

Pressure, Vacuum, and Cryogenic Systems: Requirements for Systems for Acetylene and Other Gases for Hot Work

Department: Chemical and General Safety

Program: Pressure, Vacuum, and Cryogenic Systems

Owner: Program Manager

Authority: ES&H Manual, Chapter 14, Pressure, Vacuum, and Cryogenic Systems¹

All pressure systems must be in conformance with the requirements of Chapter 14, and this exhibit provides the additional required information specific to systems for acetylene and other gases for hot work. If you need further clarification on the unique characteristics of this type of system or the specific codes, regulations, and standards, please contact the program manager.

Unique Characteristics

Hot work is a term commonly used to denote torch brazing, welding, cutting, and allied processes that use oxygen and a fuel gas such as acetylene or propane. Acetylene is primarily used as a fuel gas for oxy-acetylene welding and torch soldering applications, but it may be used for certain science applications. Gases that may be used in place of acetylene include propylene, MAPP gas, and propane, but these materials are almost exclusively dispensed from portable containers.

Required Regulations, Codes, and Standards

In addition to those listed in Section 3, “Standards”, of Chapter 14, the following regulations, codes, and standards apply to acetylene piping systems and acetylene in portable containers/tanks.

*Note Use the most current edition unless otherwise indicated.*²

American Society of Mechanical Engineers (ASME) Standards

- ASME B31.3-2002, “Process Piping”

National Fire Protection Association (NFPA) Standards

- NFPA 51, “Standard for the Design and Installation of Oxygen–Fuel Gas Systems for Welding, Cutting, and Allied Processes”

American National Standards Institute (ANSI)

- ANSI Z49.1, “Safety in Welding Cutting and Allied Processes”

1 *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 14, “Pressure, Cryogenic, and Vacuum Systems”, http://www-group.slac.stanford.edu/esh/hazardous_activities/pressure/policies.htm

2 See the “SLAC Research Library Community Pages”, <http://www-group.slac.stanford.edu/library/CommunityPages.asp>, for available standards.

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California Fire Code

- Chapter 26, “Welding and Other Hot Work”
- Chapter 30, “Compressed Gases”
- Chapter 27, “Hazardous Materials – General Provisions”

Related Documents

- CGC: Portable Oxygen-fuel for Welding and Cutting Requirements (SLAC-I-730-0A09S-024)³
- *SLAC Environment, Safety, and Health Manual* (SLAC-I-720-0A29Z-001), Chapter 12, “Fire and Life Safety”⁴
- Fire and Life Safety: Fire Prevention Hot Work Guidelines (SLAC-I-730-0A12T-006)⁵
- Hazardous Materials: Personal Protective Equipment Requirements (SLAC-I-730-0A09S-017)⁶
- Pressure, Vacuum, and Cryogenic Systems: Codes, Regulations, and Standards List (SLAC-I-730-0A21V-001)⁷

3 <http://www-group.slac.stanford.edu/esh/eshmanual/references/cgcReqOxygen.pdf>

4 http://www-group.slac.stanford.edu/esh/general/fire_safety/policies.htm

5 <http://www-group.slac.stanford.edu/esh/eshmanual/references/fireGuideHotwork.pdf>

6 <http://www-group.slac.stanford.edu/esh/eshmanual/references/hazmatReqPPE.pdf>

7 <http://www-group.slac.stanford.edu/esh/eshmanual/references/pressureListStandards.pdf>