



Think Safety!

A Publication Of The West Virginia Propane Gas Association

Second Quarter 2019

Filling And Transporting DOT Cylinders

Spring is here and summer is rapidly approaching which is primetime-grilling season. This, of course, leads to an increase in the demand for filled grill cylinders. Cylinder exchange racks have become increasingly popular in recent years, but still many customers prefer to have their own tank filled.

These customers expect and deserve to have their tanks safely and correctly filled. As

propane professionals, we should strive to meet those expectations.

We are going to discuss the responsibilities of propane dispensers and how they can both fill the tanks appropriately and do the best job possible to keep both themselves and the customer safe.



Knowing The Job:

Any employee actively engaged in dispensing propane should meet minimum responsibilities such as:

- Know all regulations

concerning the safe dispensing of propane.

- Know how to correctly inspect and identify tanks that should not

be filled due to damage to the tank or qualification expiration.

- How to determine the correct fill amount.
- How to make sure the fill area is safe from potential ignition sources such as static electricity, combustion engines, any open flame. It can't be assumed that everyone understands the potential danger.
- How to react in case of an emergency including shutdown procedures. Any employee filling cylinders should know the location of the emergency shut-

down device as well as emergency procedures.

Also, it is important that anyone who fills cylinders have the ability to provide safety information to the customer including the safe transportation of the tank once it is filled.

The amount of propane that can be carried within a closed bodied vehicle is restricted. According to NFPA 58, 90 pounds total of propane can be transported in a closed vehicle. However, no more than 45 pounds of propane can be contained in one cylinder which limits the transportation of propane to two 40-pound

Inside . . .

Operating The Dispenser..... Page 2

Preparing A Used Cylinder Page 3

Refilling A Cylinder..... Page 3

Continued To Next Page

Knowing The Job:

Continued From Page One

cylinders, four 20-pound cylinders, eight 11-pound cylinders or two 33.5-pound cylinders.

Whatever amount of propane is transported inside the vehicle, the filled tanks should be carried in an upright and stationary manner. A filled cylinder should never be left inside the vehicle for a long period of time. Instead it should be transported directly to the customer's destination.

The rising temperature in-

side a vehicle can quickly create a dangerous situation as the propane inside the tank begins to boil. Liquid propane expands 270 times as it turns to vapor, which increases the pressure inside the tank. Once it reaches the necessary pressure level to activate the pressure relief valve, propane vapor will be released inside the vehicle. At that point, the only thing it needs to become explosive is an ignition source.



Operating The Dispenser:



A dispenser operator should be familiar with how all of the equipment operates. He or she should also make sure that it is in proper working condition.

First, make sure all hose-end valves are closed before slowly opening the liquid outlet valve and the downstream manual valve.

Inspect all valves, piping, the transfer hose and fittings to make sure they are sound and without leaks. Also, inspect the threads of all connection adapters for excess wear. All gaskets and "O" rings should be in good working condition.

If a leak is found, the dispenser should be shut down.

Once the dispenser has been verified as safe, the cylinder can be filled.

If you open the liquid outlet valve too quickly, the excess flow valve can slam shut as indicated by a snapping noise. If the excess has closed, proceed as follows:

Close the downstream valve

Wait for the excess flow valve to reopen. (This may be indicated by a clicking sound)

Open it slowly to avoid another closure.

Refilling A Cylinder:

According to 49 CFR 173.301 each cylinder must be built according to all DOT qualifications.

Each cylinder must pass a visual inspection. The cylinder should be observed for any crack, leak, bulge, defective valve, a leaking or defective pressure relief device, evidence of physical abuse, fire

or heat damage, or detrimental rusting or corrosion.

The cylinder must be equipped with a properly sized and installed pressure relief valve. The valve must also be tested for leaks using proper testing methods.

If the cylinder fails the visual inspection for any of the above reasons, it cannot

be filled. It must be repaired, requalified, or condemned.

The cylinder can only be requalified by someone with a valid RIN. When applying for a RIN the training and qualifications of the persons who perform the inspection must be stated in the application.

Cylinders may be requalified by one of three methods:

Visual inspections – must be requalified every five years.

Simple hydrostatic test – must be repeated every seven years after the cylinder has undergone the first 12-year water jacket test.

Water jacket hydrostatic test – must be requalified every

Continued To Next Page

Refilling A Cylinder:

Continued From Page Two

12 years.

Most dispenser operators who requalify cylinders use the visual inspection method. It permits requalification of cylinders by a complete external inspection in accordance with Compressed Gas Association Pamphlet C-6 or C-6.3. However, the visual inspection method is permitted only by persons holding a current US DOT requalifier identification number (RIN) and the results must be recorded and maintained in accordance with CFR 49 180.215.

CFR 49 180.215 requires that daily records of visual inspections be kept by the person who performs the inspection until either the expiration of the requalification period or until the cylinder is again

requalified, whichever comes first. The records must include the date of inspection, DOT specification number, cylinder identification, type of cylinder protective coating, conditions checked, and disposition of

cylinder. Other record-keeping requirements can be found in section 107.803-805.

The requalified cylinder must be marked in accordance with 49 CFR 180.213. The

markings must be made by stamping, engraving, scribing, the use of durable pressure adhesive label or any other method that produces a legible, durable mark.



Cylinder Markings:

Cylinders passing requalification by external visual inspection must be marked in accordance with 49 CFR 180.213. It must be marked with the RIN set in a square pattern, between the month and year of the requalification date.

The markings must be at least 1/4 inch high, except for the RIN characters, which must be at least 1/8 inch high. Markings must be made by stamping, engraving, scribing or any other method that produces a legible, durable mark. The markings must be permanent and placed on any portion of the upper end of the cylinder, excluding the sidewall. They must be readily

visible at all times.

Each facility that requalifies cylinders must maintain the following records at the facility where the requalification is performed:

Current RIN issuance letter from DOT or copy of renewal request.

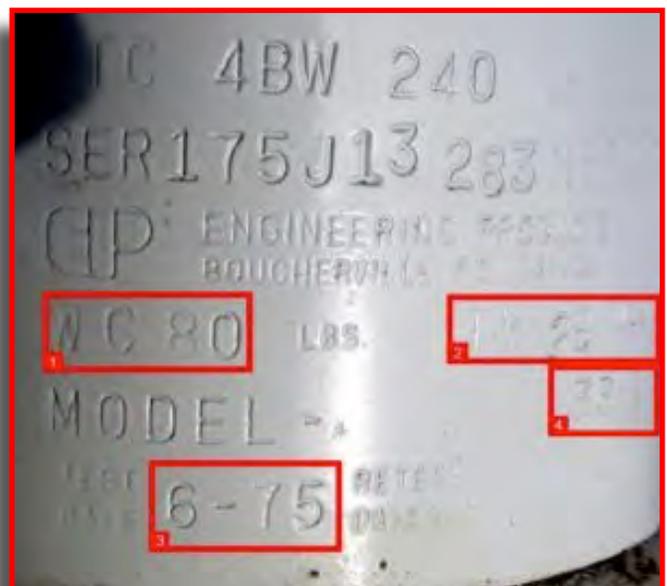
Current copies of those portions of the hazmat regulations addressing cylinder requalification and marking activities at that facility.

Current copies of all exemptions governing exemption cylinders requalified or marked by the requalifier at that location.

Information contained in CGA C-6 and/or C-6.3 as appropriate.

Daily records of visual inspection performed until either the expiration of the

requalification period or until the cylinder is requalified, whichever occurs first.



How To Fill A Grill Cylinder:

According to NFPA 58, an OPD shall not be the primary means to determine when a cylinder is properly filled. The OPD is intended to be a backup device

OPD valves are machined parts, machined by human beings, and as such are not infallible. Therefore, cylinders should be filled either by weight or volumetric methods to insure that the cylinder is not filled beyond 80 percent capacity. Consult NFPA 58 to determine which method is

right for the particular cylinder you are filling.

Most portable recreational cylinders will be filled using the weight method. When using the weight method, the cylinder should be filled to 42 percent of the marked water capacity in pounds. For instance, a "20-pound" cylinder with a water capacity of 47.1 pounds should be filled with about 19.78 pounds of propane.

Overfilling a cylinder can create a dangerous situation!

W.C.	LBS. PROPANE	W.C.	LBS. PROPANE
2.39	1	35.8	15
4.78	2	38.2	16
7.17	3	40.6	17
9.56	4	43.0	18
11.9	5	45.4	19
14.3	6	47.8	20
16.7	7	59.7	25
19.1	8	71.7	30
21.5	9	78.8	33
23.9	10	83.6	35
26.2	11	95.6	40
28.6	12	105.1	44
31.0	13	119.5	50
33.4	14	239	100

Articles in this publication are for information only. Nothing in this publication is to be construed as setting standards or requirements. Please consult with appropriate regulatory and rulemaking bodies for all legal requirements.



*West Virginia
Propane Gas
Association*

Tom Osina: Executive Director

107 S. West Street, #825

Alexandria, VA 22314

Phone: 703/530-9772

Fax: 703/530-9653

Web address: www.wvpropanegas.org

Email address: wvpga@aol.com

Training Quiz

Name _____ Social Security Number _____

1. The amount of propane that can be carried within a closed bodied vehicle is restricted.
A. True B. False
2. According to NFPA 58, ___ pounds total of propane can be transported in a closed vehicle.
A.90 B. 50 C. 75 D. 100
3. In a closed vehicle, no more than ___ pounds of propane can be contained in one cylinder
A. 60 B. 45 C. 75 D. 100
4. Filled propane tanks should be transported in an upright and stationary manner.
A.True B.False
5. A filled cylinder should never be left inside the vehicle for a long period of time.
A. True B. False
6. Liquid propane expands ___ times as it turns to vapor
A. 150 B. 200 C. 270 D. 350
7. Before using a dispenser, inspect all valves, piping, the transfer hose and fittings to make sure they are sound and without leaks.
A. True B. False
8. If you open the liquid outlet valve too quickly, the excess flow valve can slam shut as indicated by a snapping noise.
A. True B. False
9. Before filling a used cylinder, it must be visually inspected to make sure it is not out of date.
A. True B. False
10. A used cylinder cannot be filled if it shows leakage, serious denting, bulging, gouging, excessive corrosion or serious damage to the footing or protective collar.
A. True B. False
11. The daily records of visual inspections must be kept by the person who performs the inspection until either the expiration of the requalification period or until the cylinder is again requalified,
A. True B. False
12. The records must include the _____, _____, _____, type of cylinder protective coating, conditions checked, and disposition of cylinder.
A. date of inspection B. DOT spec number C. cylinder ID D. A,B, and C
13. The markings must be at least ___inch high, except for the RIN characters, which must be at least ___ inch high.
A. 1/4, 1/8 B. 1/2, 3/4 C. 1,3 D. 6, 9

Training Quiz Answers

Name _____ Social Security Number _____

1. The amount of propane that can be carried within a closed bodied vehicle is restricted.
 A. True B. False
2. According to NFPA 58, ___ pounds total of propane can be transported in a closed vehicle.
 A. 90 B. 50 C. 75 D. 100
3. In a closed vehicle, no more than ___ pounds of propane can be contained in one cylinder
A. 60 B. 45 C. 75 D. 100
4. Filled propane tanks should be transported in an upright and stationary manner.
 A. True B. False
5. A filled cylinder should never be left inside the vehicle for a long period of time.
 A. True B. False
6. Liquid propane expands ___ times as it turns to vapor
A. 150 B. 200 C. 270 D. 350
7. Before using a dispenser, inspect all valves, piping, the transfer hose and fittings to make sure they are sound and without leaks.
 A. True B. False
8. If you open the liquid outlet valve too quickly, the excess flow valve can slam shut as indicated by a snapping noise.
 A. True B. False
9. Before filling a used cylinder, it must be visually inspected to make sure it is not out of date.
 A. True B. False
10. A used cylinder cannot be filled if it shows leakage, serious denting, bulging, gouging, excessive corrosion or serious damage to the footing or protective collar.
 A. True B. False
11. The daily records of visual inspections must be kept by the person who performs the inspection until either the expiration of the requalification period or until the cylinder is again requalified,
 A. True B. False
12. The records must include the _____, _____, _____, type of cylinder protective coating, conditions checked, and disposition of cylinder.
A. date of inspection B. DOT spec number C. cylinder ID D. A,B, and C
13. The markings must be at least ___ inch high, except for the RIN characters, which must be at least ___ inch high.
 A. 1/4, 1/8 B. 1/2, 3/4 C. 1,3 D. 6, 9