

## 6. LPG Systems Material Test Standards and Approval.

### 6.1. Acceptable Test Standards and criteria

- 6.1.1.** All the Materials, Systems, Assemblies, Cylinders, Tanks, Pipes and fittings, equipment, Controls, Devices, Products and Accessories, referred to in this chapter shall be Listed, Approved and Registered by the Civil Defence Material Approval Department.
- 6.1.2.** There is no year of edition mentioned against any test standards. It is the intent of Civil Defence to convey to the customers seeking laboratory tests and the test laboratories to follow the "LATEST EDITION OF THE TEST STANDARD, AS AND WHEN THEY ARE UPGRADED/REVISED/AMENDED, TO THE DATE."
- 6.1.3. LPG Cylinders [Working pressure should not be less than 250 psi (17.57 Kg/Sq. cm) and design storage temperature shall be  $-42^{\circ}\text{C}$  to  $55^{\circ}\text{C}$ .]**
- i. 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.
  - ii. EN 12245, Transportable gas cylinders. Fully wrapped composite cylinders.
  - iii. EN 14427, LPG equipment and accessories. Transportable refillable fully wrapped composite cylinders for LPG. Design and construction.
  - iv. EN 1442 - LPG equipment and accessories. Transportable refillable welded steel cylinders for LPG. Design and construction.
  - v. EN 12807 - LPG equipment and accessories. Transportable refillable brazed steel cylinders for liquefied petroleum gas (LPG). Design and construction.
  - vi. EN 13110 - LPG equipment and accessories. Transportable refillable welded aluminum cylinders for liquefied petroleum gas (LPG). Design and construction.
  - vii. EN 14140 - LPG equipment and accessories. Transportable refillable welded steel cylinders for LPG. Alternative design and construction.
  - viii. ISO 4706 - Gas cylinders. Refillable welded steel cylinders. Test pressure 60 bar and below.
  - ix. ISO 22991 - Gas cylinders. Transportable refillable welded steel cylinders for liquefied petroleum gas (LPG). Design and construction.
  - x. ISO 20703 - Gas cylinders. Refillable welded aluminum-alloy cylinders. Design, construction and testing.
  - xi. EN 14893 - LPG equipment and accessories. Transportable Liquefied Petroleum Gas (LPG) welded steel pressure drums with a capacity between 150 liters and 1 000 liters.
  - xii. ISO 10460 Gas cylinders -- Welded carbon-steel gas cylinders Periodic inspection and testing.
  - xiii. ISO 11119-2 Gas cylinders of composite construction. Specification and test methods. Part 2. Fully wrapped fiber reinforced composite gas cylinders and tubes with load-sharing metal liners.
  - xiv. UL 2003 Outline for LP-Gas Cylinder Assemblies.
  - xv. ANSI/UL 147A, Standard For Safety For Nonrefillable (Disposable) Type Fuel Gas Cylinder Assemblies.
  - xvi. ANSI/UL 147B Nonrefillable (Disposable) Type Metal Container for Butane.
  - xvii. UAE S/GSO ISO 22991, Gas Cylinders. Transportable refillable welded steel cylinders for liquefied petroleum gas (LPG). Design and construction.