U.S. Fire Administration / National Fire Academy

Coffee Break Training

Topic: Liquefied Petroleum Gas Units

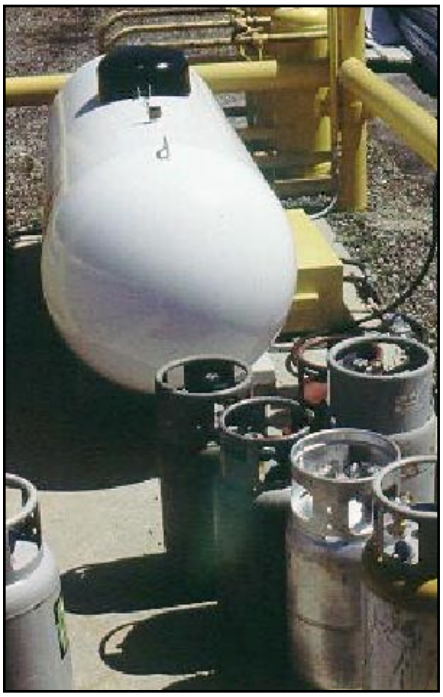
Learning objective: *The student shall be able to explain the differences among liquefied petroleum gas units applied to storage containers.*

Fire codes refer to liquefied petroleum gas capacities in a variety of ways: water capacity, gallons, or pounds.

It is essential to understand the differences among the units, so code requirements can be applied correctly.

"Water capacity" (WC) is the amount of water a LP Gas vessel can hold at 60 °F (15.6 °C).

For portable cylinders, like those in the foreground of this picture, water capacity is expressed in *pounds*. Cylinders may hold up to 1,000 pounds, or about 120 gallons WC.



For larger containers, like the one in the rear, the WC is expressed in *gallons*.

The term *cylinder* usually refers to the smaller containers that meet United States Department of Transportation (DOT) requirements (foreground). The term *container* describes the larger vessels that meet American Society of Mechanical Engineers (ASME) standards (background).

A typical residential or small commercial ASME container is 1,000 *gallon* WC or 8,330 *pounds* WC.

The WC value is the entire volume of the vessel. When LP Gas vessels are filled, the vessel contains product in both the liquid and gas phases. For vessels up to 1,200 gallons WC, the normal maximum volumetric fill is 80 percent of the vessel's capacity. Therefore, a 1,000-gallon ASME container is permitted to hold 800 liquid gallons of LP Gas.

For additional information, refer to NFPA 58, *Liquefied Petroleum Gas Code*; NFPA 1, *Uniform Fire Code*™, Chapter 69; or *International Fire Code*®, Chapter 38.