

---

## **Chapter 5 : COMPRESSED GAS CYLINDER**

---

### **INTRODUCTION/OVERVIEW**

Compressed Gas Cylinders (CGC) may contain oxygen, acetylene, nitrogen, ammonia, chlorine, hydrocarbons, breathing air, or other gases. Some of these gases can easily catch fire and burn rapidly. Flammable compressed gases have the same dangers as non-flammable gases, but may also ignite from heat, sparks, or flames, or flash back if vapors travel to an ignition source. Given below are some basic guidelines our employees and supervisors must follow regarding the storage, use and handling of compressed gas cylinders.

### **STORAGE OF CYLINDERS**

1. Do not remove the product identification label or change the cylinder color.
2. Keep cylinders away from sources of heat. If stored in buildings, keep away from highly combustible materials, stoves, radiators, etc.
3. Store securely. Cylinders should be securely placed on a level surface to prevent tipping over and should not be piled near elevators, gangways, or other places where they are likely to be knocked over.
4. Do not store cylinders of oxygen close to cylinders of acetylene or other fuel gas. Stored oxygen cylinders must be separated from acetylene or other fuel gas by a minimum distance of 20 feet or by a noncombustible barrier at least 5 feet high having a fire-resistance rating of at least one-half hour
5. Protect cylinders stored in the open from the elements, both from accumulations of ice and snow and from the direct rays of the sun, particularly when it is hot outside.
6. Close valves on empty cylinders.
7. Keep all valve protecting caps in place when cylinders are not in use.
8. Store cylinders so as to avoid possible destruction or obscuring of coloring, tags, and other means of identifying the contents.
9. While in use, keep valve key wrench in place on valve spindle.
10. Oxygen and fuel gas cylinders can be left together on bottle carts when in regular use.

### **USE OF CYLINDERS**

Before using any compressed gas cylinder identify the gas, its dangers and emergency procedures. This information can be found on labels, MSDS's and cylinder markings. If you don't know what's in a cylinder don't use it.

- 
1. Gas cylinders are exposed to many dangers at the construction site. Select a location for setting up cylinders which will be exposed to as little contact as possible from moving equipment, materials and the like.
  2. Place cylinders in a rack, chain them, and secure them against tipping over.
  3. When in use, do not open the valve more than 1-1/2 turns to allow for quick closing.
  4. Use cylinders in the order received from the supplier. When the cylinder is nearly empty, the valve should be closed, and the cylinder marked accordingly.
  5. Prevent cylinders from coming into contact with electric wires.
  6. Shield from sparks or flame when welding and cutting.
  7. Never store tools, materials, or anything else on top of cylinders, even temporarily.
  8. Oxygen under pressure forms an explosive mixture with oil and grease. Regulations, valves, gauges or fittings must not have any oil, grease, or lubricant used on them; nor are they to be handled with greasy hands or gloves.
  9. Never expose oxygen cylinders to oil sprays or mists.
  10. Never use oxygen as a substitute for compressed air.
  11. Never take cylinders into "confined spaces".

---

## ***HANDLING CYLINDERS***

1. Whenever a cylinder is being moved, be sure valve protection cap is in place and closed.
2. Never use valves or caps for lifting.
3. When raising or lowering, use suitable sling, boat, cradle or platform.
4. Always handle carefully. Do not drop or jar.
5. Do not lift with electric magnets.
6. Move cylinders by tilting and rolling on bottom edge; avoid dragging and sliding.
7. When moving with hand truck, be sure cylinders are securely held in place.

## ***EMERGENCY PROCEDURES***

The time to plan for an emergency is before one occurs. Know each compressed cylinder you have on hand. Each compressed gas has different characteristics. The best place to find out how to handle cylinders safely and how to address fire fighting or emergency procedures is the MSDS or your vendor who supplies the compressed gas to you facility or jobsite.

Acetylene is one of the most common compressed gases used on construction sites. Since acetylene is a flammable gas, caution should be taken in extinguishing the fire until the source of acetylene can be stopped. It is important to prevent acetylene gas from collecting in a confined space area because the gas may re-ignite and explode.

In all cases of acetylene cylinder fires, the area should be evacuated as quickly as possible. Someone knowledgeable in handling acetylene fires should be left in charge.

Each compressed gas can have a different hazard; know each hazard and how to handle them before an emergency arises.