the slide, one per post-it or index card. (You could also have these pre-printed if you wish and simply hand them out.)


**(5 min.)**

Then, hide the slide, have participants close their workbooks, and ask them to arrange all the steps in order. They could take turns, repeating the exercise, if they finish early.

Materials:
- 3x5 post-it notes, or
- 3x5 index cards
- markers



**(5 min.)**

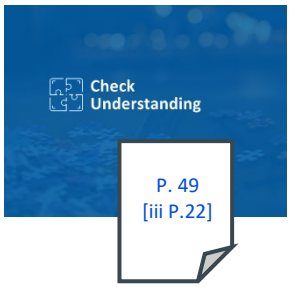
Debrief:
- After 5 minutes, regroup, re-share the above slide, and see how each did.
- Discuss any steps that may still be unclear and reinforce why it is important that no step be missed.
- Reward those that got all or nearly all the steps right with a prize.


**TX:** Now, let's do a final quiz to ensure you remember the key points of this module.

**2:30 – 2:35**
**(5 Min.)**

## *Module Review*

Use the workbook and the slides to do a quick review of these topics. Participants can complete this in their workbooks or as a group using the slide. Then use the next slide to reveal the correct answers.




1. Make sure there are no ignition sources within ____ feet of the filling area.
   - ❑ 5
   - ❑ **25**
   - ❑ 80
   - ❑ 1000

Quiz Slides
12 slides, each with answer key following the question (6 question slides)

2. Propane Autogas-fueled vehicles are required to have a propane decal located _____.
   - ❑ On the passenger-side window
   - ❑ On the left side of the front bumper
   - ❑ **On the lower-right read of the vehicle, above the bumper**
   - ❑ On the lower-right rear of the vehicle, attached to the bumper

3. Before beginning the refueling process, what should you do? [**Select all that apply.**]
   - ❑ **Confirm that vehicle is turned off.**
   - ❑ **Do not smoke, strike matches, or light a cigarette.**
   - ❑ **Touch a grounded object to control static electricity.**
   - ❑ Have the driver stand by a dispenser station.

4. The dispenser operator does NOT need to be present during the entire filling procedure.
   - ❑ True
   - ❑ **False**

5. If a nozzle with a threaded connection is being used, it must be firmly attached and properly threaded before beginning the filling process.
   - ❑ **True**
   - ❑ False

6. What safety device automatically stops the flow of fuel into the tank when it is filled?
   - ❑ **Overfill prevention device (OPD)**
   - ❑ O-ring on the filler valve
   - ❑ Filler valve flap
   - ❑ Filler nozzle ball valve

**[10 Min.]**

## *Break – OPTIONAL, Skip if not doing the Final Quiz*

Dismiss participants for a short break.
Remind them to be back at _____.

- During this break prepare for the final quiz.

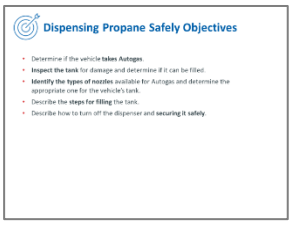
 

**2:35 – 2:40**
**(5 Min.)**

## Program Summary and Wrap-up


The information in this program was developed to explain how to safely dispense propane to an Autogas vehicle.

Use next slide to review the program objectives.




**SAY:** Now that you've completed this program you should be able to:

- ⌦ Determine if the vehicle **takes Autogas**.
- ⌦ **Inspect the tank** for damage and determine if it can be filled.
- ⌦ **Identify the types of nozzles** available for Autogas and determine the appropriate one for the vehicle's tank.
- ⌦ Describe the **steps for filling** the tank.
- ⌦ Describe how to turn off the dispenser and **securing it safely**.

**TX:** So, are you ready to show what you've learned by completing the final quiz for the program?

**OPTIONAL**
**(add 35 Min.)**

### *Final Quiz for the Program (Optional)*

A final quiz is provided and can be a great learning tool to motivate better concentration throughout the class – we all focus more when we know *there's going to be a test*! There are a few options for the final quiz:

1. You may **SKIP the quiz** – it is not required.
2. **Use the final quiz as a classroom activity.** Hand out the quiz and allow time for completion. After all have finished, ask the learners swap tests.
    a. Have each read a question (depending on reading level of learners or read yourself) and provide an answer.
    b. Discuss correct/incorrect answers and ask if anyone has questions.
    c. Repeat process until all questions have been reviewed.
    d. Have learners mark incorrect answers, put score at top, and hand back to the quiz taker.
    e. After a moment for review by the original quiz taker, collect the graded tests.
3. You might also choose to administer the quiz, and then **collect the completed quizzes to be graded later**.

**NOTE**: The final quiz and answer key are located at the back of this guide.

Final quiz (not in Workbook)

**NOTE**: If you administer the quiz, you will need to ensure you have reproduced enough copies to give one to each learner.

4. OPTIONAL: Record the final quiz scores in the learner's training record, if required.

**NOTE**: In order to receive the certificate for this course, either have the learners take the quiz online or print the final knowledge quiz at the back of this instructor guide. Learners who score 75% or higher should be given the certificate of completion.

**2:40 – 2:45 (5 Min.)**

## *Wrap-up the Session*

Review the list of **expectations** from the beginning of the training session.

Refer to the **Parking Lot flip chart** and address any 'open items' from the class session. If any items remain open, advise group how you will communicate answers to them after the training session. Thank participants for coming and for their active participation throughout the session. Hand out the ***Certificates of Completion*** to each participant. NOTE: These need to be completed by the instructor prior to this point. One suggestion is to do this while participants are completing the final quiz, so they are ready to hand out.


OPTIONAL: Hand out the ***Course Evaluation*** and ask participants to leave these _____ on their way out.


**Following the Session**

## *Post-Session Clean-up*

Following the close of the session be sure participants get credit for completing the program.

- Mark students as **complete** for attendance.
- Following this program, complete ***the On-the-Job training worksheets*** for this material.
- OPTIONAL: To have the learner's completion of this course recorded in their Learning Center transcript send the class roster to learning@propane.com. It will take up to 3 business days to update the transcript.

**NOTE**: You will find instructions for how to do this in the Instructor Toolkit and on the LMS.

PROPANE education & research COUNCIL

# Final Exams

propane
ENERGY FOR EVERYONE

## Dispensing Propane Safely: Small Cylinder, Filling by Volume

Name: _____ Date: _____
Check your understanding of the content in this program by answering the following questions.

1. Before filling cylinders by volume, verify that the fixed maximum level gauge works by opening and closing the vent valve to be sure vapor vents

   - ❑ True
   - ❑ False

2. When white mist begins to escape from the fixed maximum liquid level gauge, close the:

   - ❑ Hose end valve
   - ❑ Service valve
   - ❑ Pump meter
   - ❑ Protective cap

3. What are potential causes of an uncontrolled release? **Select all that apply.**

   - ❑ Open valve
   - ❑ Damaged container or component
   - ❑ Piping failure
   - ❑ Incorrect connection/usage

4. What is the first step when you suspect on uncontrolled gas leak?

   - ❑ Evacuate the area.
   - ❑ Turn off the electrical system.
   - ❑ Call 911.
   - ❑ Turn off the propane (ESV).

5. How far from the propane dispenser do you need to evacuate in the event of an uncontrolled release?

   - ❑ 99 ft
   - ❑ 110 ft
   - ❑ 220 ft
   - ❑ 330 ft

6. What do you need to tell the 911 operator when you call to report an uncontrolled propane release? **Select all that apply.**

   - ❑ Location
   - ❑ Nature of emergency
   - ❑ Details of people injured
   - ❑ Your name

7. When should you reenter a propane leak area before it is cleared by emergency responders?

   - ❑ To put out a fire with a fire extinguisher if a fire starts before the emergency responders arrive.
   - ❑ To turn off the propane if you didn't while exiting.
   - ❑ To turn off the electrical system if you didn't while exiting.
   - ❑ You should never return to the propane leak area until advised it is safe to do so.

8. When opening the dispenser for use, what needs to be inspected prior to dispensing propane? **Select all that apply.**

   - ❑ Hoses
   - ❑ Valves
   - ❑ Fire extinguisher
   - ❑ Adapters

9. Which are properties of propane? **Select all that apply.**

   - ❑ Nontoxic
   - ❑ Colorless
   - ❑ Odorless
   - ❑ Flammable

10. Propane is used as a fuel in which of the following? **Select all that apply.**

    - ❑ Lawnmowers
    - ❑ Space heaters
    - ❑ Vehicles
    - ❑ Generators

11. At room temperature, propane is what state?

- ❑ Liquid
- ❑ Solid
- ❑ Gas

12. How is propane transported? **Select all that apply.**

- ❑ Train
- ❑ Pipe
- ❑ Bobtail
- ❑ Cylinder truck

13. The fire extinguisher at the dispenser is to extinguish propane fires.

- ❑ True
- ❑ False

14. If part of the system is broken: **Select all that apply.**

- ❑ Notify your supervisor.
- ❑ Repair the broken parts.
- ❑ Close all the valves.
- ❑ Call 911.

15. What are your responsibilities in the event of an emergency? **Select all that apply.**

- ❑ Follow company policy.
- ❑ Evacuate everyone from the area.
- ❑ Turn off propane and electrical systems if safe to do so.
- ❑ Do not fill any other tanks or cylinders until cleared by emergency responders.

16. Which size cylinders can you refill and legally transport in an open bed vehicle, like a pickup truck? **Select all that apply.**

- ❑ 20 lbs.
- ❑ 33.5 lbs.
- ❑ 100 lbs.
- ❑ 1,000 lbs.

17. What are cylinders made from? **Select all that apply.**

- ❑ Aluminum
- ❑ Steel
- ❑ Composite
- ❑ Copper

18. What is the main source of concern with steel cylinders compared to other types?
- ❑ Corrosion
- ❑ Special cleaning materials
- ❑ Dents easily
- ❑ Malleable

19. Match the following components to its purpose (draw an arrow):

| | |
|---|---|
| Foot ring | Protect the bottom of the cylinder body |
| Collar | Protect the valves |
| Overfill prevention device | Stop the flow of liquid propane into a cylinder |

20. A cylinder is stamped with 07-14E. Can you refill it?

- ❑ Yes
- ❑ No

21. A cylinder is stamped with 10-18S. Can you refill it?

- ❑ Yes
- ❑ No

22. Which problems might cause you to not refill a cylinder? **Select all that apply.**

- ❑ Cracks
- ❑ Defective valves
- ❑ Out of requalification date
- ❑ XXX over the DOT specification

23. How do you ensure there are no leaks when a cylinder is filled?

- ❑ Spray or brush leak detection solution and if there are no bubbles, there is no leak.
- ❑ Hold your glove over the valve and look for frost on your gloves; if there isn't, there isn't a leak.
- ❑ Hand tighten the valves until they won't close more; once it's tight, it's closed.
- ❑ Sniff the top of the cylinder and if you can't smell the ethyl mercaptan, there is no leak.

24. A warning label must be placed on all portable cylinders of 100 lbs. or less.

- ❑ True
- ❑ False

25. Which of the following are parts of the shutdown procedures? **Select all that apply.**

- ❑ Dispenser operating valves are closed.
- ❑ Transfer hoses are secured.
- ❑ Dispenser cabinet is locked.
- ❑ Tank valves are closed.

26. A man with an SUV can transport one filled 100 lb. cylinder inside his vehicle.

- ❑ True
- ❑ False

27. A woman with a sedan can transport three 20-lb cylinders in her car.

- ❑ True
- ❑ False

28. A woman with a pickup truck can transport four 100 lb. cylinders in the bed of the truck.

- ❑ True
- ❑ False

29. A man can load his cylinders horizontally and transport them to his home as long as they are secured so they won't roll.

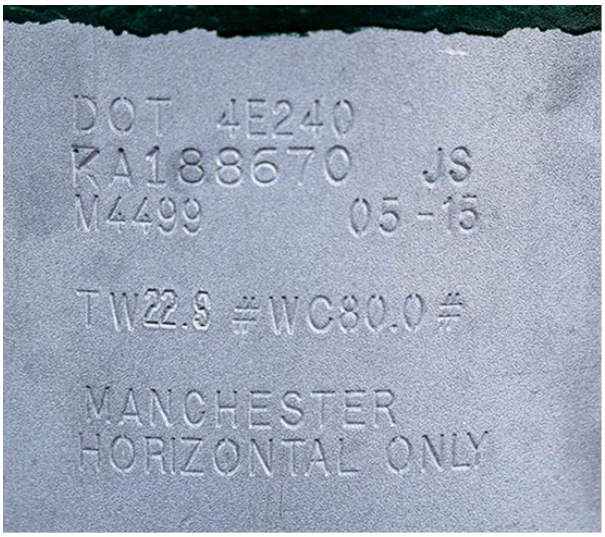
- ❑ True
- ❑ False

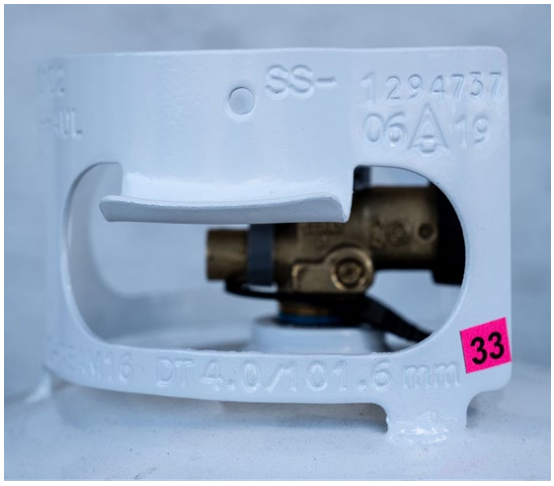
30. Cylinders should be stored inside the house or garage, out of direct sunlight.

- ❑ True
- ❑ False

31. Where is the design specification number on this cylinder?
**Circle the number in the image, below.**




32. Where is the qualification date on this cylinder? **Circle the date in the image, below.**

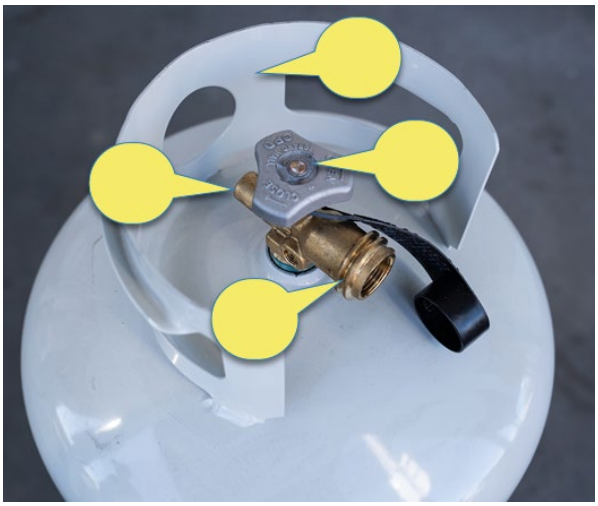



33. If a white mist appears when the vent valve is opened, the cylinder is full.

- ❑ True
- ❑ False

34. Label each marked cylinder component in the image, with the corresponding letter:
    - **(A)**: Automatically relieves pressure
    - **(B)**: Cylinder fill connection
    - **(C)**: Protects the cylinder from overfilling
    - **(D)**: Protects the valve



35. Label each marked cylinder component in the image, with the corresponding letter:
    - **(A)**: Propane flow control valve
    - **(B)**: Measures how many gallons of liquid propane is dispensed
    - **(C)**: Turns on the pump
    - **(D)**: Pump that moves the liquid propane between containers

# Dispensing Propane Safely - Filling by Volume

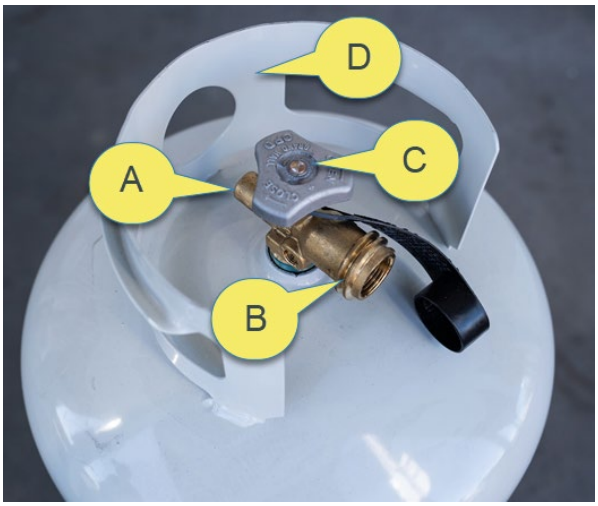
## Final Exam ANSWER KEY

1. True
2. Hose end valve
3. All (open valve, damaged container or component, piping failure, incorrect connection/usage)
4. Evacuate the area
5. 330 ft
6. All (location, nature of emergency, details of people injured, your name)
7. You should never return to the propane leak area until advised it is safe to do so.
8. All (hoses, valves, fire extinguisher, adapters)
9. All (nontoxic, colorless, odorless, flammable)
10. All (lawnmowers, space heaters, vehicles, generators)
11. Gas
12. All (train, pipe, bobtail, cylinder truck)
13. False
14. Notify your supervisor, close all valves
15. All (follow company policy, evacuate everyone from the area, turn off propane and electrical systems if safe to do so, do not fill any other tanks or cylinders until cleared by emergency responders)
16. 20 lbs., 33.5 lbs., 100 lbs.
17. Aluminum, Steel, Composite
18. Corrosion
19. Foot ring- protects the bottom of the cylinder body; collar- protects the valves; overfill prevention device- stop the follow of liquid propane into a cylinder
20. No
21. Yes
22. All (cracks, defective valves, out of requalification date, XXX over the DOT specification)
23. Spray or brush leak detection solution and if there are no bubbles, there is no leak
24. True
25. All (dispenser operating valves are closed, transfer hoses are secured, dispenser cabinet is locked, tank valves are closed)
26. False
27. True
28. True
29. False
30. False
31. DOT 4E240
32. 06/19

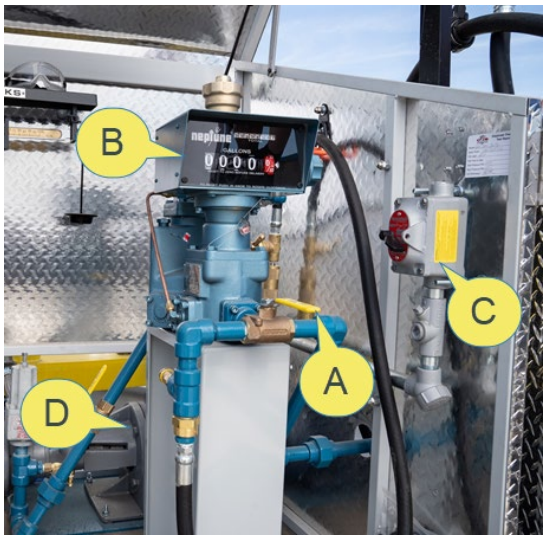
 

33. True

34. Label each marked cylinder component in the image, with the corresponding letter:
    - **(A)**: Automatically relieves pressure
    - **(B)**: Cylinder fill connection
    - **(C)**: Protects the cylinder from overfilling
    - **(D)**: Protects the valve




35. Label each marked cylinder component in the image, with the corresponding letter:
    - **(A)**: Propane flow control valve
    - **(B)**: Measures how many gallons of liquid propane is dispensed
    - **(C)**: Turns on the pump
    - **(D)**: Pump that moves the liquid propane between containers



## Dispensing Propane Safely: Small Cylinder - Filling by Weight

Name: _____ Date: _____
Check your understanding of the content in this program by answering the following questions.

1. The overfill protection device (OPD) should be used for determining if the cylinder is full.

   - ❑ True
   - ❑ False

2. To determine the propane capacity, you multiply the water capacity by:

   - ❑ 0.25
   - ❑ 0.37
   - ❑ 0.42
   - ❑ 0.57

3. If the water capacity of a cylinder is 71.5, the propane capacity is how many pounds?

   - ❑ 1
   - ❑ 10
   - ❑ 20
   - ❑ 30

4. The scale set point of the filled cylinder is equal to the tare weight plus:

   - ❑ 42% of water capacity plus valve weight
   - ❑ 42% of water capacity minus valve weight
   - ❑ 42% of water capacity plus hose and nozzle weight
   - ❑ 42% of water capacity minus hose and nozzle weight

5. Which alters the weight of the cylinder being filled? **Select all that apply.**

   - ❑ Hose
   - ❑ Fittings
   - ❑ PPE
   - ❑ Fixed maximum liquid level gauge

6. Which might interfere with scale accuracy? **Select all that apply.**

   - ❑ Scale is not level
   - ❑ Obstructions on scale
   - ❑ Scale has not been calibrated
   - ❑ Scale is not left of meter

7. What is the primary way to establish the cylinder is full when filling by weight?

   - ❑ A white mist appears when the vent valve is open
   - ❑ OPD valve stops the flow of propane
   - ❑ Scale beam tips
   - ❑ Pump stops automatically

8. What are potential causes of an uncontrolled release? **Select all that apply.**

   - ❑ Open valve
   - ❑ Damaged container or component
   - ❑ Piping failure
   - ❑ Incorrect connection/usage

9. What is the first step when you suspect an uncontrolled gas leak?

   - ❑ Evacuate the area
   - ❑ Turn off the electrical system
   - ❑ Call 911
   - ❑ Turn off the propane (ESV)

10. How far from the propane dispenser do you need to evacuate in the event of an uncontrolled release?

    - ❑ 99 ft
    - ❑ 110 ft
    - ❑ 220 ft
    - ❑ 330 ft

11. What do you need to tell the 911 operator when you call to report on uncontrolled propane release? **Select all that apply.**

    - ❑ Location
    - ❑ Nature of emergency
    - ❑ Details of people injured
    - ❑ Your name

12. When should you reenter a propane leak area before it is cleared by emergency responders?

    - ❑ To put out a fire with a fire extinguisher if a fire starts before the emergency responders arrive
    - ❑ To turn off the propane if you didn't while exiting
    - ❑ To turn off the electrical system if you didn't while exiting
    - ❑ You should never return the propane leak area until advised it is safe to do so

13. When opening the dispenser for use, what needs to be inspected prior to dispensing propane? **Select all that apply.**

    - ❑ Hoses
    - ❑ Valves
    - ❑ Fire extinguisher
    - ❑ Adapters

14. Which are properties of propane? **Select all that apply.**

    - ❑ Nontoxic
    - ❑ Colorless
    - ❑ Odorless
    - ❑ Flammable

15. Propane is used as a fuel in which of the following? **Select all that apply.**

    - ❑ Lawnmowers
    - ❑ Space heaters
    - ❑ Vehicles
    - ❑ Generators

16. At room temperature, propane is what state?

- ❑ Liquid
- ❑ Solid
- ❑ Gas

17. How is propane transported? **Select all that apply.**

- ❑ Train
- ❑ Pipe
- ❑ Bobtail
- ❑ Cylinder truck

18. The fire extinguisher at the dispenser is to extinguish propane fires.
- ❑ True
- ❑ False

19. If part of the system is broken: **Select all that apply.**

- ❑ Notify your supervisor
- ❑ Repair the broken parts
- ❑ Close all the valves
- ❑ Call 911

20. What are your responsibilities in the event of an emergency? **Select all that apply.**

- ❑ Follow company policy
- ❑ Evacuate everyone from the area
- ❑ Turn off propane and electrical systems if safe to do so
- ❑ Do not fill any other tanks or cylinders until cleared by emergency responders

21. Which size cylinders can you refill and legally transport in an open bed vehicle, like a pickup truck? **Select all that apply.**

- ❑ 20 lbs.
- ❑ 33.5 lbs.
- ❑ 100 lbs.
- ❑ 1,000 lbs.

22. What are cylinders made from? **Select all that apply.**

- ❑ Aluminum
- ❑ Steel
- ❑ Composite
- ❑ Copper

23. What is the main source of concern with steel cylinders compared to other types?

- ❑ Corrosion
- ❑ Special cleaning materials
- ❑ Dents easily
- ❑ Malleable

24. Match the following components to its purpose (draw an arrow):

| | |
|---|---|
| Foot ring | Protect the bottom of the cylinder body |
| Collar | Protect the valves |
| Overfill prevention device | Stop the flow of liquid propane into a cylinder |

25. A cylinder is stamped with 07-14E. Can you refill it?

- ❑ Yes
- ❑ No

26. A cylinder is stamped with 10-18S. Can you refill it?

- ❑ Yes
- ❑ No

27. Which problems might cause you to not refill a cylinder? **Select all that apply.**

- ❑ Cracks
- ❑ Defective valves
- ❑ Out of requalification date
- ❑ XXX over the DOT specification

28. How do you ensure there are no leaks when a cylinder is filled?

- ❑ Spray or brush leak detection solution and if there are no bubbles, there is no leak.
- ❑ Hold your glove over the valve and look for frost on your gloves; if there isn't, there isn't a leak.
- ❑ Hand tighten the valves until they won't close more; once it's tight, it's closed.
- ❑ Sniff the top of the cylinder and if you can't smell the ethyl mercaptan, there is no leak.

29. A warning label must be placed on all portable cylinders of 100 lbs. or less.

- ❑ True
- ❑ False

30. Which of the following are parts of the shutdown procedures? **Select all that apply.**

- ❑ Dispenser operating valves are closed
- ❑ Transfer hoses are secured
- ❑ Dispenser cabinet is locked
- ❑ Tank valves are closed

31. A man with an SUV can transport one filled 100-lb cylinder inside his vehicle.

- ❑ True
- ❑ False

32. A woman with a sedan can transport three 20-lb cylinders in her car.

- ❑ True
- ❑ False

33. A woman with a pickup truck can transport four 100-lb cylinders in the bed of the truck.

- ❑ True
- ❑ False

34. A man can load his cylinders horizontally and transport them to his home as long as they are secured so they won't roll.

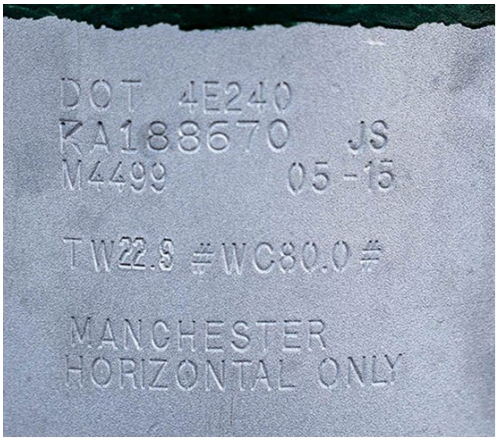
- ❑ True
- ❑ False

35. Cylinders should be stored inside the house or garage, out of direct sunlight.

- ❑ True
- ❑ False

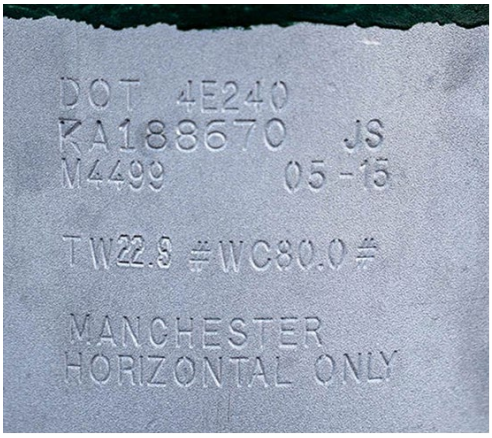
36. Where is the design specification number on this cylinder? **Circle the number in the image shown here.**




37. The tare weight of a cylinder includes the following:

- ❑ The weight of the hose
- ❑ The weight of the cylinder with the full hose connected
- ❑ The weight of the cylinder when full of water
- ❑ The weight of the cylinder and valve(s) when empty

38. Where is the tare weight? **Circle the number in the image shown here.**




39. Where is it indicated the amount of water in pounds that the cylinder can hold? **Circle the number in the image, below.**


40. Where is the qualification date? **Circle the number in the image, below.**


41. The overfill protection device (OPD) should be used for determining if the cylinder is full.

- ❑ True
- ❑ False

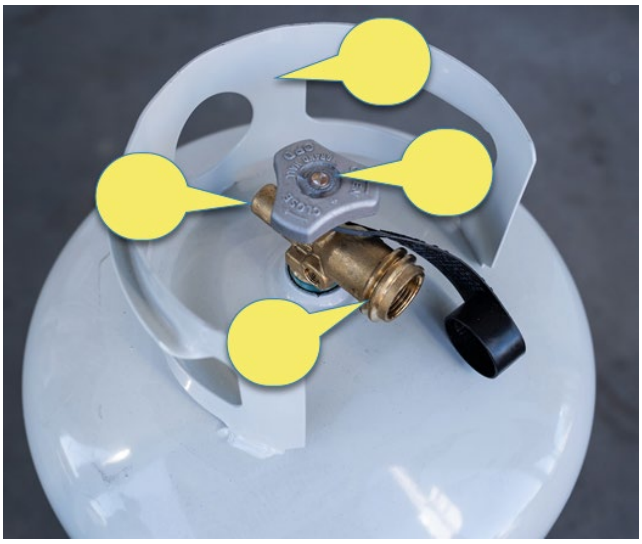
42. What steps do you need to take when filling a 20-lb cylinder by weight? **Number the following steps in the correct order.**

____ Turn on the pump
____ Open the hose end valve
____ Slowly open the service valve
____ Watch the scale

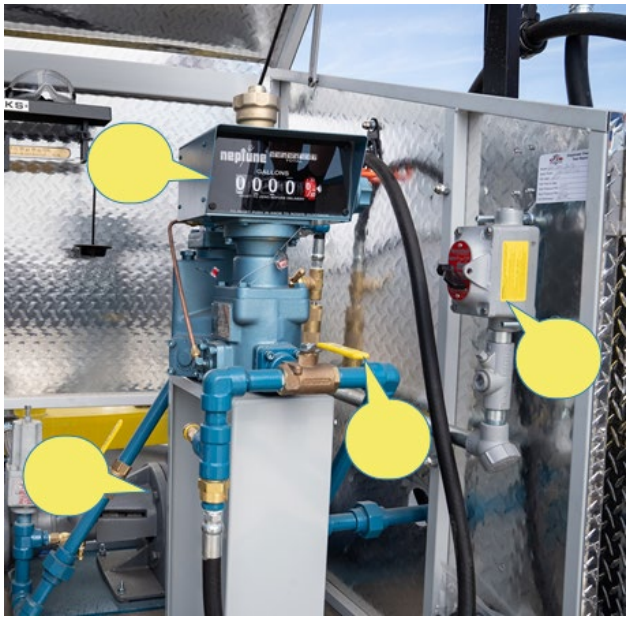
43. Label each marked cylinder component in the image, with the corresponding letter:
    - **(A)**: Automatically relieves pressure

- **(B)**: Cylinder fill connection
- **(C)**: Protects the cylinder from overfilling
- **(D)**: Protects the valve



44. Label each marked cylinder component in the image, with the corresponding letter:
    - **(A)**: Propane flow control valve
    - **(B)**: Measures how many gallons of liquid propane is dispensed
    - **(C)**: Turns on the pump
    - **(D)**: Pump that moves the liquid propane between containers



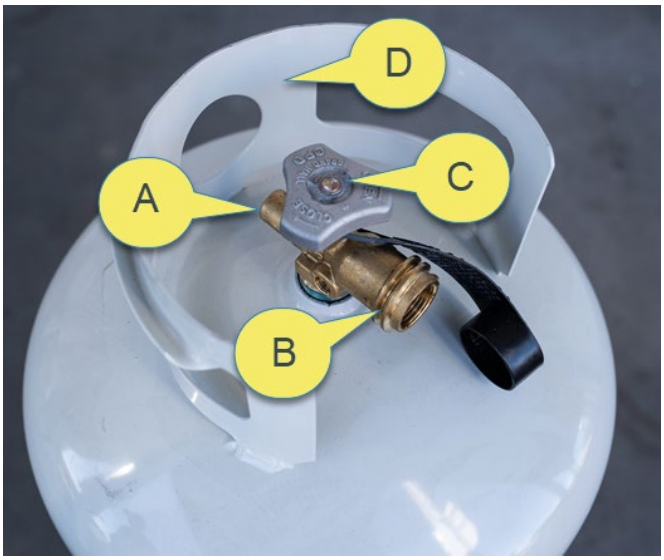

  

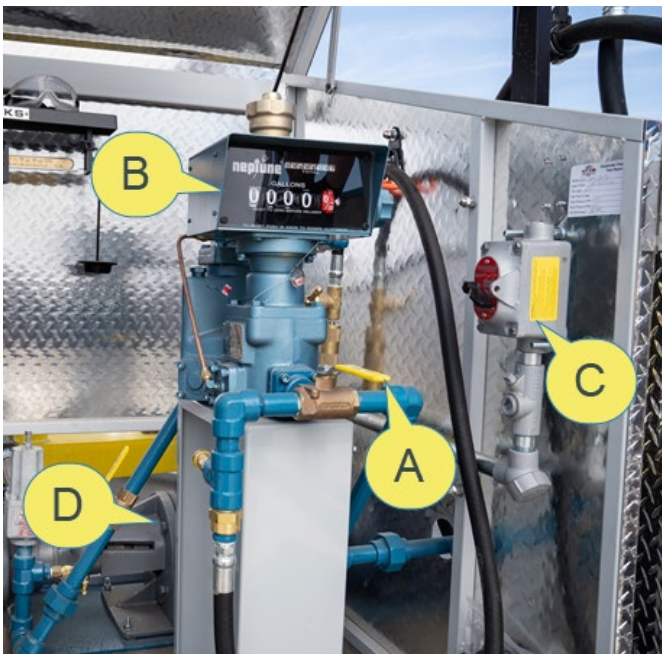
# Dispensing Propane Safely - Filling by Weight

## Final Exam ANSWER KEY

1. False
2. 0.42
3. 30
4. 42% of water capacity plus hose and nozzle weight
5. Hose, Fittings
6. Scale is not level, obstructions on scale, scale has not been calibrated
7. Scale beam tips
8. All (open valve, damaged container or component, piping failure, incorrect connection/usage)
9. Evacuate the area
10. 330 ft
11. All (location, nature of emergency, details of people injured, your name)
12. You should never return the propane leak area until advised it is safe to do so
13. All (hoses, valves, fire extinguisher, adapters)
14. All (nontoxic, colorless, odorless, flammable)
15. All (lawnmowers, space heaters, vehicles, generators)
16. Gas
17. All (train, pipe, bobtail, cylinder truck)
18. False
19. Notify your supervisor, close all the valves
20. All (follow company policy, evacuate everyone from the area, turn off propane and electrical systems if safe to do so, do not fill any other tanks or cylinders until cleared by emergency responders)
21. 20 lbs., 33.5 lbs., 100 lbs.
22. Aluminum, Steel, Composite
23. Corrosion
24. Foot ring- protects the bottom of the cylinder body; collar- protects the valves; overfill prevention device- stop the follow of liquid propane into a cylinder
25. No
26. Yes
27. All (cracks, defective valves, out of requalification date, XXX over the DOT specification)
28. Spray or brush leak detection solution and if there are no bubbles, there is no leak
29. True
30. All (dispenser operating valves are closed, transfer hoses are secured, dispenser cabinet is locked, tank valves are closed)
31. False
32. True
33. True

34. False
35. False
36. DOT 4E240
37. The weight of the cylinder and valve(s) when empty
38. TW 22.8
39. WC 47.6
40. 06/19
41. False
42. Turn on the pump, open the hose end valve, slowly open the service valve, watch the scale
43. 
44. 

# Dispensing Propane Safely: Small Cylinder - Filling by Weight and Volume

Name: _____ Date: _____
Check your understanding of the content in this program by answering the following questions.

1. Before filling cylinders by volume, verify that the fixed maximum liquid level gauge works by opening and closing the vent valve to be sure vapor vents.

   - ❑ True
   - ❑ False

2. The overfill protection device (OPD) should be used for determining if the cylinder is full.

   - ❑ True
   - ❑ False

3. When white mist begins to escape from the fixed maximum liquid level gauge, close the:

   - ❑ Hose end valve
   - ❑ Service valve
   - ❑ Pump meter
   - ❑ Protective cap

4. To determine the propane capacity, you multiply the water capacity by:

   - ❑ 0.25
   - ❑ 0.37
   - ❑ 0.42
   - ❑ 0.57

5. If the water capacity of a cylinder is 71.5, the propane capacity is how many pounds?
   - ❑ 1
   - ❑ 10
   - ❑ 20
   - ❑ 30

6. The scale set point of the filled cylinder is equal to the tare weight plus:

   - ❑ 42% of water capacity plus valve weight
   - ❑ 42% of water capacity minus valve weight
   - ❑ 42% of water capacity plus hose and nozzle weight
   - ❑ 42% of water capacity minus hose and nozzle weight

7. Which alters the weight of the cylinder being filled? **Select all that apply.**

   - ❑ Hose
   - ❑ Fittings
   - ❑ PPE
   - ❑ Fixed maximum liquid level gauge

8. Which might interfere with scale accuracy? **Select all that apply.**

   - ❑ Scale is not level
   - ❑ Obstructions on scale
   - ❑ Scale has not been calibrated
   - ❑ Scale is not left of meter

9. What is the primary way to establish the cylinder is full when filling by weight?

   - ❑ A white mist appears when the vent valve is open
   - ❑ OPD valve stops the flow of propane
   - ❑ Scale beam tips
   - ❑ Pump stops automatically

10. What are potential causes of an uncontrolled release? **Select all that apply.**

    - ❑ Open valve
    - ❑ Damaged container or component
    - ❑ Piping failure
    - ❑ Incorrect connection/usage

11. What is the first step when you suspect an uncontrolled gas leak?

    - ❑ Evacuate the area
    - ❑ Turn off the electrical system
    - ❑ Call 911
    - ❑ Turn off the propane (ESV)

12. How far from the propane dispenser do you need to evacuate in the event of an uncontrolled release?

- ❑ 99 ft
- ❑ 110 ft
- ❑ 220 ft
- ❑ 330 ft

13. What do you need to tell the 911 operator when you call to report on uncontrolled propane release? **Select all that apply.**

- ❑ Location
- ❑ Nature of emergency
- ❑ Details of people injured
- ❑ Your name

14. When should you reenter a propane leak area before it is cleared by emergency responders?

- ❑ To put out a fire with a fire extinguisher if a fire starts before the emergency responders arrive
- ❑ To turn off the propane if you didn't while exiting
- ❑ To turn off the electrical system if you didn't while exiting
- ❑ You should never return the propane leak area until advised it is safe to do so

15. When opening the dispenser for use, what needs to be inspected prior to dispensing propane? **Select all that apply.**

- ❑ Hoses
- ❑ Valves
- ❑ Fire extinguisher
- ❑ Adapters

16. Which are properties of propane? **Select all that apply.**

- ❑ Nontoxic
- ❑ Colorless
- ❑ Odorless
- ❑ Flammable

17. Propane is used as a fuel in which of the following? **Select all that apply.**

- ❑ Lawnmowers
- ❑ Space heaters
- ❑ Vehicles
- ❑ Generators

18. At room temperature, propane is what state?

- ❑ Liquid
- ❑ Solid
- ❑ Gas

19. How is propane transported? **Select all that apply.**

- ❑ Train
- ❑ Pipe
- ❑ Bobtail
- ❑ Cylinder truck

20. The fire extinguisher at the dispenser is to extinguish propane fires.
- ❑ True
- ❑ False

21. If part of the system is broken: **Select all that apply.**

- ❑ Notify your supervisor
- ❑ Repair the broken parts
- ❑ Close all the valves
- ❑ Call 911

22. What are your responsibilities in the event of an emergency? **Select all that apply.**

- ❑ Follow company policy
- ❑ Evacuate everyone from the area
- ❑ Turn off propane and electrical systems if safe to do so
- ❑ Do not fill any other tanks or cylinders until cleared by emergency responders

23. Which size cylinders can you refill and legally transport in an open bed vehicle, like a pickup truck? **Select all that apply.**

- ❑ 20 lbs.
- ❑ 33.5 lbs.
- ❑ 100 lbs.
- ❑ 1,000 lbs.

24. What are cylinders made from? **Select all that apply.**

- ❑ Aluminum
- ❑ Steel
- ❑ Composite
- ❑ Copper

25. What is the main source of concern with steel cylinders compared to other types?

- ❑ Corrosion
- ❑ Special cleaning materials
- ❑ Dents easily
- ❑ Malleable

26. Match the following components to its purpose (draw an arrow):

| | |
|---|---|
| Foot ring | Protect the bottom of the cylinder body |
| Collar | Protect the valves |
| Overfill prevention device | Stop the flow of liquid propane into a cylinder |

27. A cylinder is stamped with 07-14E. Can you refill it?

- ❑ Yes
- ❑ No

28. A cylinder is stamped with 10-18S. Can you refill it?

- ❑ Yes
- ❑ No

29. Which problems might cause you to not refill a cylinder? **Select all that apply.**

- ❑ Cracks
- ❑ Defective valves
- ❑ Out of requalification date
- ❑ XXX over the DOT specification

30. How do you ensure there are no leaks when a cylinder is filled?

- ❑ Spray or brush leak detection solution and if there are no bubbles, there is no leak.
- ❑ Hold your glove over the valve and look for frost on your gloves; if there isn't, there isn't a leak.
- ❑ Hand tighten the valves until they won't close more; once it's tight, it's closed.
- ❑ Sniff the top of the cylinder and if you can't smell the ethyl mercaptan, there is no leak.

31. A warning label must be placed on all portable cylinders of 100 lbs. or less.

- ❑ True
- ❑ False

32. Which of the following are parts of the shutdown procedures? **Select all that apply.**

- ❑ Dispenser operating valves are closed
- ❑ Transfer hoses are secured
- ❑ Dispenser cabinet is locked
- ❑ Tank valves are closed

33. A man with an SUV can transport one filled 100-lb cylinder inside his vehicle.

- ❑ True
- ❑ False

34. A woman with a sedan can transport three 20-lb cylinders in her car.

- ❑ True
- ❑ False

35. A woman with a pickup truck can transport four 100-lb cylinders in the bed of the truck.

- ❑ True

- ❑ False

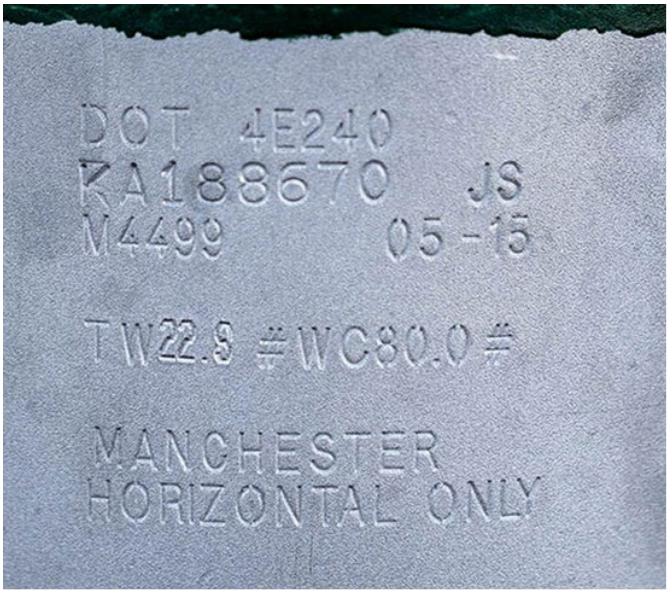
36. A man can load his cylinders horizontally and transport them to his home as long as they are secured so they won't roll.

- ❑ True
- ❑ False

37. Cylinders should be stored inside the house or garage, out of direct sunlight.

- ❑ True
- ❑ False

38. Where is the design specification number on this cylinder? **Circle the number in the image, below.**

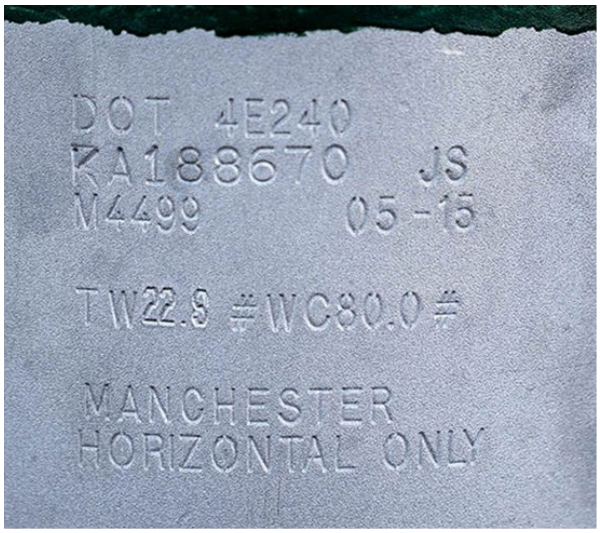



39. The tare weight of a cylinder includes the following:

- ❑ The weight of the hose
- ❑ The weight of the cylinder with the full hose connected
- ❑ The weight of the cylinder when full of water
- ❑ The weight of the cylinder and valve(s) when empty

40. Where is the tare weight? **Circle the number in the image, below.**

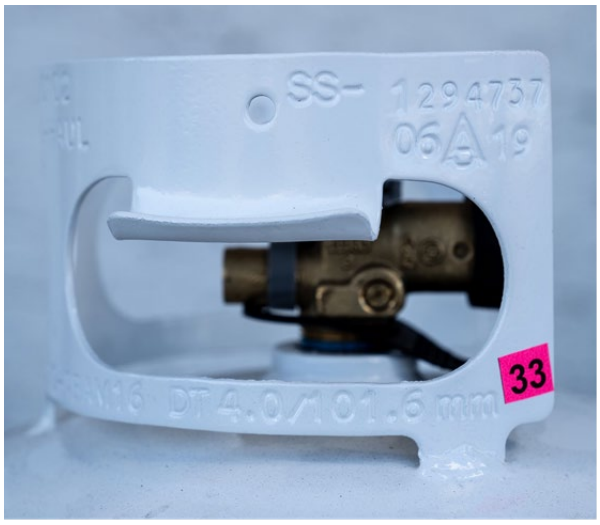
 




41. Where is it indicated the amount of water in pounds that the cylinder can hold? **Circle the number in the image, below.**


42. Where is the qualification date? **Circle the number in the image, below.**




43. The overfill protection device (OPD) should be used for determining if the cylinder is full.

- ❑ True
- ❑ False

44. If a white mist appears when the vent valve is opened, the cylinder is full.

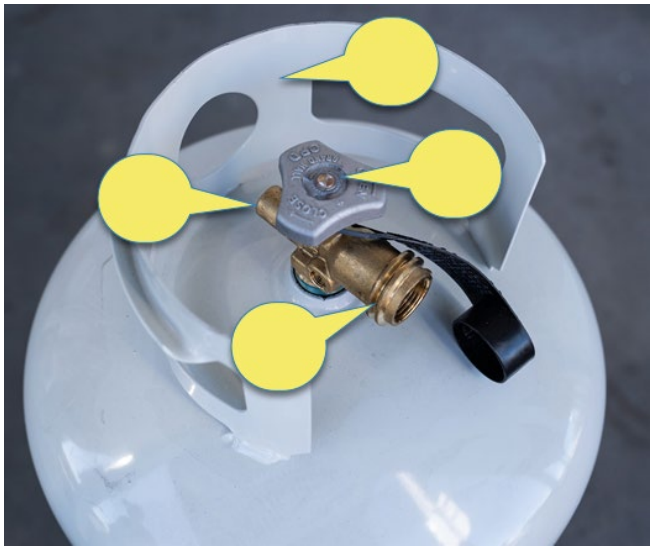
- ❑ True
- ❑ False

45. What steps do you need to take when filling a 20-lb cylinder by weight? **Number the following steps in the correct order.**

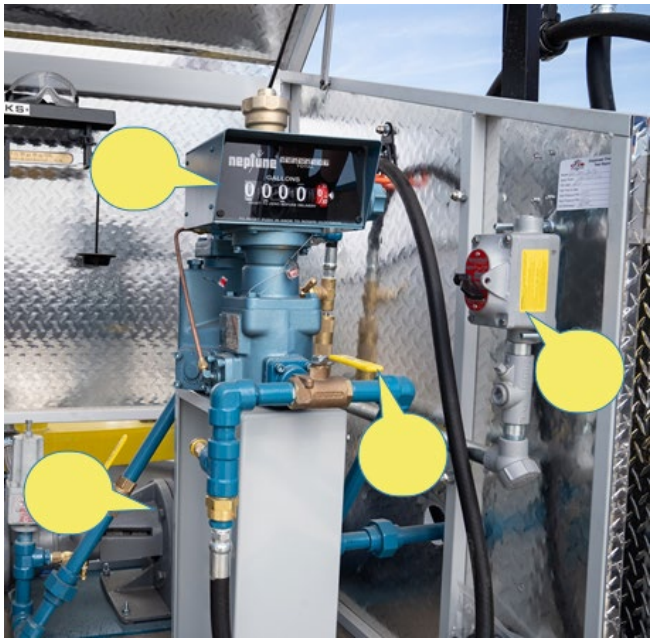
____ Turn on the pump
____ Open the hose end valve
____ Slowly open the service valve
____ Watch the scale

46. Label each marked cylinder components in the following image, with the corresponding letter:
    - **(A)**: Automatically relieves pressure
    - **(B)**: Cylinder fill connection
    - **(C)**: Protects the cylinder from overfilling
    - **(D)**: Protects the valve



47. Label each marked cylinder components in the following image, with the corresponding letter:
    - **(A)**: Propane flow control valve
    - **(B)**: Measures how many gallons of liquid propane is dispensed
    - **(C)**: Turns on the pump
    - **(D)**: Pump that moves the liquid propane between containers

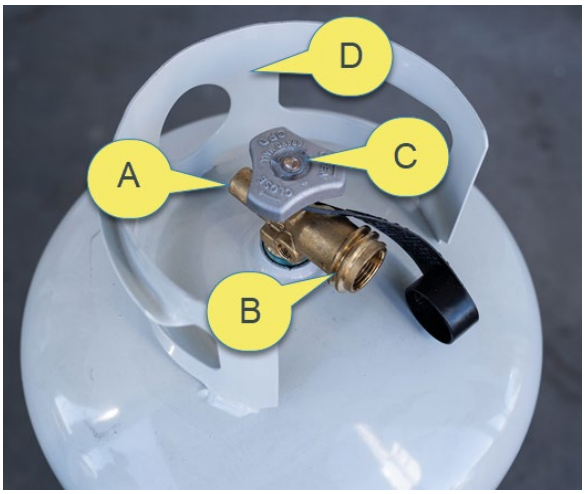


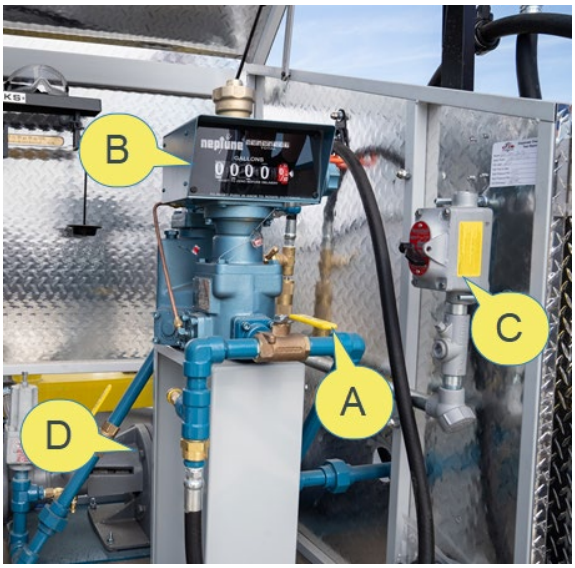

  

# Dispensing Propane Safely - Filling by Weight and Volume
## Final Exam ANSWER KEY

1. True
2. False
3. Hose end valve
4. 0.42
5. 30
6. 42% of water capacity plus hose and nozzle weight
7. Hose, Fittings
8. Scale is not level, obstructions on scale, scale has not been calibrated
9. Scale beam tips
10. All (open valve, damaged container or component, piping failure, incorrect connection/usage)
11. Evacuate the area
12. 330 ft
13. All (location, nature of emergency, details of people injured, your name)
14. You should never return the propane leak area until advised it is safe to do so
15. All (hoses, valves, fire extinguisher, adapters)
16. All (nontoxic, colorless, odorless, flammable)
17. All (lawnmowers, space heaters, vehicles, generators)
18. Gas
19. All (train, pipe, bobtail, cylinder truck)
20. False
21. Notify your supervisor, close all the valves
22. All (follow company policy, evacuate everyone from the area, turn off propane and electrical systems if safe to do so, do not fill any other tanks or cylinders until cleared by emergency responders)
23. 20 lbs., 33.5 lbs., 100 lbs.
24. Aluminum, Steel, Composite
25. Corrosion
26. Foot ring- protects the bottom of the cylinder body; collar- protects the valves; overfill prevention device- stop the follow of liquid propane into a cylinder
27. No
28. Yes
29. All (cracks, defective valves, out of requalification date, XXX over the DOT specification)
30. Spray or brush leak detection solution and if there are no bubbles, there is no leak
31. True
32. All (dispenser operating valves are closed, transfer hoses are secured, dispenser cabinet is locked, tank valves are closed)

33. False
34. True
35. True
36. False
37. False
38. DOT 4E240
39. The weight of the cylinder and valve(s) when empty
40. TW 22.8
41. WC 47.6
42. 06/19
43. False
44. True
45. Turn on the pump, open the hose end valve, slowly open the service valve, watch the scale
46. 

47. 

# Dispensing Propane Safely – Motorhomes and ASME Tanks

Name: _____ Date: _____
Check your understanding of the content in this program by answering the following questions.

1. What are potential causes of an uncontrolled release? **Select all that apply.**

   - ❑ Open valve
   - ❑ Damaged container or component
   - ❑ Piping failure
   - ❑ Incorrect connection/usage

2. What is the first step when you suspect an uncontrolled gas leak?

   - ❑ Evacuate the area
   - ❑ Turn off the electrical system (ESV)
   - ❑ Call 911
   - ❑ Turn off the propane

3. How far from the propane dispenser do you need to evacuate in the event of an uncontrolled release?

   - ❑ 99 ft
   - ❑ 110 ft
   - ❑ 220 ft
   - ❑ 330 ft

4. What do you need to tell the 911 operator when you call to report an uncontrolled propane release? **Select all that apply.**

   - ❑ Company Name
   - ❑ Propane container type
   - ❑ Details of people injured
   - ❑ Your name

5. Before cleared by emergency responders, when should you reenter the propane leak area?

   - ❑ If a fire starts, using a fire extinguisher to put it out.
   - ❑ To burn off the propane if you didn't while exiting.
   - ❑ To turn off the electrical system if you didn't while exiting.
   - ❑ You should never return the propane leak area until advised it is safe to do so.

6. When using the dispenser, what needs to be inspected prior to dispensing propane? **Select all that apply.**

   - ❑ Hoses
   - ❑ Valves
   - ❑ Connection Fittings
   - ❑ Cylinder or Tank being filled

7. Which are properties of propane? **Select all that apply.**

   - ❑ Nontoxic
   - ❑ Colorless
   - ❑ Odorless
   - ❑ Flammable

8. Propane is used as a fuel in which of the following: **Select all that apply.**

   - ❑ Lawnmowers
   - ❑ Space Heaters
   - ❑ Vehicles
   - ❑ Generators

9. At room temperature, propane is in what state?

   - ❑ Liquid
   - ❑ Solid
   - ❑ Gas

10. How is propane transported? **Select all that apply.**

- ❑ Train
- ❑ Pipe
- ❑ Bobtail
- ❑ Cylinder Truck

11. Match the component to its purpose.

| | |
|---|---|
| Flow control valve | Measures how many gallons of propane is dispensed into a container. |
| Internal liquid outlet valve | Moves liquid propane from one container to the other and uses a motor to turn it. |
| Pump | Start and stop the flow or propane by a person manually opening or closing it. |
| Meter | The primary shutoff valve. |

12. The fire extinguisher at the dispenser is to extinguish propane fires.

- ❑ True
- ❑ False

13. If part of the system is broken: **Select all that apply.**

- ❑ Notify your supervisor.
- ❑ Repair the broken parts.
- ❑ Close all the valves.
- ❑ Call 911.

14. What are your responsibilities in the event of an emergency? **Select all that apply.**

- ❑ Follow company policy.
- ❑ Evacuate everyone from the area.
- ❑ Turn off propane and electrical systems if safe to do so.
- ❑ Do not fill any other tanks or cylinders until cleared by emergency responders.

15. Which PSI listed on the ASME data plate can be filled? **Select all that apply.**

- ❑ 125
- ❑ 250
- ❑ 300
- ❑ 312

16. Which need to be inspected before filling the tank? **Select all that apply.**

- ❑ Filler valve threads
- ❑ Fixed maximum liquid level gauge
- ❑ Relief valve
- ❑ Vapor service valve

17. What are you looking for when inspecting the tank? **Select all that apply.**

- ❑ Dents
- ❑ Gouges
- ❑ Paint Chips
- ❑ Corrosion

18. A person can be inside a motorhome while it is being filled.

- ❑ True
- ❑ False

19. The owner of the motorhome is responsible for which of the following? **Select all that apply.**

- ❑ Turn off the motorhome main electrical breaker
- ❑ Light pilot light
- ❑ Fill the tank
- ❑ Inspect the tank

20. Which valves do you open on the ASME tank when filling? **Select all that apply.**

- ❑ Tank filler valve
- ❑ Fixed maximum liquid level gauge
- ❑ Relief valve
- ❑ Float valve

21. How do you know when an ASME tank is full? **Select all that apply.**

- ❑ A steady white mist is emitted from the fixed maximum liquid level gauge
- ❑ The overfill protection device stops the flow
- ❑ You stop it when the weight of the tank reaches the maximum level
- ❑ When the meter on the tank says full

22. Why do you have to slowly loosen the filler valve and wait for the vent to stop before disconnecting? **Select all that apply.**

- ❑ The filler valve may not be closed
- ❑ The hose-end valve may not be closed
- ❑ The pressure is too high to manually release it until it vents
- ❑ The temperature of the venting gas is too cold for you to safely put your hands in it

23. Which of the following are parts of the shutdown procedures? **Select all that apply.**

- ❑ Dispenser operating valves are closed
- ❑ Transfer hoses are secured
- ❑ Dispenser cabinet is locked
- ❑ Tank valves are closed

# Dispensing Propane Safely – Motorhomes and ASME Tanks

## Final Exam ANSWER KEY

1. All (open valve, damaged container or component, piping failure, and incorrect connection/usage)
2. Evacuate the area
3. 330 ft
4. All (company name, propane container type, details of people injured, your name)
5. You should never return the propane leak area until advised it is safe to do so.
6. Hoses, valves, connection fittings, cylinder or tank being filled
7. All (nontoxic, colorless, odorless, flammable)
8. All (lawnmowers, space heaters, vehicles, generators)
9. Gas
10. All (train, pipe, bobtail, cylinder truck)
11.

| | |
|---|---|
| Flow control valve | Start and stop the flow or propane by a person manually opening or closing it. |
| Internal liquid outlet valve | The primary shutoff valve. |
| Pump | Moves liquid propane from one container to the other and uses a motor to turn it. |
| Meter | Measures how many gallons of propane is dispensed into a container. |

12. False
13. Notify your supervisor, Close all valves
14. All (follow company policy, evacuate everyone from the area, turn off propane and electrical systems if safe to do so, do not fill any other tanks or cylinders until cleared by emergency responders)
15. 250, 312
16. All (filler valve threads, fixed maximum liquid level gauge, relief valve, vapor service valve)
17. Dents, gouges, corrosion
18. False
19. Turn off motorhome main electrical breaker, light pilot light
20. Tank filler valve, fixed maximum liquid level gauge
21. A steady white mist is emitted from the fixed maximum liquid level gauge, the overfill protection device stops the flow
22. The filler valve may not be closed, the hose-end valve may not be closed
23. All (dispenser operating valves are closed, transfer hoses are secured, dispenser cabinet is locked, tank valves are closed)

# Dispensing Propane Safely – Dispensing Autogas

Name: _____ Date: _____

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

1. Which are properties of propane? **Select all that apply.**

   - ❑ Nontoxic
   - ❑ Colorless
   - ❑ Odorless
   - ❑ Flammable

2. Propane is used as a fuel in which of the following: **Select all that apply.**

   - ❑ Lawnmowers
   - ❑ Space Heaters
   - ❑ Vehicles
   - ❑ Generators

3. At room temperature, propane is in what state?

   - ❑ Liquid
   - ❑ Solid
   - ❑ Gas

4. How is propane transported? **Select all that apply.**

   - ❑ Train
   - ❑ Pipe
   - ❑ Bobtail
   - ❑ Cylinder Truck

5. A person walks up to your filling station to buy Autogas for his vehicle. Can you sell him a 20 lb. cylinder to take back to his car to fill it where it ran out of fuel?

   - ❑ Yes
   - ❑ No

6. You may have a propane dispenser that can only fill vehicles.

   - ❑ True
   - ❑ False

7. What is the purpose of the pump?

   - ❑ Connect the hose to the vehicle.
   - ❑ Display information about quantity of propane dispensed.
   - ❑ Move propane from holding container to hose.
   - ❑ Change type of connection of the nozzle to fit the vehicle.

8. How do you know when the Autogas vehicle's tank is full?

   - ❑ Subtract the weight of the vehicle from the scale weight and multiply it by the tare weight of the tank.
   - ❑ The flow of propane stops automatically.
   - ❑ The gauge on the vehicle dash shows when it's full and you stop the pump.
   - ❑ Subtract the percent full from the gauge from the total container size and fill the balance based on the electronic head.

9. What is the AHJ?

   - ❑ Authority Having Jurisdiction
   - ❑ Any Hearing Job
   - ❑ Autonomous Heating Job
   - ❑ Alternate Heating Junction

10. Which forms of PPE are required for dispensing Autogas?

    - ❑ Coveralls
    - ❑ Safety glasses
    - ❑ Gloves
    - ❑ Steel toe boots

11. Where is the propane decal located on a vehicle?

    - ❑ Back, above the right hand bumper
    - ❑ Under the Autogas receptacle
    - ❑ Back, above the left hand bumper
    - ❑ Inside the fuel cap cover

12. All new cars have quick connect nozzles.

- ❑ True
- ❑ False

13. What are hazards to watch for when filling Autogas?

- ❑ Cross threaded nozzle
- ❑ Car parked on incline
- ❑ Static charge build up
- ❑ Overfilling the tank

14. What are potential causes of an uncontrolled propane release? **Select all that apply.**

- ❑ Open valve
- ❑ Damaged container or component
- ❑ Piping failure
- ❑ Incorrect connection/usage

15. What is the first step when you suspect an uncontrolled gas leak?

- ❑ Evacuate the area
- ❑ Turn off the electrical system (ESV)
- ❑ Call 911
- ❑ Turn off the propane

16. How far from the propane dispenser do you need to evacuate in the event of an uncontrolled release?

- ❑ 99 ft
- ❑ 110 ft
- ❑ 220 ft
- ❑ 330 ft

17. What do you need to tell the 911 operator when you call to report an uncontrolled propane release? **Select all that apply.**

- ❑ Company name
- ❑ Propane container type
- ❑ Details of people injured
- ❑ Your name

18. Before cleared by emergency responders, when should you reenter the propane leak area?

- ❑ If a fire starts, using a fire extinguisher to put it out.
- ❑ To burn off the propane if you didn't while exiting.
- ❑ To turn off the electrical system if you didn't while exiting.
- ❑ You should never return the propane leak area until advised it is safe to do so.

19. When using the dispenser, what needs to be inspected prior to dispensing propane? **Select all that apply.**

- ❑ Hoses
- ❑ Valves
- ❑ Fire Extinguisher
- ❑ Cylinder or Tank being filled

# Dispensing Propane Safely – Dispensing Autogas

## Final Exam ANSWER KEY

1. All (nontoxic, colorless, odorless, flammable)
2. All (lawnmowers, space heaters, vehicles, generators)
3. Gas
4. All (train, pipe, bobtail, cylinder truck)
5. No
6. True
7. Move propane from holding container to hose.
8. The flow of propane stops automatically.
9. Authority Having Jurisdiction
10. Safety glasses, Gloves
11. Back, above the right hand bumper
12. True
13. Cross threaded nozzle, car parked on incline, static charge build up
14. All (open valve, damaged container or component, piping failure, and incorrect connection/usage)
15. Evacuate the area
16. 330 ft
17. All (company name, propane container type, details of people injured, your name)
18. You should never return the propane leak area until advised it is safe to do so.
19. Hoses, valves, cylinder or tank being filled

# Certificates of Completion

CERTIFICATE OF TRAINING COMPLETION for

**DISPENSING PROPANE SAFELY - SMALL CYLINDER FILLING BY WEIGHT**

_____ has successfully completed all required training for the Dispensing Propane Safely- Small Cylinder program for filling cylinders by weight.

PRESENTED BY: _____

Signature Printed Name

ON THIS DATE: _____

The training was conducted at _____

(Location Name and Address)

Company providing training: _____

Company receiving training: _____

## CERTIFICATE OF TRAINING COMPLETION for
# DISPENSING PROPANE SAFELY- SMALL CYLINDER FILLING BY VOLUME

_____

has successfully completed all required training for the Dispensing Propane Safely- Small Cylinder program for filling cylinders by volume.

PRESENTED BY: _____

Signature Printed Name

ON THIS DATE: _____

The training was conducted at _____

(Location Name and Address)

Company providing training: _____

Company receiving training: _____

## CERTIFICATE OF TRAINING COMPLETION for
## DISPENSING PROPANE SAFELY- SMALL CYLINDER FILLING BY WEIGHT & VOLUME

_____

has successfully completed all required training for the Dispensing Propane Safely- Small Cylinder program for filling cylinders by weight & volume.

PRESENTED BY: _____

Signature Printed Name

ON THIS DATE: _____

The training was conducted at _____

(Location Name and Address)

Company providing training: _____

Company receiving training: _____

## CERTIFICATE OF TRAINING COMPLETION for
# DISPENSING PROPANE SAFELY- MOTORHOMES & ASME-MOUNTED TANKS

_____

has successfully completed all required training for the Dispensing Propane Safely- Motorhomes & ASME-mounted tanks program.

PRESENTED BY: _____

Signature Printed Name

ON THIS DATE: _____

The training was conducted at _____

(Location Name and Address)

Company providing training: _____

Company receiving training: _____

# CERTIFICATE OF TRAINING COMPLETION for
# DISPENSING PROPANE SAFELY- DISPENSING AUTOGAS

_____

has successfully completed all required training for the Dispensing Propane Safely- Dispensing Autogas program.

PRESENTED BY: _____

Signature Printed Name

ON THIS DATE: _____

The training was conducted at _____

(Location Name and Address)

Company providing training: _____

Company receiving training: _____

## Resources

On-the-Job training worksheets are available for download from the Learning Center.

**Propane Education & Research Council**
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