

come close enough to induce a spark

Gasoline blow torches and plumbers' furnaces

Gasoline blow torches and plumbers' furnaces are hazardous because fuel may be spilled when filling is being done and because fuel must be used for priming when lighting. They should never be filled hot, and it is preferable that fueling be done outdoors.

Only equipment from reliable manufacturers made according to the NFPA Standard No. 393, *Construction and Use of Gasoline Blow Torches and Plumbers' Furnaces*, should be used, and the operator should understand and explicitly follow the instructions of the manufacturer. The equipment should never be used close to combustible materials. Other means of performing the operation are preferable.

Liquefied petroleum gases

Liquefied petroleum gases include any material which is composed predominantly of any of these hydrocarbons, or mixtures of them: propane, propylene, butane (normal

butane or isobutane), and butylenes. The gases liquefy under moderate pressure, but convert into a gaseous state upon relief of the pressure. LP-gas vapor presents a hazard comparable to that of any flammable natural or manufactured gas, except that since it is heavier than air, the matter of adequate ventilation requires added attention.

Liquefied petroleum gases are used as fuel gases, as raw materials in chemical processes, for example, in the making of hydrogen, and to form special atmospheres in heat-treating furnaces. It is important that employees understand the properties of these gases and that they be thoroughly trained in safe practices for handling, distribution, and operation.

Systems should be designed and installed by experienced, reliable concerns which are thoroughly familiar with the hazards, with state and local codes, and with fire organization and insurance company recommendations. (See National Fire Protection Association, Factory Mutual System, LP-Gas Association, and Factory Insurance Association references on this subject in "References.")

References

- American Conference of Governmental Industrial Hygienists, 1014 Broadway, Cincinnati, Ohio 45202 *Threshold Limit Values* (published annually)
- American Mutual Insurance Alliance, 20 North Wacker Dr., Chicago, Ill. 60606 *Safe Handling of LP-Gas When Used as a Motor Fuel*
- American Petroleum Institute, 1271 Avenue of the Americas, New York, N.Y. 10020
 - Cleaning Petroleum Storage Tanks*
 - Safe Practices in Bulk Plant Operations*
 - Specifications for Welded Steel Oil Storage Tanks* Standard No. 650
- American Society for Testing and Materials, 1916 Race St., Philadelphia, Pa. 19103
 - Standard Method of Test for Vapor Pressure of Petroleum Products* Standard D323-58
 - Book of ASTM Standards
 - Parts 17 and 18, 'Petroleum Products including Fuels, Solvents, Burner Fuel Oils, Cutting Oils, Hydraulic Fluids'
 - Parts 20 and 21, 'Paint, Varnish, Lacquer and Related Products, including Naval Stores, Industrial Aromatic Hydrocarbons, and Formulated Products'
 - Part 22, 'Engine Antifreezes, Halogenated Organic Solvents'
- American Standards Institute, 1430 Broadway, New York, N.Y. 10018
 - Safety Color Code for Marking Physical Hazards and Identifying Certain Equipment* Z53.1
 - Standards for Petroleum Products* Z11 Series
- American Welding Society, 2501 NW 7th St., Miami, Fla. 33125
 - Safe Practices for Welding and Cutting Containers That Have Held Combustibles*
- Association of American Railroads, Bureau for the Safe Transportation of Explosives and other