

STORAGE AND USE OF COMPRESSED GAS CYLINDERS

REASONS FOR THIS GUIDE:

Hazards from gas cylinders are three-fold; physical injury, fire hazard, and inhalation hazard. A falling cylinder can cause a crushing injury to personnel, or may rupture the pressure-reducing fitting or valve causing the cylinder to become an "unguided missile." Fire by fuel gases or accelerated by oxygen is an ever-present hazard. Toxic gases are hazardous if inhaled. Even non-toxic gases can be a health hazard in confined spaces by reduction of oxygen level in the air being breathed.

GUIDES:

- All gas cylinders shall be protected against undue absorption of heat from sunlight or other heat sources.
- Gas cylinders in portable service shall be conveyed by suitable trucks to which they are securely fastened.
- All gas cylinders in service or storage, empty or full, shall be securely held in substantial racks or secured to other rigid structures so that they will not fall or be knocked over. During movement or storage, cylinder caps should be in place. Acetylene cylinders shall always be stored upright.
- No attempt shall ever be made to transfer gases from one cylinder to another, to refill cylinders, or to mix gases in a cylinder.
- Oxygen cylinders shall never be stored near highly combustible materials, especially oil and grease, or near stocks of carbide and acetylene, or other fuel gas cylinders, nor near any other substance likely to cause or accelerate fire. Systems and components use for other gases and purposes must never be used for oxygen or interconnected with oxygen.
- All cylinders are to be considered full unless property identified as empty ("M.T.") by the user. "M.T." cylinders should be returned to the supplier and not be permitted to accumulate. To prevent contamination, and even explosive mixtures in cylinders, always leave at least 25 psig minimum pressure in all "empty" cylinders. Do not leave an empty cylinder attached to a pressurized system.
- Safe practice is to use and store toxic gases in fume hoods or other ventilated areas. Users should plan courses of action in the event of leaks of toxic or flammable gas cylinder systems.

- Cylinders should not be accepted unless the cylinder contents are clearly labeled. A color code only should not be accepted, since it alone does not constitute adequate labeling. Do not accept cylinder which are damaged or do not have a valve protection cap. Cylinders should be labeled on the neck area to be conspicuous when cylinders are grouped together.
- Cylinders may be stored in the open, but in such cases, protection is needed against the direct rays of the sun. Bulk storage is to be in approved rooms or outside enclosures. Bulk storage cylinders should be chained and security measures taken to prevent tampering and loss (fences, etc.).
- Storage areas should be well ventilated, dry, fire resistant, and located away from sources of ignition or excessive heat. Subsurface storage areas are not permitted.
- Do not store empty cylinders with the full ones. Segregate oxygen storage by a distance of 20 feet from flammable gas cylinders.
- Never jar or bounce cylinders.
- Use Compressed Gas Association (CGA) approved fittings and components.
- Never force a gas cylinder valve. If the valve cannot be opened by the wheel or small wrench provided, the cylinder should be returned. Open cylinder valves slowly.
- Do not place cylinders where they may become part of an electrical circuit. Arc welders must not allow the arc to strike the cylinder.
- Compressed gas cylinders are required to have safety relief devices installed in accordance with Compressed Gas Association pamphlets 51.1 and 51.2, 1963.
- Never tamper with or render ineffective the safety relief device.