

Issued to: \_\_\_\_\_  
Print Name Signature Date

# 2.1 Dispenser Operations Web Workbook



**Railroad Commission of Texas  
Alternative Fuel Safety**

## **Notice**

This workbook is intended for use as a training document in conjunction with material presented by an instructor with the Railroad Commission of Texas or an authorized Railroad Commission of Texas Outside Instructor. Any other use or distribution of this workbook or use or distribution of any portion of this workbook for any purpose whatsoever is considered by the Railroad Commission of Texas to be misuse of this publication.

This program is not intended to be an exhaustive treatment of the subjects covered and should not be interpreted as precluding the use of other safety programs or procedures that comply with (1) applicable federal, state and/or local code provisions, statutes, ordinances and/or other regulations, including, but not limited to, the Railroad Commission of Texas LP-Gas Safety Rules and codes adopted by the Railroad Commission of Texas and/or (2) other industry standards and/or practices.

Every effort was made to ensure that this workbook was accurate and up-to-date as of publication. The reader is cautioned, however, about reliance on this publication or any portion thereof at any time thereafter, particularly because changes in technology are likely to occur that might make portions of the workbook inaccurate and out-of-date. The Railroad Commission of Texas assumes no liability, under any circumstances from this training program, from whatever source, or any other consequences of any such reliance.

All rights reserved. No part of this publication may be reproduced or transmitted in any form without written permission from the Railroad Commission of Texas.

# Administrative Rules

Slide #

- 17) . **Definitions**  
**SR §9.2 (22) LP-Gas Safety Rules--**  
The rules adopted by the Railroad Commission in the Texas Administrative Code, Title 16, Part 1, Chapter 9, including any NFPA or other documents adopted by reference.
- 18) . **Texas LP-Gas Safety Rules**  
Covers administrative codes, exceptions and enhancements to NFPA standards  
Mandated by chapter 113 of the Texas Natural Resource Code
- 19) . **LP-Gas Safety Rules**
- Subchapter A
    - Licensing, Examination, Training
  - Subchapter B
    - Installation, Containers, Equipment
  - Subchapter C
    - Vehicle registration, Identification, Testing
  - Subchapter D – Adoption of NFPA 54
  - Subchapter E – Adoption of NFPA 58
- 20) . **LP-Gas Safety Rules**  
**SR §9.7 (c) Applications for Licenses**  
Licensees, registered manufacturers, company representatives, and operations supervisors at each outlet shall have copies of all **current** licenses and/or manufacturer registrations and certificates for employees at that location available for inspection during regular **business hours**.

- 21) . **LP-Gas Safety Rules**  
**SR §9.7. Applications for Licenses - (cont.)**  
In addition, licensees and registered manufacturers shall maintain a current version of the **rules** in this chapter and shall provide access to these rules for each company representative and operations supervisor.  
The rules shall also be **available** to employees during business hours.
- 22) . **LP-Gas Safety Rules**  
Revisions will occur after the date of publication.  
It is your responsibility to comply with the rules in effect at the time the activities are conducted.  
The current rules can be viewed online at: [www.rrc.texas.gov](http://www.rrc.texas.gov).
- 23) . **NFPA 58 - 2017 Edition**  
This is the edition currently adopted by the RRC  
All RRC rules, exams and study guides refer to this edition
- 24) . **New Certificate**  
**SR §9.8. Requirements & Application for New Certificate**  
**(a) In addition to complying w/ NFPA 58 §4.4 & §11.2,**  
  - No person shall perform work,
  - Directly supervise LP-gas activities, or
  - Be employed in any capacity requiring contact with LP-gas unless:
- 25) . **New Certificate**  
**SR §9.8. (a) – (cont.)**  
**(1)** That individual is a **certificate holder** who is:  
**(A)** In compliance with all applicable training and **continuing education** requirements in §9.51 and §9.52 of this title  
**(B)** In compliance with **renewal requirements** in §9.9 of this title  
**(C) Employed by a licensee;** or  
**(2)** That individual is a trainee who complies with §9.12 of this title.

- 26) . **New Certificate**  
**SR §9.8. – (cont.)**  
(c) An applicant for a new certification shall:  
(1) File with AFS a properly completed LPG **Form 16** and the applicable nonrefundable rules examination fee specified in §9.10 of this title;  
(2) Pass the applicable rules examination with a score of at least **75%**; and  
(3) Complete any required training and/or **AFT** in §9.51 and §9.52 of this title.
- 27) . **Training Requirements**  
**58-§4.4 Qualification of Personnel.**  
**§4.4.1** Persons whose duties fall within the scope of this code shall be provided with training that is consistent with the scope of their job activities and that includes:  
  - Proper handling and
  - Emergency response procedures.
- 28) . **Training Requirements**  
**58-§4.4 Qualification of Personnel. – (cont.)**  
**§4.4.2** Persons whose primary duties include transporting LP-Gas, transferring liquid LP-Gas into or out of stationary containers, or making stationary installations shall complete training that includes the following components:  
(1) Safe work practices  
(2) The health and safety hazards of LP-Gas  
(3) Emergency response procedures  
(4) Supervised, on-the-job training  
(5) An assessment of the person’s ability to perform the job duties assigned
- 29) . **Training Requirements**  
**58-§4.4 Qualification of Personnel. – (cont.)**  
**§4.4.3** Refresher training shall be provided at least every **3 years**.  
**§4.4.4** Initial and subsequent refresher training shall be **documented**.

- 30) . **Operational Safety**  
**58-§4.4 Qualification of Personnel. – (cont.)**  
**§7.2.2.1** Transfer of LP-gas to and from a container shall be done only by **qualified individuals** -  
Trained in proper handling and operating procedures  
Meeting the requirements of Section 4.4 and in  
Emergency response procedures.
- 31) . **Definitions**  
**SR §9.2 (12) Company Representative--**  
The individual designated to the Commission by a license applicant or a licensee as the **principal individual** in authority.
- 32) . **Definitions**  
**SR §9.17 (b) Company Representative Requirements**  
**(1)** Be an owner or employee of the licensee  
**(2)** Be responsible for supervising all LP-Gas activities  
**(3)** Have a working knowledge of the licensee’s LP-Gas activities  
**(4)** Pass the appropriate management level exam  
**(5)** Complete any required training
- 33) . **Definitions**  
**SR §9.17 (b) Company Rep. Requirements - (cont.)**  
**(6)** Comply with the work experience or training requirements  
**(7)** Be directly responsible for all employees performing their assigned LP-gas activities  
**(8)** Submit any additional information as deemed necessary by **AFS**
- 34) . **Definitions**  
**SR §9.2 (49) Trainee--**  
An Individual who has not yet taken and passed an employee-level rules examination.

35) . **Training Requirements**

**SR §9.12. Trainees**

A licensee may employ an individual as a trainee for a period not to exceed **45 calendar days** without that individual having successfully completed the rules examination.

**(1)** The trainee shall be **directly and individually supervised at all times** by a certificate holder for the area of work being performed by the trainee.

**(2)** During a **2 year period**, training shall not exceed any combination of **45 days**, with any number of employers.

36) . **Rules Examination**

**SR §9.10. Rules Examination**

**(a)** An individual who passes the applicable rules examination with a score of at least **75%** will become a certificate holder.

**(1)** Successful completion of any examination shall be credited to and accrue to the **individual**,

**(2)** An individual who has been issued a certificate shall make the certificate readily available and shall present it to any Commission employee or agent who requests proof of certification.

37) . **Rules Examination**

**SR §9.10 (c)(4) Time Limits**

**(A)(i)** Employee-level examinations shall be limited to **two hours**.

You can use:

- LP Gas Safety Rules - 2020
- NFPA 58 - 2017

- 38) . **Employee-Level Certification**  
**SR §9.10. Rules Examination – (cont.)**  
**(d)(1) Employee-Level examination:**  
**(F)** The **DOT Cylinder Filler** examination qualifies an individual to **inspect**, re-qualify, **fill**, disconnect and connect cylinders, including industrial truck cylinders, and to exchange cylinder valves.  
The DOT Cylinder Filler examination does **NOT** authorize an individual to fill ASME **motor or mobile fuel** containers.
- 39) . **Employee-Level Certification**  
**SR §9.10. Rules Examination – (cont.)**  
**(d)(1) Employee-Level examination:**  
**(J)** The **Motor/Mobile Fuel Filler** examination qualifies an individual to inspect and fill motor or mobile fuel containers on **vehicles**, including recreational vehicles, cars, trucks and buses.  
The Motor/Mobile Fuel Filler exam does **NOT** authorize an individual to fill LP-gas **cylinders** or stationary ASME containers.
- 40) . **Certification Card**  
Annual Renewals are due by **May 31st**, each year.
- 41) . **Rules Examination**  
**SR §9.10 (f) Failure**  
Failure of any exam shall **immediately disqualify** the individual from performing any LP-gas related activities covered by the exam which is failed, **except** for activities covered by a separate exam which the individual has passed.



- 42) . **Certificate Renewal**  
**SR §9.9. Requirements for Certificate Renewal**  
**(a)** In order to maintain active status, certificate holders shall **renew** their certification/registration **annually** in accordance with (c) and (e) of this section.  
**(c)** Certificate holders shall remit the nonrefundable **\$35** annual certificate renewal fee to AFS on or before **May 31** of **each year**. Individuals who hold more than one certificate shall pay only **one** annual renewal fee.
- 43) . **Certificate Renewal**  
**SR §9.9. Requirements for Certificate Renewal - (cont.)**  
**(1)** Failure to pay the nonrefundable annual renewal fee by the deadline shall result in a **lapsed certificate**.  
**(A)** To renew a lapsed certificate, the individual shall pay the nonrefundable \$35 annual renewal fee plus a nonrefundable **\$20 late-filing fee**. Failure to do so shall result in the expiration of the certificate.
- 44) . **Certificate Renewal**  
**SR §9.9. Requirements for Certificate Renewal - (cont.)**  
**(B)** If an individual's certificate lapses or expires, that individual shall immediately **cease** performance of any LP-gas activities authorized by the certificate.  
**(C)** If an individual's certificate has been expired for more than **two years** from May 31 of the year in which the certificate lapsed, that individual shall comply with the requirements for a **new** certificate. – **(Start Over)**
- 45) . **Certificate Renewal**  
**SR §9.52. Training and Continuing Education Courses**  
**(b)** A certificate holder shall complete at least eight hours of continuing education every **four years** as specified in this subsection.

46) . **Certificate Renewal**  
**SR §9.9. Requirements for Certificate Renewal - (cont.)**

**(d)** Certificate holders shall successfully complete the **continuing education** requirements as specified in §9.51 and §9.52 of this title to maintain active status.

**(1)** Failure to comply with the continuing education requirements by the assigned deadline shall result in a **lapsed certification**.

47) . **Employee-Level Certification**

8-hour class (SR §9.51):	<b>\$75</b>
Employee level exam (SR §9.10):	<b>\$40</b>
Renew card annually (SR §9.9):	<b>\$35</b>
CE course within 4 years (SR §9.52):	<b>FREE</b>

Total for today's Dispenser operator class: **\$155**

48) . **Characteristics of Propane**

49) . **Characteristics of Propane**

Propane is a **Liquefied Petroleum Gas** which must be stored under pressure to remain in liquid state at normal temperatures.

It is a colorless, odorless, non-toxic gas.

It is odorized for safety using a substance called **ethyl mercaptan** which produces a "rotten egg" smell.

Propane can be an inhalation hazard.

(It displaces oxygen and can cause suffocation)

50) . **Characteristics of Propane**

Propane is highly flammable

Flammability Limits

Lower: **2.15%** propane in air

Upper: **9.6%** propane in air

Ignition Temperature

960 to 1,120°F

Common sources of ignition include a pilot light, match, cigarette, electric motors, switches and static electricity.

51) . **Characteristics of Propane**

Propane at atmospheric pressure boils at -44°F

Propane vapor is heavier than air.

Specific Gravity

Propane liquid = **0.504** (water is 1.0)

Propane vapor = **1.5** (air is 1.0)

This means that propane vapor will sink to the lowest ground level.

52) . **Characteristics of Propane**

The expansion rate of propane liquid into vapor is **270x**.

As it expands it absorbs heat from the surrounding atmosphere, so it poses a freezing hazard to exposed skin. Always wear personal protective equipment.

53) . **Characteristics of Propane**

What is the white fog seen when it is released into the air?

The propane vapor is so cold it condenses the moisture in the air which is visible as fog.

54) . **Poll Questions**

55) . **Transfer Location Rules**

56) . **Transfer Location Rules**

**58-§7.2.1.2 Qualified Personnel**

At least **one** qualified person shall remain in **attendance** at the transfer operation from the time connections are made until the transfer is completed, shutoff valves are closed, and lines are disconnected.

57) . **Transfer Location Rules**

**58-§7.2.3.1 Access**

**Public access** to areas where LP-Gas is stored and transferred shall be **prohibited** except where necessary for the conduct of normal business activities.

58) . **Fire Protection**

**58-§6.29.2.1 Planning**

The planning for the response to incidents including the inadvertent release of LP-Gas, fire, or security breach shall be coordinated with local emergency response agencies.

**§6.29.2.2**

Planning shall include consideration of the safety of emergency personnel, workers, and the public.

59) . **Fire Protection**

**58-§6.29.4.2 Extinguishers**

Each industrial plant, bulk plant, and distributing point shall be provided with at least one approved portable fire extinguisher having a minimum capacity of **18lb.** of dry chemical

**§4.7(2)**

Having a minimum capacity of dry chemical with an A:B:C rating.

- 60) . **Fire Protection**  
**58-§6.29.4.3 Fire Fighting**  
LP-Gas fires shall not be extinguished until the source of the burning gas has been **shut off**.
- §6.29.4.4**  
Emergency controls shall be conspicuously marked, and the controls shall be located so as to be **readily accessible** in emergencies.
- 61) . **Accident Reporting**  
**SR §9.36 Report of LP-Gas Incident / Accident**
- (a) At the earliest practical moment or within **two hours** following discovery, a licensee owning, operating, or servicing equipment or an installation shall notify AFS by telephone of any event involving LP-gas which:
- (1) Caused a death or personal injury requiring hospitalization
  - (2) Required taking an operating facility out of service
  - (3) Resulted in unintentional gas ignition requiring an emergency response
- 62) . **Accident Reporting**  
**SR §9.36 Report of LP-Gas Incident / Accident**
- (4) Involved the LP-Gas installation on any vehicle propelled by or transporting LP-Gas
  - (5) Caused an estimated damage totaling \$5000 or more
  - (6) Could reasonably be judged as significant because of rerouting of traffic, evacuation of buildings or media interest
  - (7) Is required to be reported to any other state or federal agency such as DPS or DOT.
- 63) . **Transfer Location Rules**  
**58-§7.2.1.3 Operational Safety**  
Transfer personnel shall exercise caution to ensure that the LP-Gases transferred are those for which the **transfer system** and the **containers** to be filled are **designed**.

- 64) . **Transfer Location Rules**  
**58-§7.2.3.2 Ignition Sources**  
Sources of ignition shall be turned off during transfer operations, while **connections or disconnections** are made, or while LP-Gas is being vented to the atmosphere.
- 65) . **Transfer Location Rules**  
**58-§7.2.3.2 (A) Ignition Sources**  
Internal combustion **engines** within **15 ft.** of a point of transfer shall be **shut down** while such transfer operations are in progress.
- 66) . **Transfer Location Rules**  
**58-§7.2.3.2 (B) Ignition Sources**  
**Smoking, open flame**, portable electrical tools, and extension lights capable of igniting LP-Gas shall not be permitted within **25 ft.** of a point of transfer while filling operations are in progress.
- 67) . **Transfer Location Rules**  
**58-§7.2.3.2 Ignition Sources**  
**(C) Metal cutting**, grinding, oxygen–fuel gas cutting, brazing, soldering, or welding shall not be permitted within **35 ft.** of a point of transfer while filling operations are in progress.
- (D)** Materials that have been heated above the ignition temperature of LP-Gas shall be cooled before LP-Gas transfer is started.
- 68) . **Transfer Location Rules**  
**58-§7.2.3.2 (E) Ignition Sources**  
Sources of ignition shall be turned off during the filling of any LP-Gas container on the vehicle.

**RV and Public Transportation Operators**

- (1)** Turn off Engine
- (2)** Extinguish all pilot lights and open flames
- (3)** Vehicles must be **vacated** during filling process

- 69) . **Transfer Location Rules**  
**58-§6.5.3.3 Combustible Material**  
Combustible materials shall not accumulate or be stored within **10 ft.** of a container.
- 70) . **Poll Questions**
- 71) . **Dispenser Rules for Cylinder Filling**
- 72) . **Dispenser Installation Rules**  
**58-§6.27.3.3 Shelters**  
Where a vehicle fuel dispenser is installed under a weather shelter or canopy,  
  
the area shall be ventilated and  
  
shall **not be enclosed** for more than **50 percent** of its perimeter.
- 73) . **Dispenser Rules**  
**58-§6.21.5 Lighting.**  
If operations are normally conducted during other than daylight hours, lighting shall be provided to illuminate;  
  
Storage containers,  
Containers being loaded,  
Control valves,  
Other equipment.
- 74) . **Dispenser Installation Rules**  
**58-§6.27.3.9 Emergency Shutoff**  
An identified and accessible **remote emergency shutoff device** for either the internal valve or the emergency shutoff valve shall be installed **not less than 3 ft. or more than 100 ft.** from the liquid transfer point.
- 75) . **Dispenser Installation Rules**

- 76) . **Dispenser Installation Rules**  
**58-§6.24.3.17 Power Shutoff**  
An identified and accessible switch or **circuit breaker** shall be installed at a location **not less than 20 ft. or more than 100 ft.** from the dispensing device(s) to shut off the power in the event of a fire, accident, or other emergency.
- 77) . **Dispenser Installation Rules**  
**58-§6.27.3.18 Switch Identification**  
The markings for the switches or breakers shall be **visible** at the point of liquid transfer.
- 78) . **Vehicle Dispenser Rules**  
**58-§5.11.6.1 Hoses**  
**Hose**, hose connections, and flexible connectors shall be fabricated of materials that are **resistant** to the action of LP-Gas both as liquid and vapor.
- 79) . **Vehicle Dispenser Rules**  
**58-§5.11.6.4 Hoses**  
**(A)** Hose shall be designed for a working pressure of **350 psig** with a safety factor of 5 to 1  
**(B)** Hose shall be continuously marked with:  
**(1)** LP-GAS or LPG HOSE  
**(2)** Maximum working Pressure  
**(3)** Manufactures name or coded designation  
**(4)** Month or quarter and year of manufacture  
**(5)** Product identification
- 80) . **Dispenser Rules**  
**58-§7.2.4 Hose Inspection**  
**§7.2.4.1** Hose assemblies shall be observed for leakage or for damage that could impair their integrity **before each use.**  
**§7.2.4.2** These hose assemblies shall be inspected at least **annually.**



81) . **Dispenser Rules**

**58-§7.2.4.3 Hose Inspection – (cont.)**

Inspection shall include the following:

- (1) Damage to outer cover that exposes reinforcement
- (2) Kinked or flattened hose
- (3) Soft spots or bulges in hose
- (4) Couplings that have slipped on the hose, are damaged, have missing parts, or have loose bolts
- (5) Leakage other than permeability leakage

82) . **Dispenser Rules**

**58-§7.2.4 Hose Inspection – (cont.)**

**§7.2.4.4**

Hose assemblies shall be replaced, repaired, or continued in service based on the results of this inspection.

**§7.2.4.5**

Leaking or damaged hose shall be **immediately repaired or removed** from service.

83) . **Dispenser Installation Rules**

**58-§6.27.3.16 Hose End Valve**

A listed **quick-acting shutoff valve** or a **listed quarter turn ball valve with a locking handle** shall be installed at the discharge end of the transfer hose. **(with changes per SR 9.403)**

84) . **Poll Questions**

**Break**

85) . **Dispenser Rules for Motor Fuel Filling**

86) . **Vehicle Dispenser Rules**

**58-§6.7.1.1 Transfer Location**

Liquid shall be transferred into containers, including containers mounted on vehicles, **only outdoors** or in structures specially designed for that purpose.

**§6.7.1.2**

The transfer of liquid into containers mounted on vehicles shall not take place within a building but is permitted under a weather shelter or canopy.

87) . **Vehicle Dispenser Rules**

**58-§6.27.4.1 Hoses**

Hoses shall comply with the following:

**(1) Hose length shall not exceed 18 ft.** unless approved by the authority having jurisdiction.

**(2)** All hoses shall be listed.

**(3)** When not in use, hoses shall be secured to protect them from damage.

88) . **Vehicle Dispenser Rules**

**58-§6.27.4.2 Breakaway Coupling**

A listed emergency **breakaway device** shall be installed complying with UL 567 and designed to retain liquid on both sides of the Breakaway point.

89) . **Vehicle Dispenser Rules**

**SR §9.141 (b) Breakaway Coupling**

Each LP-gas private or public motor/mobile or **forklift** refueling installation which includes a liquid dispensing system shall incorporate into that dispensing system a **breakaway device**.

**(1)** Any vapor return hose shall also be equipped with a breakaway device.

**(2)** LP-gas Installations at which forklift cylinders are completely removed from the forklift before being filled are not required to have a breakaway device.

90) . **System Protection Requirements**

91) . **Transfer Location Rules**

**58-§6.21.4.1 Access**

The following security measures shall be provided to minimize the possibility of entry by unauthorized persons:

**(1)** Security awareness training

**(2)** Limitation of unauthorized access to plant areas that include container appurtenances, pumping equipment, loading and unloading facilities, and container filling facilities.

92) . **System Protection Requirements**

**58-§6.21.4.2 Fencing**

Areas that include features required in 6.21.4.1(2) shall be enclosed with a minimum **6 ft.** high industrial type fence, chain-link fence, or equivalent protection.

93) . **System Protection Requirements**

**SR §9.140 (c) Fencing – (cont.)**

Fencing at LP-gas installations shall comply with the following

**(1)** Uprights, braces, and corner posts of the fence shall be composed of **noncombustible** material.

94) . **System Protection Requirements**

**58-§6.21.4.2 (D) Fencing – (cont.)**

Fencing shall not be required where devices are provided that can be **locked** in place and prevent unauthorized operation of valves, equipment, and appurtenances.

95) . **System Protection Requirements**

**SR §9.140 (d) Guard Rails**

Vehicular barrier protection at LP-gas installations shall comply with the following

**(4)** Clearance of at least **three** feet shall be maintained between the vehicular barrier protection and any part of an LP-gas transfer system or container

Or clearance of **two** feet for retail cylinder filling or service station installations.

96) . **System Protection Requirements**

**SR §9.140 (f) Signage**

LP-gas installations shall comply with the sign and lettering requirements specified in Table 1

97) . **System Protection Requirements**

98) . **Poll Questions**

99) . **D.O.T. Cylinders**

100) . **DOT Cylinders**

**D.O.T.** stands for the  
U.S. Department of Transportation

The most frequently seen DOT cylinders are the 20 lb. cylinders used for gas grills and other portable applications.

101) . **Definitions**

**SR §9.2 (35) Portable cylinder**

A receptacle constructed to DOT specifications, designed to be **moved readily**, and used for the storage of LP-gas for connection to an appliance or an LP-gas system.

The term does not include a cylinder designed for use on a forklift or similar equipment.

102) . **Definitions**

**58-§3.3.61 Portable Container**

A container designed to transport LP-Gas

103) . **Containers**

**58-§5.2.1.1 Fabrication Codes**

Containers shall be designed, fabricated, tested, and marked (or stamped) in accordance with:

U.S. Department of Transportation (**DOT** 49 CFR)

Federal Aviation Administration (**FAA** 14 CFR)

The **ASME Boiler and Pressure Vessel Code**, Section VIII  
“Rules for the Construction of Unfired Pressure Vessels”

- 104) . **Cylinder Rules**  
**58-§5.2.1.1 Fabrication Codes**  
(C) Where Containers fabricated to the Interstate Commerce Commission (ICC) prior to April 1, 1967, are used the requirements of section 1.4 shall apply
- 105) . **Cylinder Rules**  
**58-§1.4 Retroactivity.**  
The provisions of this code reflect a consensus of what is necessary to provide an acceptable degree of protection from the hazards addressed in this code at the time it was issued.
- 106) . **Cylinder Rules**  
**58-§5.2.1.2 Fire Involvement**  
(Steel) Containers that have been involved in a fire and show no distortion shall be **re-qualified** for continued service before being used or reinstalled.  
  
(A) Cylinders shall be requalified by a manufacturer of that type of cylinder or by a repair facility approved by **DOT**.
- 107) . **Cylinder Rules**  
**58-§5.2.1.2 Fire Involvement**  
(D) DOT 4E specification (aluminum) cylinders and composite cylinders involved in a fire shall be **permanently removed** from service.
- 108) . **Cylinder Rules**  
**58-§5.2.1.4 Disqualifications**  
Containers that show excessive:  
**Denting,**  
**Bulging,**  
**Gouging, or**  
**Corrosion**  
**Shall be removed** from service.

- 109) . **Cylinder Rules**  
**58-§5.2.1.4 Disqualifications – (cont.)**  
Cylinder condemned due to excessive **denting**.
- 110) . **Cylinder Rules**  
**58-§5.2.1.4 Disqualifications – (cont.)**  
Cylinder exhibiting **bulging** due to fire exposure.
- 111) . **Cylinder Rules**  
**58-§5.2.1.4 Disqualifications – (cont.)**  
Cylinder showing **gouging** from a shotgun blast.
- 112) . **Cylinder Rules**  
**58-§5.2.1.4 Disqualifications – (cont.)**  
Cylinder showing excessive **corrosion**.
- 113) . **Cylinder Rules**  
**58-§5.2.1.4 Disqualifications – (cont.)**  
The bottom of a severely **pitted cylinder** which was wire brushed and repainted  
  
The foot ring fell off when the cylinder was lifted.
- 114) . **Cylinder Rules**  
**58-§5.2.1.4 Disqualifications – (cont.)**  
This cylinder was returned to an exchange rack in Hempstead, Texas.
- 115) . **Cylinder Rules**

- 116) . **Cylinder Rules**  
**58-§5.2.2.3 Cylinder Requalification**  
A cylinder with an **expired** requalification date shall **not be refilled** until it is re-qualified by the methods prescribed in DOT regulations.

(Per DOT **49-§180.209**)

Cylinders must be re-qualified **12 years** after the date of manufacture. Depending on the re-qualification method used they are then good for another **5 to 10** years.

- 117) . **Cylinder Rules**  
**58-§5.2.3.4 Cylinder Requalification – (cont.)**  
Visual inspection shall be performed in accordance with the following:  
**(7)** A cylinder that passes the visual examination is marked with the month and year of the examination followed by the **letter E**.

Visual Re-qualification: **5 years**

- 118) . **Cylinder Rules**  
**58-§5.2.3.4 Cylinder Requalification – (cont.)**  
Example of a recertification label applied by a holder of a DOT Re-qualifier Identification Number (RIN)

- 119) . **Cylinder Rules**  
**58-§5.2.3.4 Cylinder Requalification – (cont.)**  
Example of **RIN** stamping

- 120) . **Cylinder Rules**  
**58-§5.2.4.1 Service Pressure**  
The service pressure of cylinders shall be in accordance with regulations published under **Title 49 Code of Federal Regulations**, “Transportation.”

**§5.2.4.6**

Cylinders shall be designed and constructed for at least a **240 psig** service pressure.



121) . **Cylinder Rules**

**58-§5.2.6.1 Physical Damage Protection**

Cylinders shall incorporate protection against physical damage to cylinder appurtenances and immediate connections to such appurtenances when not in use by any of the following means:

- (1) A **ventilated cap**
- (2) A **ventilated collar**
- (3) A cylinder valve providing inherent protection  
(**recessed into the cylinder**) Per DOT **49 CFR** 173.301(h)(iii)

122) . **Cylinder Rules**

**58-§5.2.8.1 (B) Marking**

When being **transported**, cylinders shall be marked and labeled in accordance with 49 CFR-Transportation.

123) . **Cylinder Rules**

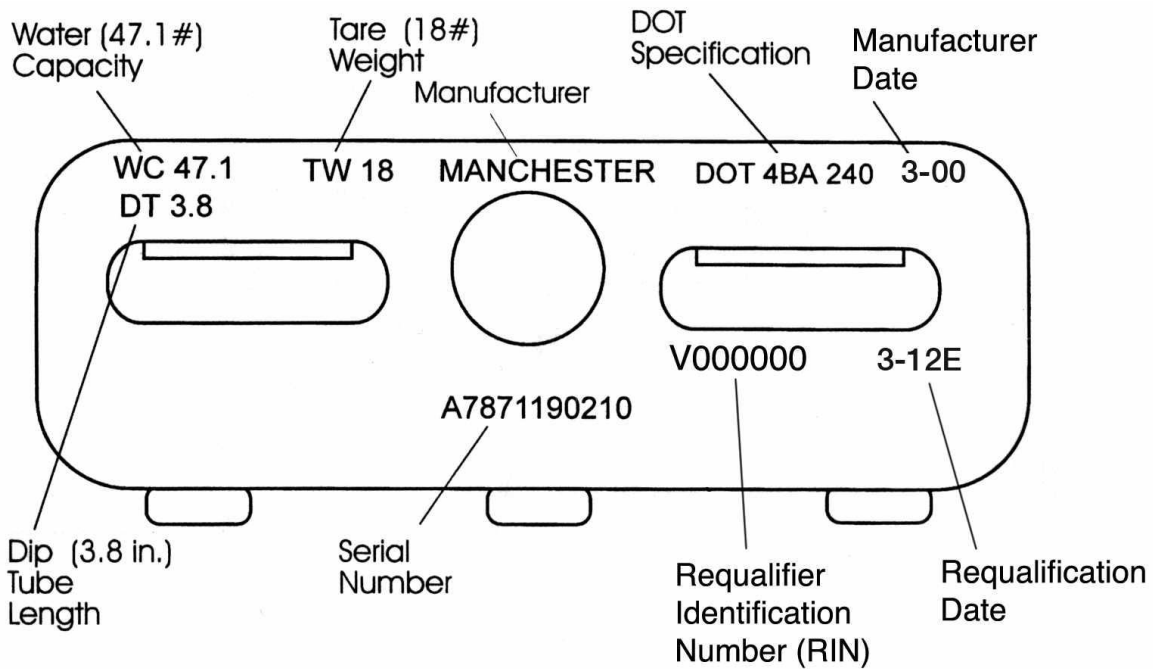
**58-§5.2.8.2 Marking – (cont.)**

Cylinders shall be marked with the following:

- (1) The **water capacity** of the cylinder in **pounds**
- (2) The **tare weight** of the cylinder in pounds, fitted for service.

124) .

### Cylinder Marking



125) .

### Cylinder Marking

#### 58-§5.2.8.2 Marking – (cont.)

Example collar on a cylinder

126) .

### Cylinder Marking

- DOT specification
- Water Capacity
- Tare Weight
- Valve Dip Tube length
- Date of manufacture

127) .

### Minimum Propane Capacity

#### SR §9.402 (c) Minimum Propane Capacity

The Commission does not adopt language in any NFPA rule, chart, figure, or table pertaining to any LP-gas container having a water capacity of one gallon (**4.2 pounds LP-gas capacity**) or less, or to any LP-gas piping system or appliance attached or connected to such a container.

- 128) . **Cylinder Marking**  
**58-§5.2.8.4 Marking**  
Warning labels shall meet the following requirements:  
  
**(1) Warning labels** shall be applied to all cylinders of **4.2 lb** through **100 lb.** propane capacity or less that are **not** filled on site.  
**(with changes per SR 9.402.(c))**
- 129) . **Cylinder Marking**  
**58-§5.2.8.4 Marking – (cont.)**  
**(2)** Warning labels shall include information on the potential hazards of LP-Gas.
- 130) . **Cylinder Rules**  
**58-§5.9.2.2 Pressure Relief Valves**  
Cylinders shall be equipped with pressure relief valves as required by DOT regulations.
- 131) . **Cylinder Rules**  
**58-§5.9.3.1 OPD**  
Cylinders with **4.2 lb. through 40 lb.** propane capacity for vapor service shall be equipped or fitted with a listed **Overfilling Prevention Device** and a fixed liquid level gauge.  
**(with changes per SR 9.402.(c))**
- 132) . **Cylinder Rules**  
**58-§5.9.3.1 OPD: Float style**
- 133) . **Cylinder Rules**  
**58-§5.9.3.1 OPD: In-Line style**
- 134) . **Cylinder Rules**  
**58-§7.4.4.1 Overfilling**  
An overfilling prevention device shall **not** be the **primary means** to determine when a cylinder is filled to the maximum allowable filling limit.

- 135) . **Cylinder Rules**  
**OPD Handle Identification**  
OPD equipped cylinders are identified by a **three lobed** hand wheel.
- 136) . **Cylinder Rules**  
**OPD Handle Identification**
- 137) . **Cylinder Rules**  
**58-§5.9.3.2 OPD**  
Cylinders **re-qualified** after September 30, 1998, shall be equipped with  
  
A listed overfilling prevention device and  
  
A fixed maximum liquid level gauge, sized in accordance with Table 5.7.3.2,  
prior to being filled.
- 138) . **Cylinder Rules**  
**58-§5.9.5.5 Dip Tube Marking**  
Cylinders shall have the letters DT stamped on them followed by the vertical  
distance (to the nearest **tenth** of an inch) measured from the top of the  
boss or coupling into which the gauge, or the cylinder valve of which it is a  
part, is installed to the end of the dip tube.

139) . **Cylinder Rules**

**58-Table 5.9.3.2 Dip Tube Length**

**Table 5.9.3.2 Recommended Dip Tube Lengths for Various Cylinders**

Propane Cylinder Size (lb)	Material	Cylinder I.D. (in.)	Cylinder Water Capacity (lb)	Dip Tube Lengths for Various Cylinders (in.)
4.25	Steel	8.9	10.2	2.2
5	Steel	7.8	11.9	3.0
6	Steel	7.5	15.5	3.2
10	Steel	8.9	26.1	3.6
11	Steel	8.9	26.2	3.6
11	Steel	12.0	26.2	3.0
11.5	Steel	12.0	27.3	3.2
20	Steel	12.0	47.6	4.0
25	Steel	12.0	59.7	4.8
30	Steel	12.0	71.5	4.8
40	Steel	12.0	95.3	6.5
6	Aluminum	6.0	15.0	4.8
10	Aluminum	10.0	23.6	4.0
20	Aluminum	12.0	47.6	4.8
30	Aluminum	12.0	71.5	6.0
40	Aluminum	12.0	95.2	7.0

For SI units, 1 lb = 0.454 kg; 1 in. = 25 mm.

140) . **Cylinder Rules**

**58-§5.9.5.10 Bleed Restriction**

Gauging devices requiring bleeding of product to the atmosphere, such as a fixed liquid level *gauge* shall be designed so that the bleed valve maximum opening is **not larger than a No. 54 drill size**.

(A No.54 drill is **0.055 inches** in diameter.)

141) . **Cylinder Rules**

**58-§5.9.3.5 OPD Exempt Cylinders**

The following types of cylinders shall be **exempt** from installing a listed overfilling prevention device:

- (1) Cylinders used in industrial truck service

- 142) . **Cylinder Rules**  
**58-§5.9.3.5 OPD Exempt Cylinders – (cont.)**  
**(2)** Cylinders identified and used for industrial welding and cutting gases
- 143) . **Cylinder Rules**  
**58-§5.9.3.5 OPD Exempt Cylinders – (cont.)**  
**(3)** Cylinders manufactured prior to October 1, 1998  
- Designed for use in the horizontal position and  
- Where an OPD is not available
- 144) . **Cylinder Marking**  
**58-§5.9.3.6 OPD Exempt Cylinders**  
Exempted horizontal cylinders shall be **marked** with a label to indicate that they are not equipped with an overfilling prevention device.
- 145) . **NFPA 58 Definitions**  
**58-§3.3.17.1 Universal Cylinder**  
A cylinder that can be connected for service **in either** the vertical or the horizontal position, so that the fixed maximum liquid level gauge, pressure relief device, and withdrawal appurtenances function properly in either position.
- 146) . **Industrial / Forklift Trucks**  
**Universal Cylinder**  
It may also be filled in either position without weighing because the **80 percent** fixed maximum liquid level gauge is accurate when properly positioned.
- 147) . **Industrial / Forklift Trucks**  
**58-§11.13.2.1 Industrial Truck Cylinders**  
Cylinders shall be designed, constructed, or fitted for installation and filling in either the **vertical or horizontal** position or, if the cylinder is a universal cylinder in either position.

148) . **Industrial / Forklift Trucks**  
**58-§11.13.2.2 Industrial Truck Cylinders**  
Universal cylinders intended for use in the **horizontal** position shall be installed with the positioning slot correctly positioned prior to use or filling

149) . **Industrial / Forklift Trucks**  
**58-§11.13.2.3** The fixed maximum liquid level gauge shall indicate the maximum permitted filling level in either position.

150) . **Industrial / Forklift Trucks**  
**58-§11.13.2.4**  
The **pressure relief valves** shall be in direct communication with the **vapor space** of the cylinder in either position.

**§11.13.2.5** The cylinder vapor or liquid withdrawal valves shall function in either position.

151) . **Industrial / Forklift Trucks**  
**58-§11.13.2.6 Pressure Relief Valves**  
The cylinder **pressure relief valve** discharge shall be directed **upward** within **45 degrees** of vertical and shall not impinge on the cylinder, the exhaust system, or any other part of the industrial truck.

152) . **Industrial / Forklift Trucks**  
**58-§11.13.2.7 Pressure Relief Valves**  
The discharge opening shall be provided with a protective cover to minimize the possibility of the entry of water or any extraneous matter.

153) . **Industrial / Forklift Trucks**

**58-§5.9.2.14 Pressure Relief Valves**

All cylinders used in industrial truck service (including forklift truck cylinders) shall have the cylinder's pressure relief valve:

Replaced by a new or unused valve within **12 years** of the date of manufacture and

Every **10 years** thereafter.

154) . **Poll Questions  
Break**

155) . **Filling Cylinders**

156) . **Cylinder Filling Rules**

**SR §9.137 Inspection of Containers**

Before filling a cylinder, the individual shall conduct a **visual inspection** of the exposed, readily accessible areas of the cylinder for any obvious defects.

Where the cylinder is dented, bulged, gouged or corroded such that the integrity of the cylinder is substantially reduced, **it shall not be filled**.

157) . **Cylinder Filling Rules**

**58-§7.2.2.8 Inspection**

Containers shall be filled only after determination that they comply with the **design, fabrication, inspection, marking**, and requalification provisions of this code.

**§7.2.2.16**

A container **shall not be filled** if the container assembly does not meet the requirements for continued service.



158) . **Cylinder Filling Rules**  
**SR §9.135 Unsafe Containers**  
A licensee or the licensee's employees **shall not** introduce LP-Gas into any container or cylinder if they have knowledge or reason to believe that such container, cylinder, piping or the system or the appliance to which it is attached is **unsafe** or is not installed in accordance with the LP-Gas Safety Rules.

159) . **Definitions**  
**58-§3.3.26.2 Weight Filling Method**  
Filling a container to not more than the maximum permitted filling limit by **weighing** the LP-Gas in the container.

160) . **Purging New Containers**  
New containers must be purged prior to filling to:  
**(1)** Expel the **air** from the container  
(Air will not go into solution with the liquid propane but will be compressed by the liquid during filling possibly causing the relief valve to discharge.)  
**(2)** Prevent poor appliance performance from trying to burn an air/propane mix  
**(3)** Prevent the absorption of the odorant

161) . **Purging New Containers**  
There are **3 methods** commonly used to **safely** purge air from a propane cylinder. They are:  
**(1)** A dedicated **Vacuum** line: This method quickly vacuums the air out of the cylinder, which is then ready to receive propane liquid.  
**(2)** A dedicated **Vapor** line: This method utilizes vapor from the dispenser tank to push LP-vapor into an air-filled cylinder, which compresses the air. The mixture of LP vapor and air is then repeatedly vented to atmosphere until no more air is in the cylinder.  
**(3)** The **Cylinder-to-Cylinder "Push"**: This method uses vapor in a cylinder containing LP-Gas to push the air out of a cylinder that needs to be filled.

- 162) . **Purging New Containers**  
If the container has not been vacuum purged at the factory, the following procedure can be used to purge the air down to safe levels:
- (1) Introduce propane vapor into the cylinder pressurizing it to **15 psig**.
  - (2) Exhaust the air / propane mix down to **0 psig**.
  - (3) Repeat this sequence a total of **5 times** leaving a positive pressure in the cylinder on the last repetition.
- 163) . **Cylinder-to-Cylinder Push Method**  
**(1a)** Install a 30lb. regulator on the vapor withdrawal valve of the shop-owned (**filled**) cylinder.  
Open the service valve and dial the regulator pressure down to **15-psig**.
- 164) . **Cylinder-to-Cylinder Push Method**  
**(2)** Close valve at regulator outlet.  
Then open the purge valve on the hose connected to the **customer's** cylinder to purge air/propane mixture back down to **0-psig**.
- 165) . **Cylinder-to-Cylinder Push Method**  
**(3)** Repeat this process **5 times**, purging air/propane mixture to atmosphere. On the **last** repetition, leave 15 pounds of positive vapor pressure in the cylinder.  
Close **all** valves.  
Finally, you can hook the customer's cylinder up to the liquid hose and fill it by **weight**.

- 166) . **Cylinder Filling Rules**  
**58-§7.3.2 Purging**  
**§7.3.2.4**  
If conditions are such that venting into the atmosphere cannot be accomplished safely, LP-Gas shall be burned at least a distance of **25 ft.** from combustibles.
- §7.3.2.5**  
Venting of containers and burning of LP-Gas from containers shall be attended.
- 167) . **Cylinder Filling Rules**  
**SR §9.136 (a) Filling by Weight**  
Single-opening DOT containers of **less than 101 pounds (100 pounds or less)** LP-gas capacity, shall be filled by **weight only**.
- 168) . **Cylinder Filling Rules**  
**SR §9.136 (a) Filling by Weight – (cont.)**  
The weight of such containers shall be determined by scales that meet the specifications of NIST Handbook 44.
- Scales at licensees' facilities shall be currently registered with the Texas Department of Agriculture.
- 169) . **Cylinder Filling Rules**  
**SR §9.136 (a) Filling by Weight – (cont.)**  
The scales shall have a rated weighing capacity which exceeds the total weight of the cylinders being filled.
- The scales shall be accurate during the filling of the cylinder.

170) . **Cylinder Filling Rules**

**SR §9.136 (a)(2) Filling by Weight**

The formula for filling LP-gas containers by weight under this section is as follows:

The proper **scale setting** is the total of

1. The **Tare weight** of the cylinder
2. The **propane** capacity in pounds
3. The weight of the **hose** and nozzle

171) . **Setting the Scale**

**58-§3.3.90 Water Capacity**

The amount of water at 60°F required to fill a container. (This quantity is measured in pounds.)

The Water Capacity is stamped "**WC**" on the cylinder.

172) . **Setting the Scale**

**SR §9.136 (a)(1) Propane Capacity**

The propane capacity in pounds is determined by multiplying the total water capacity in pounds by **.42**.

$$\text{WC} \times .42 = \text{Propane Capacity}$$

This factor accounts for liquid propane's lighter specific gravity (**half that of water**) and ensures that a vapor space will remain after filling so that a cylinder is never filled hydrostatically full.

173) . **Setting the Scale**

The **Tare Weight** is the weight of the empty cylinder with its valves and fittings.

The Tare Weight is stamped "**TW**" on the cylinder

The third item needed to set the scales is the weight of the **transfer hose and valve**.

- 174) . **Setting the Scale**  
Add all three weights to determine the scale setting:

$$\begin{array}{r} \text{WC x .42} = \\ \text{TW} = \\ \underline{+ \text{Hose}} = \end{array}$$

- 175) . **Setting the Scale**  
Example: BBQ cylinder stamped **48 lb.** WC

$$\begin{array}{r} 48 \text{ lb. x .42} = 20 \text{ lb.} \\ \text{TW} = 17 \text{ lb.} \\ \underline{+ \text{Hose}} = 3 \text{ lb.} \\ 40 \text{ lb.} \end{array}$$

- 176) . **Setting the Scale**  
Example: RV cylinder stamped **95 lb.** WC

$$\begin{array}{r} 95 \text{ lb. x .42} = 40 \text{ lb.} \\ \text{TW} = 29 \text{ lb.} \\ \underline{+ \text{Hose}} = 4 \text{ lb.} \\ 73 \text{ lb.} \end{array}$$

- 177) . **Setting the Scale**  
Example: Residential cylinder stamped **239 lb.** WC

$$\begin{array}{r} 239 \text{ lb. x .42} = 100 \text{ lb.} \\ \text{TW} = 72 \text{ lb.} \\ \underline{+ \text{Hose}} = 5 \text{ lb.} \\ 177 \text{ lb.} \end{array}$$

- 178) . **Setting the Scale**  
A quick reference chart showing the water capacity to propane conversion can be used to simplify this calculation.

- 179) . **Industrial Truck Cylinders**  
**SR §9.136 (a) EXCEPTION to Filling by Weight**  
Single opening DOT containers of less than 101 pounds LP-gas capacity  
**(100 pounds or less)**, shall be filled by weight only
- (b)** Containers designed to be used on **forklifts** or industrial trucks shall be filled per NFPA 58 -11.13 (by using fixed liquid level gauge)

- 180) . **Cylinder Filling Rules**  
**58-§7.3.1 Venting to Atmosphere**  
LP-Gas shall not be vented to the atmosphere unless it is vented under the following conditions:
- (1)** Venting of LP-Gas shall be permitted where the maximum flow from fixed liquid level, rotary, or slip tube gauges does not exceed a **No. 54 drill** orifice.
- (6)** Venting of LP-Gas for purging shall be permitted.

- 181) . **Industrial / Forklift Trucks**

- 182) . **Poll Questions**

- 183) . **Storage & Transportation of Cylinders**

- 184) . **Storage of Cylinders**  
**58-§8.1 Storage of Cylinders Awaiting Use, Resale or Exchange**  
**§8.1.1**  
The provisions of this chapter apply to the storage of cylinders of 1000 lb. water capacity or less, whether filled, partially filled, or empty, as follows:
- (1)** At consumer sites or dispensing systems, where not connected for use
- (2)** In storage for resale or exchange by dealer or reseller.

- 185) . **Storage of Cylinders**  
**58-§8.2.1.1 Location of Cylinders**  
Cylinders in storage shall be located to minimize exposure to:  
**Excessive temperature rises,**  
**Physical damage, or**  
**Tampering.**
- 186) . **Storage of Cylinders**  
**58-§8.2.1.4 Location of Cylinders**  
If **empty cylinders** that have been in LP-Gas service are stored indoors, they shall be **considered as full** cylinders for the purposes of determining the maximum quantities of LP-Gas permitted.
- 187) . **Storage of Cylinders**  
**58-§8.2.2 Protection of Valves on Stored Cylinders**  
**§8.2.2.2** Screw-on-type **caps or collars** shall be in place on all cylinders stored, whether they are full, partially full, or empty, and cylinder outlet valves shall be closed.
- §8.2.2.3** Valve outlets on cylinders less than 108 lb. water capacity [nominal 45 lb. **propane** capacity] shall be plugged, capped, or sealed.
- 188) . **Protection of Cylinders**  
**58-§8.4.2.1 Protection of Cylinders**  
Cylinders at a location **open to the public** shall be protected by either of the following:
- (1)** An enclosure in accordance with 6.21.4.2 (Fencing)
  - (2)** A lockable ventilated enclosure of metal exterior construction.

189) . **Transportation of Cylinders**

**58-§9.3.2.4 Protection of Valves**

Cylinder valves shall comply with the following:

- (1) Valves of cylinders shall be protected in accordance with 5.2.6.1:
  - A ventilated cap
  - A ventilated collar
  - A cylinder valve providing inherent protection
- (2) Screw-on-type protecting caps or collars shall be secured in place.

190) . **Transportation of Cylinders**

**58-§9.3.2.5 Vehicular Transportation**

The cargo space of the vehicle shall be isolated from the **driver's compartment**, the **engine** , and its **exhaust** system.

**(A) Open-bodied vehicles (pickup trucks, flatbeds)** shall be considered to be in compliance with this provision.

**(B) Closed-bodied vehicles having separate cargo, driver, and engine compartments (box trucks)** shall also be considered to be in compliance with this provision.

**NOT to Exceed 1000 lbs. (TW + LP-Gas)**

191) . **Transportation of Cylinders**

**58-§9.3.2.5 Vehicular Transportation – (cont.)**

**(C) Closed-bodied vehicles** such as passenger cars, vans, and station wagons shall not be used for transporting more than 215 lb. WC [90 lb. propane capacity]

but

Not more than 108 lb. WC [45 lb. propane capacity] per cylinder unless the driver and engine are separated from the cargo space by a vapor tight partition that contains no means of access to the cargo space.



- 192) . **Transportation of Cylinders**  
**58-§9.3.2.6 Vehicular Transportation – (cont.)**  
Cylinders and their appurtenances shall be determined to be **leak-free** before being loaded into vehicles.  
**§9.3.2.7**  
Cylinders shall be loaded into vehicles with flat floors or equipped with racks for holding cylinders.
- 193) . **Transportation of Cylinders**  
**58-§9.3.2.8 Vehicular Transportation – (cont.)**  
Cylinders shall be fastened in position to minimize the possibility of **movement, tipping, and physical damage.**
- 194) . **Transportation of Cylinders**
- 195) . **Transportation of Cylinders**  
**58-§9.3.3.6 Vehicular Transportation – (cont.)**  
Portable containers shall be **transported** with **pressure relief devices** in communication with the **vapor space.**  
**§9.7.3.2**  
Vehicles used to carry portable containers shall not be moved into any public garage or building for parking until all portable containers have been **removed** from the vehicle.
- 196) . **Transportation of Cylinders**  
**CFR Title 49 §177.840 Class 2 gases**  
Cylinders containing Class 2 gases must be securely restrained in an upright or horizontal position, loaded in racks, or packed in boxes or crates to prevent the cylinders from being shifted, overturned or ejected from the motor vehicle under normal conditions.  
  
**A pressure relief device**, when installed, must be in **communication with the vapor space** of a cylinder.
- 197) . **Poll Questions**

198) . **Motor / Mobile Fuel Containers**

199) . **Definitions**

**58-§3.3.6 A.S.M.E.**

American Society of Mechanical Engineers

(This organization issues the *Boiler and Pressure Vessel* code which governs LP-Gas **tank** design along with many others.)

200) . **Definitions**

**58-§3.3.26.1 Volumetric Method Filling.**

Filling a container to not more than the maximum permitted **liquid** volume.

201) . **Definitions**

**SR §9.2 (27) Motor Fuel Container--**

An LP-gas container mounted on a vehicle to store LP-gas as the fuel supply to an engine used to propel the vehicle.

202) . **Definitions**

**SR §9.2 (25) Mobile Fuel Container--**

An LP-gas container mounted on a vehicle to store LP-gas as the fuel supply to an auxiliary engine **other than the engine the engine** to propel the vehicle or for other uses on the vehicle.

203) . **Motor Fuel or Mobile Fuel?**

204) . **Motor Fuel or Mobile Fuel?**

205) . **Motor Fuel or Mobile Fuel?**

206) . **Motor Fuel or Mobile Fuel?**

- 207) . **Container Installation**  
**58-§6.26.3.1 Design Pressure**  
**(A) ASME** mobile containers shall be in accordance with one of the following:
- (1)** A MAWP of 312-psig or higher where installed in **enclosed spaces** of vehicles
  - (2)** A MAWP of 312-psig or higher where installed on **passenger vehicles**
  - (3)** A MAWP of 250-psig or higher for containers where installed on the exterior of **non-passenger** vehicles.
- 208) . **Container Installation**  
**58-§6.26.3.1 Design Pressure - (cont.)**  
**(B)** LP-Gas fuel containers used on **passenger-carrying vehicles** shall not exceed **200 gal.** aggregate WC.  
**(C)** The capacity of individual LP-Gas containers on highway non-passenger vehicles shall be **1000 gal.** or in accordance with U.S. DOT regulations.
- 209) . **Container Installation**  
**SR §9.129 Nameplates**  
**(a)** LP-Gas shall not be introduced into an ASME container unless it is equipped with an original nameplate or:
- (1)** Commission identification nameplate
  - (2)** Duplicate nameplate (installed in a remote location)
  - (3)** Modification or alteration nameplate
  - (4)** Replacement nameplate
- 210) . **Container Installation**  
**SR §9.129 Manufacturer's Nameplate – (cont.)**  
**(d)** Nameplates on stationary ASME containers built **prior to September 1, 1984**, shall include at least the following legible information:
- (1)** Name of container manufacturer,
  - (2)** Manufacturer's serial number,
  - (3)** Container's working pressure,
  - (4)** Container's water capacity (*in gallons*), and
  - (5)** the **ASME Code symbol**

- 211) . **Container Installation**
- 212) . **Container Installation**  
**SR §9.129 Nameplates – (cont.)**  
**(g) Nameplates** on LP-Gas motor fuel tanks shall be **permanently attached** in a manner which will minimize corrosion of the nameplate or its fastening means and not contribute to corrosion of the container.
- 213) . **Container Installation**  
**58-§11.8.1.4 Location (Engine Fuel)**  
After a container is permanently installed on a vehicle, container **markings** shall be readable either **directly** or with a **portable lamp and mirror**.
- 214) . **Container Installation**  
**58-§11.4.1.15 OPD**  
ASME containers fabricated after January 1, 1984, for use as **engine fuel containers** on vehicles shall be equipped or fitted with an **overfilling prevention device**.
- 215) . **Container Installation**  
**58-§11.4.1.17 OPD**  
Where an overfilling prevention device is installed on an **engine fuel container**, **venting of gas** through a fixed maximum liquid level gauge during normal filling shall **not** be required.
- 216) . **Container Installation**  
**58-§ 11.4.1.18 OPD Testing**  
Where the fixed maximum liquid level gauge is **not** used during filling, it shall be used **annually** to verify the operation of the overfilling prevention device.  
**(A)** If the container is found to be overfilled during the test, corrective action shall be taken.  
**(B)** The result shall be documented.  
**(C)** A label shall be affixed to the container near the fill point indicating the expiration date of the successful test.

- 217) . **Container Installation**  
**58-§ 11.4.1.18 OPD Testing– (cont.)**
- 218) . **Container Installation**  
**58-§6.26.3.3 Location (Non-Engine Fuel)**  
The LP-Gas supply system, including the containers, shall be installed on the **outside** of the vehicle or in a **recess or cabinet vapor tight to the inside** of the vehicle but accessible from and vented to the outside.
- 219) . **Container Installation**  
**58-§6.26.3.3 Location (Non-Engine Fuel) – (cont.)**  
Example of a Recessed cabinet
- 220) . **Container Installation**  
**58-§11.8.1.1 Location (Engine Fuel)**  
Containers shall be located to minimize the possibility of damage to the container and its fittings.
- 221) . **Container Installation**  
**58-§11.8.1.2 Location (Engine Fuel) – (cont.)**  
Where containers are located in the **rear** of the vehicle, they shall be protected.
- 222) . **Container Installation**  
**58-§11.8.2.1 Protection (Engine Fuel)**  
**Container valves, appurtenances, and connections** shall be **protected** to prevent damage due to accidental contacts with stationary objects or from **stones, mud, or ice** and from damage due to an overturn or similar vehicular accident.

- 223) . **Container Installation**  
**58-§11.8.2.2 Protection (Engine Fuel) – (cont.)**  
Protection shall be provided by:  
**(1) Locating** the container so that parts of the vehicle furnish the necessary protection  
**(2)** Use of a **fitting guard** furnished by the manufacturer of the container, or  
**(3)** Other means to provide equivalent protection.
- 224) . **Container Installation**  
**58-§11.8.3.1 Protection (Engine Fuel) – (cont.)**  
Containers shall **not** be mounted directly on the **roofs** or **ahead of the front axle or beyond** the rear bumper of the vehicles.
- 225) . **LP-Gas Containers**
- 226) . **Container Installation**  
**58-§11.8.4.3 Valve Access**  
Main **shutoff valves** on a container for liquid and vapor shall be readily accessible **without the use of tools** or other equipment shall be provided to shut off the container valves.
- 227) . **Container Installation**  
**58-§11.8.5.1 Pressure Relief Valves**  
The **pressure relief** valve discharge from fuel **containers** on vehicles shall:  
**(1)** Be directed up or down within **45 degrees** of vertical.  
**(2) Not directly impinge** on the **fuel container**, the **exhaust system**, or any other part of the vehicle.  
**(3) Not** be directed into the **interior** of the vehicle.

- 228) . **Container Installation**  
**58-§11.9.1.2 Installation in the Interior of Vehicles**  
The container shall be installed in an enclosure that is **securely mounted** to the vehicle.  
  
(A) The enclosure shall be **gastight** with respect to driver or passenger compartments and to any space containing radio transmitters or other spark-producing equipment.
- 229) . **Container Installation**  
**58-§11.9.1.2 Installation inside of Vehicles - (cont.)**  
(B) The enclosure shall be vented to the outside of the vehicle.
- 230) . **Container Installation**  
**58-§11.9.1.4 Installation inside of Vehicles - (cont.)**  
Fuel containers shall be installed so that no gas can be **released inside** of the passenger or luggage compartments by installing a **remote filling device** and a fixed maximum liquid level to the outside of the vehicle.
- 231) . **Container Installation**  
**58-§12.3.4 Label Requirements**  
All LP-Gas–fueled motor vehicles shall be identified by a weather-resistant **diamond-shaped** label affixed to its exterior vertical, or near vertical, lower right rear surface, but **not** attached to its bumper.
- 232) . **Container Installation**  
**58-§12.3.4.2 Label Requirements**  
The label marking shall consist of a border and the word PROPANE in letters not less than **1 inch** in height, centered in the diamond, of silver or white reflective luminous material on a black or **Pantone 2945 C Royal Blue or equivalent** background.  
**(with changes per SR 9.403)**

## Summary

<b>Container Type</b>	<b>Fabrication Code</b>	<b>OPD</b>	<b>Filling Method</b>	<b>Venting Required</b>
Cylinder 4.2 - 40 lbs.	DOT	Yes	Weight	No
Cylinder 41 - 100 lbs.	DOT	No	Weight	No
Forklift Cylinder	DOT	No	Volume	Yes
Tank Motor/Mobile	ASME	Yes	Volume	No