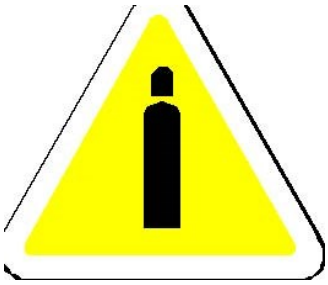
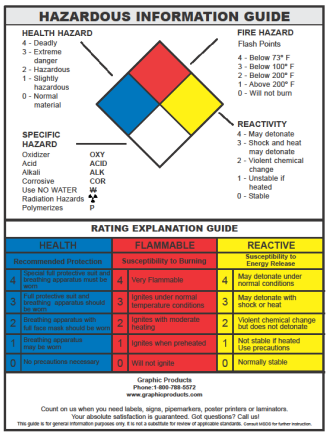
Safety Bulletin

University of Wyoming Safety
Web: www.uwyo.edu/safety/
Phone: (307) 766-3277
Email: uwehs@uwyo.edu
Regulated Materials Management Center
Phone: (307)766-3698 Fax: (307)766-3699
Email: HAZMAT@uwyo.edu





Register for UW Safety classes

- http://www.uwyo.edu/safety/
- call us at 766-3277
- e-mail uwehs@uwyo.edu

Safety: **It's Our Job... It's YOUR Job**

Gas Cylinder Safety Guidelines

Introduction

Compressed and liquefied gases have the potential for creating hazardous working environments. The following guidelines are given to promote safe use of gases on the UW campus:

1. Complete a gas cylinder safety class. Training includes the associated hazards of the materials, personal protective equipment (PPE) and emergency response procedures.

2. Have the materials safety data sheet in the laboratory and available if needed.

3. Store cylinders in areas posted with the hazard information about them. The NFPA 704 diamond with a cylinder indicated in the "specific hazard" (white) section of the diamond and the corresponding flammability, health and reactivity hazard sections also marked is acceptable.

4. Do not store cylinders in exits or egress routes. Store in a well-ventilated area. Do not store in damp areas, near salt or corrosive chemicals, fumes, heat or where exposed to weather. Store in an upright position and secure cylinder with a chain or belt above the midpoint but below the shoulder. Cylinders less than 18" tall may be secured by approved stands or wall brackets.

5. Storage areas must have a noncombustible wall at least 5 feet in height and with a fire resistance rating of at least 30 minutes may be used to segregate gases of different hazard classes in close proximity to each other.

6. The maximum allowed usage and storage of flammable or toxic compressed gases within a laboratory work area are defined by Table I on the next page.

7. Compressed gases shall be handled only by properly trained persons. Training must include contents of this guideline as well as any specific information relevant to the gas being used, and emergency information outlined in UW's Chemical Hygiene Plan.

8. Safety shoes are required when moving cylinders.

9. Cylinders should not be dragged or physically carried. Transport cylinders with a handtruck designed for cylinder transport. Cylinder caps shall be secured during transport.

Table 1: Maximum Expanded Volume Quantity (cubic feet) Limitations for Flammable or Toxic Compressed and Liquefied gases in UW Laboratories

	Ventilated Enclosure Sprinklered Room	Ventilated Enclosure Non-Sprinklered Room	No Ventilated Enclosure Sprinklered Room	No Ventilated Enclosure Non-Sprinklered Room
Highly Toxic(2)	40	20	No	No
Toxic(3)	1620	810	No(5)	No(5)
Flammable(4)	3000	1500	1500	750

Notes: (1) Consult manufacturer or local safety office for expanded volume data for various sized cylinders. (2) Appendix C: Any material with a Health rating of 4. (3) Appendix C: Any material with a Health rating of 3. (4) Appendix C: Any material with a "y" in the flammability column (for materials classified as both flammable and toxic, defer to the toxic limitations). (5) Use of small quantities (i.e., lecture bottles - 2" X 13") / dilute concentration gases in non-ventilated enclosures must be evaluated and approved by ISU EH&S or Ames Lab ESH&A. * 1994 Uniform Building Code and 1994 Uniform Fire Code

- Locate cylinders where they will be protected from physical damage by striking or falling objects, corrosion or damage from public tampering.
- No person other than the gas supplier shall attempt to mix gases in a cylinder. Cylinders shall not be subjected to artificially created low temperatures without approval from the supplier. Containers shall not be used for any other purpose than holding the contents as received. Damaged or leaking cylinders must be reported to the manufacturer immediately for proper disposal.
- Cylinders shall not be picked up by the cap.
- Ropes, chains, and slings shall not be used to suspend cylinders, unless cylinder was designed for such. Magnets shall not be used for lifting cylinders. Where appropriate lifting attachments have not been provided on the cylinder containers, suitable cradles or platforms to hold the containers shall be used for lifting.
- Do not paint cylinders. Leaking, defective, fire burned and corroded containers shall not be shipped without the approval of the supplier.
- Ensure that regulator pressure control valve is relieved (i.e., closed) before attaching to tanks.
- Close valves on gas cylinders when a system is not in use.
- Remove pressure from regulators not currently used by opening equipment valves downstream after the regulators are closed.
- Use pressure valves in downstream lines to prevent high pressure buildup in the event that a regulator valve does not seat properly and a tank valve is left on.