

**Volume 7
No. 2
Spring
2008**

Propane Facts

Formula
 C_3H_8

Boiling Point
-44°F

Specific Gravity Gas
at 60°F
(Air = 1.0)
1.5

Specific Gravity
Liquid at 60°F
(Water = 1.0)
.504

Lbs per Gallon of
liquid at 60°F
4.2

BTUs per Gallon of
liquid at 60°F
91,502

BTUs per Lb. of Gas
at 60°F
21,548

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PROPANE
EXCEPTIONAL ENERGY

Safety First



*A Training Newsletter Brought
To You By The KYPERC*

Training Topic: Filling And Preparing Cylinders



The spring brings a return for most people to outdoor activities including grilling. As a result most propane dealers see a surge in their recreational cylinder business. Each day many dealers incorrectly purge, fill or in some cases requalify cylinders. This issue of *Safety First* will address several aspects of correctly handling cylinders.

Of course, it has been law for quite some time now that all cylinders 40-pound and smaller must be equipped with an overfill prevention device (OPD).

OPDs can easily be identified by the triangular hand wheel. If the cylinder does not have the triangular hand wheel, it cannot be filled, according to Kentucky law.

Cylinders used in indus-

trial truck service, including forklift cylinders and cylinders identified and used for industrial welding and cutting gases are exempted from the OPD requirement. Cylinders manufactured prior to Oct. 1, 1998, and designed for use in the horizontal orientation for which an OPD is not available are also exempt.

Obsolete valves can be replaced by OPD valves in an otherwise good tank. However, any business replacing valves must be licensed per KRS 234.120 and any person performing the change must meet the training requirements specified in NFPA 58, Section 1.5.

Also, the OPD installed must be a listed valve assembly.

Dispensers

The installation, location and operation requirements for an LP gas dispensing station can be found in NFPA-58.

Dispensing stations can not be installed within a

building, and any protective shelter must be well ventilated and not cover more than 50 percent of the perimeter.

The pump controls must be located at the device in order to mini-



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mize the possibility of leakage or accidental discharge.

An excess-flow or differential back check valve must be installed at or on the dispenser at the point in which the hose is connected to the liquid piping.

A hydrostatic relief valve must be provided with the piping and dispensing hose so as to relieve pressure that could develop from the trapped liquid to a safe atmosphere or product-retaining section.

Precautions should be taken to make the area trespass and tamper proof by constructing an industrial-type fence (chain link or equivalent material) of at least 6 feet high. There must be at least two emer-

gency access points from within the enclosure. The access points must be at least three feet wide. There are two exceptions to this rule. A second gate is not required when the fenced or enclosed area is not over 100 square feet. Also, a second gate is not required when the point of transfer is within three feet of the gate or if containers are not filled within the enclosure.

Fencing is not required when devices are used that prevent unauthorized operation of valves, equipment, and appurtenances that can be locked in place are used.

A manual shutoff valve and an excess-flow check valve shall be located in the liquid line between the pump

and dispenser inlet where the dispensing device is installed at a remote location and is not part of a complete storage and dispensing unit mounted on a common base.

All dispensers either shall be installed on a concrete foundation or shall be part of a complete storage and dispensing unit mounted on a common base.

An emergency switch or circuit breaker must be installed so that the power can be cut in case of an emergency. It must be clearly identified as such be



visible at the point of transfer. The switch must be not less than 20 feet or more than 100 feet from the dispensing unit.

Preparing A Used Cylinder

Before filling a used cylinder, it must be visually inspected to make sure it is not out of date, or to make sure it does not show leakage, serious denting, bulging, gouging, excessive corrosion or serious damage to the footing or protective collar.

If the cylinder is out of date or otherwise determined to be unfit for refilling, it must be requalified. **If it is requalified by the visual inspection method only, the dealer**

must now obtain a Requalifier Identification Number (RIN).

To requalify a cylinder by the visual inspection method, inspections must be performed in accordance with Compressed Gas Association Pamphlet C-6 (Standards for Visual Inspection of Steel Compressed Gas Cylinders) and/or C-6.3 (Guidelines for Visual Inspection and



Requalification of Low Pressure Aluminum Compressed Gas Cylinders). Copies of these pamphlets are available from the Compressed Gas Association (<http://www.cga.net.com>)

The inspection results must be recorded and maintained in accordance with Code of Federal Regulations 49 CFR 180.209. The records should include:

Date of Inspection (month and year).

DOT specification / exemption number.

Cylinder identification (registered symbol and serial number, date of manufacture, and owner).

Type of cylinder protective coating (including state-



ment as to need of refinishing or recoating).

Conditions checked (e.g. leakage, corrosion, gouges, dents or digs in the shell or heads, broken or damaged footing or protective collar, or fire damage).

Disposition of cylinder (returned to service, returned to cylinder manufacturer for repairs or condemned).

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

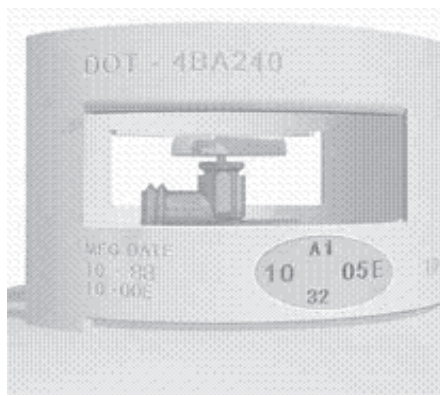
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cylinder, excluding the sidewall. They must be readily visible at all times.

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 gov-

erning 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 Obtain A RIN

To obtain a RIN, a company must submit an application to DOT registering the facility as one that visually requalifies cylinders. The application must be signed by the facility manager, certifying that the facility will operate in compliance with the applicable hazardous materials regu-

lations.

NPGA has developed a sample application for your use that has been reviewed and accepted by DOT.

The completed application should be submitted to:

**Associate Administrator for Hazardous Materials Safety
Research and Special Programs Administration
U.S. Department of Transportation
400 7th Street SW
Washington, D.C.
20590-0001**

The RIN applies to the facility where the requalification is performed not to any manager or employee of the facility. If a company has more than one facility, then a separate RIN must be obtained for each facility that visually requalifies cylinders. An application may be submitted for all of the facilities at one time, however, each application must be signed by the manager in charge of the respective facilities.

A regional manager over-

seeing several facilities may sign the applications, but by doing so, he is signifying that each facility is in compliance.

The RIN approval process usually takes approximately two to four weeks, depending on the number of applications submitted by the company and the availability of DOT personnel to review the applications.

Renewals must be submitted at least 60 days before the expiration date.

Preparing A New Cylinder

Purging:

All new cylinders must be purged in order to rid them of air and moisture, both of which are contaminants that could interfere with the proper operation of the connected appliance.

Never purge with liquid. Purging with liquid causes the liquid to flash into vapor, chilling the container, and condensing any moisture vapor on the

walls where it will remain while the pressure is being blown down.

Also, purging with liquid is very ineffective at removing air from the cylinder as less than 50 percent of the air will be removed by this method and as little as 25 percent.

Instead, the cylinder should be pressurized to 15 psig propane vapor pressure. The vapor should be exhausted and the procedure repeated at least four times.

If this procedure is repeated four times, the per-

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centage of air in the cylinder will be reduced to 6.25 percent. Five times would reduce it to 3.13 percent and six times to 1.56 percent.



Anhydrous Cylinders

Be on the lookout for cylinders that have been used in the making of methamphetamines. Those cylinders pose an extreme safety risk due to their use with anhydrous ammonia and should not be filled with propane when identified.

Anhydrous ammonia damages the brass valves in propane cylinders by cracking the valve body or

its components. The result can be a violent expulsion of the valve from the cylinder.

These cylinders can be visually identified by the blue-green stains on the brass portions of the service valve or the pungent odor of ammonia on or near the cylinder.

It can even be dangerous to move the cylinder due to the unknown integrity of the cylinder's service valve. If you move the cylinder, point the valve away from all personnel due the risk of explosion.

Legal Disclaimer

The training suggestions contained in *Safety First* are not intended to be a complete program. Always use industry standard federal, state and local codes. Any information contained in *Safety First* is not intended to supercede any of these codes or individual company policy. Neither KY PERC or publisher of *Safety First* are responsible for the omission of any training or code requirement not included in a company's employee training program.



We hope you enjoyed your copy of *Safety First*. However, if you wish to be removed from our mailing list, please notify us by completing the following card and returning it to the KYPERC office at 1503 Twilight Trail, Frankfort, KY 40601. You can also fax us at 502-223-4937.

Name: _____

Company: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____

Email Address _____

Your Kentucky PERC Dollars At Work

The Kentucky Propane Education and Research Council's *Safety First* newsletter provides Kentucky's propane industry with a hands-on tool to train employees and assist your safety meetings.

Each publication features issues important to you, both on the state and federal level. Each quarterly issue is designed to cover a topic and include a test section for managers to test the knowledge of their frontline employees. The quiz can be placed in an employee's file to indicate his/her completion of the topic.

Safety First is just one more way that your PERC assessment dollars are being used to lower the cost of training and address issues important to you and your business. We hope you find *Safety First* a great return on your investment!

If you have a suggestion for a training topic, email us at info@choosepropane.org or mail it to KYPERC, 1503 Twilight Trail, Frankfort, Kentucky 40601.

Special thanks to the members of the Kentucky Propane Gas Association's Marketing and Education Committee for their help.

Training Quiz Answers

Name _____ Social Security Number _____

1. Dispensing stations can not be installed within a building.
 A. True B. False
2. Any protective shelter must be well ventilated and not cover more than ___ percent of the perimeter.
A. 60 B. 50 C. 25 D. 30
3. The pump controls must be located at the device in order to minimize the possibility of leakage or accidental discharge.
 A. True B. False
4. An excess-flow or differential back check valve must be installed at or on the dispenser at the point in which the hose is connected to the liquid piping.
 A. True B. False
5. A hydrostatic relief valve must be provided with the piping and dispensing hose so as to relieve pressure that could develop from the trapped liquid.
 A. True B. False
6. Precautions should be taken to make the dispenser area trespass and tamper proof by constructing an industrial-type fence (chain link or equivalent material) of at least ___ feet high.
 A. 6 B. 10 C. 8 D. 15
7. There must be at least ___ emergency access points from within the enclosure unless the fenced or enclosed area is not over 100 square feet, the point of transfer is within three feet of the gate, or if containers are not filled within the enclosure..
 A. 2 B. 4 C. 3 D. 5
8. The access points from the dispenser enclosure must be at least ___ feet wide.
A. 2 B. 5 C. 3 D. 6
9. Fencing is not required when devices are used that prevent unauthorized operation of valves, equipment, and appurtenances that can be locked in place are used.
 A. True B. False
10. All dispensers either shall be installed on a wood foundation or shall be part of a complete storage and dispensing unit mounted on a common base.
A. True B. False
11. An emergency switch or circuit breaker must be installed so that the power can be cut in case of an emergency. It must be clearly identified as such be visible at the point of transfer. The switch must be not less than ___ feet or more than ___ feet from the dispensing unit.
A. 50, 100 B. 60, 75 C. 20, 100 D. 80, 200
12. If the cylinder is out of date or otherwise determined to be unfit for refilling, it must be requalified.
 A. True B. False
13. All new cylinders must be purged in order to rid them of air and moisture.
 A. True B. False
14. Purging a cylinder with liquid causes the liquid to flash into vapor, chilling the container, and condensing any moisture vapor on the walls
 A. True B. False
15. Purging a cylinder with liquid removes less than 50 percent of the air and as little as 25 percent.
 A. True B. False