
STANDARD OPERATING PROCEDURE FOR USE OF COMPRESSED GASES

I. Potential Hazards:

Definition – A compressed gas is any mixture or material in a container with either an absolute pressure exceeding 40 psi at 70 °F or an absolute pressure exceeding 104 psi at 130°F. Any liquid flammable material having a vapor pressure exceeding 40 psi at 100 °F is also considered a compressed gas.

The large amount of potential energy contained makes these cylinders a potential rocket or bomb if the pressure is released through rupture of the valve or container failure. Compressed gases may also be toxic, flammable, or explosive – check the Safety Data Sheet (SDS) for more information. Safety considerations for these properties must also be followed – see SOPs for those hazards.

II. Engineering Controls:

Storage of compressed gas cylinders requires sturdy chains secured to a wall or cabinet, and/or a cylinder stand.

III. Work Practice Controls:

All compressed gas cylinders shall be legibly marked by stenciling or stamping with at least the chemical name or commonly accepted name of the material contained. In addition, cylinders should bear the approved markings of the Department of Transportation stamped in the metal at the top of the cylinder.

IV. Personal protective equipment (PPE):

Safety glasses must be worn for all work involving compressed gas cylinders.

V. Transportation and Storage:

- Cylinders (full or empty) shall be secured by chains, straps, or other sturdy tiedowns during storage and transport.
- Cylinders shall be grouped by type of gas and the groups segregated as to compatibility.
- Full cylinders shall be separated from empty cylinders within the storage area.
- Flammable gases shall be separated from nonflammable gases.

- Cylinders shall not be stored at temperatures above 125°F. or in direct sunlight, or outside of the temperature range specified by the manufacturer.
- Cylinder valves shall be kept closed when not in use.
- Removable caps shall be kept on cylinders at all times, except when cylinders are in use.
- Cylinders shall be protected against tampering and damage.
- Cylinders shall not be stored near combustible materials.
- Cylinders shall not be refilled except by authorized suppliers.
- Open flames and smoking shall not be permitted in areas where oxygen is used or stored. "No Smoking" and "No Open Flames" signs shall be conspicuously posted in these areas.
- Cylinders, except for those containing compressed air, shall not be used or stored in cold rooms or other unventilated enclosures.

VI. Waste Disposal

- In most cases, the compressed gas cylinder, including any unused gas, will be returned to the vendor from which the cylinder was purchased. If the vendor cannot be determined, contact the director of Facility Services and Safety.