

QUALIFIED ASME CONTAINERS FOR LIQUEFIED PETROLEUM GAS



LP-GAS EQUIPMENT I N C
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INTRODUCTION

This document is meant to provide the reader with some guidelines in qualifying stationary ASME storage containers for Liquefied Petroleum Gas service by reference to the nameplate attached to container. The document references the *Liquefied Petroleum Gas Code, NFPA 58* published by the National Fire Protection Association which is the de facto publication for the safe design, installation and operation of systems in the LP Gas industry. Other requirements for LP-Gas storage containers such as container appurtenances are beyond the scope of this document and are not covered here.

DEFINITIONS

ASME Container. A container constructed in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code.

API-ASME Container. A container constructed in accordance with the pressure vessel code jointly developed by the American Petroleum Institute and the American Society of Mechanical Engineers.

LP-GAS ASME STORAGE CONTAINERS

Stationary ASME LP-Gas containers must conform with NFPA 58.

NFPA 58 only permits pressure vessels designed, fabricated, tested, and marked in accordance with:

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

or

The API-ASME *Code for Unfired Pressure Vessels for Petroleum Liquids and Gases*.

The ASME storage container must have the correct design working pressure for the product being stored. This pressure is referred to as the Maximum Absolute Working Pressure (MAWP) of the container and is directly related to the vapor pressure of the product at 100 °F. The required MAWP of ASME containers for storage of propane is listed below. The table is based on a product with a Maximum Vapor pressure of 215 psig at 100 °F. These criteria apply to propane.

Container Design	MAWP (psig)
ASME Code, 1949 edition, paragraphs U-200 and U-201 and all later editions.	250
API-ASME Code	250
All ASME codes up to the 1946 edition and paragraphs U-68 and U-69 of the 1949 edition.	200

IDENTIFYING A QUALIFIED CONTAINER

So how do we know if a particular LP-Gas storage tank is suitable for propane? Identification of a qualified ASME storage container is readily determined by reference to a nameplate (dataplate) attached to the container. The nameplate is stamped with the required markings specifying the container's compliance with the ASME code and therefore it's suitability for LP-Gas service. You cannot tell a container's suitability by looking at the tank, but you can tell by reading the nameplate. Without the nameplate, the container cannot be qualified for use in LP-Gas service and may not be used for this service.

On occasion the nameplate on an older container is either missing or deteriorated beyond legibility. The container may have been in use with LP-Gas and appears to be suitable for continued use or placement back into service from storage. This however is not the case. A legible nameplate must be attached to the container for use in LP-Gas service. In the case of a missing or illegible nameplate, we would need to order a new nameplate or remove the container from service.

**If an ASME storage container does not have an attached nameplate,
it does not meet the ASME Code and cannot be used for LP-Gas.**

NAMEPLATE MARKINGS

As noted previously, a legible nameplate is essential for ASME containers. Along with other important data such as working pressure, the nameplate will be stamped with the National Board symbol and a National Board number. The National Board symbol is the assurance that the container was fabricated in accordance with the ASME code in effect at the time of manufacture. The National Board number can be used to acquire the original Manufacturer's Data Report from the National Board which will show all the fabrication details of the vessel.

A few representative samples of nameplates are shown below. Note that the National Board symbol, National Board serial number and MAWP at °F is stamped on each. All of these containers are suitable for propane service. Furthermore, with the National Board serial number, all the fabrication details are available from the National Board to further qualify the container's suitability.

S.N. /NAT'L BD. **NB** X0000000 / X0000000

CERTIFIED BY
NO NAME TANK CO
ANYTOWN, USA

U MAWP 250 PSIG AT 125 °F 2007
W MAEWP 15 PSIG AT 125 °F YEAR MFG
MDMT -12 °F AT 250 PSIG

RT 4	HEAD:DR	HEMI	THK	0.287"	MAT'L	SA455
UG	SHELL:OD	84"	THK	0.441"	MAT'L	SA612
	TANK:WG	6,565	OAL	310.50"	OSSA	570 S.F.

THIS CONTAINER SHALL NOT CONTAIN A PRODUCT HAVING A VAPOR PRESSURE IN EXCESS OF 215 PSIG AT 100 °F

Labels: National Board Serial Number, National Board Symbol, MAWP

NATIONAL BOARD
NATIONAL BOARD SERIAL NUMBER 0000

NO NAME TANK COMPANY

U MAXIMUM ALLOWABLE WORKING PRESSURE 200
MAXIMUM ALLOWABLE WORKING TEMPERATURE 650

U-69 MANUFACTURER NUMBER 0000

SHELL THICKNESS 1.00 HEAD THICKNESS 0.50

HEAD RADIUS 4'8 1/8" CONTRACT NUMBER HD000

INSPECTOR NUMBER X-000-00-000

YEAR BUILT 1952

NO NAME TANK MFG LOGO

NATIONAL BOARD NO.

MODEL

NONAME TANK COMPANY

U 250 P.S.I. @ 125 °F MAX. ALLOWABLE WORKING PRESSURE INSP. STAMP

VARIOUS MFG. SERIAL NO.

O.S. SURFACE AREA S.F. 97 D.R. HEMI

WATER GALS. 500 WATER LBS. 4,167

37.42" 0.291" 0.210" 118.75"

O.S. DIA SHELL THK. HEAD THK. LENGTH

THIS CONTAINER SHALL NOT CONTAIN A PRODUCT HAVING A VAPOR PRESSURE IN EXCESS OF 215 PSI AT 100 °F

AG 1989 80%
TYPE YR. BUILT D.T.

Labels: National Board Symbol, National Board Serial Number, MAWP

ADDITIONAL RESOURCES

For the complete requirements for the design, installation and marking of LP-Gas containers, refer to the appropriate sections of the *Liquefied Petroleum Gas Code, NFPA 58*.