Scope

This program[1] applies to all employees that could use, store, or inspect any compressed gas cylinders in the workplace.

Purpose

Compressed gases are used in several ways in workshops and garages, but most commonly for welding or forklift fuel. While necessary and useful, these cylinders can present significant hazards to employees.

This program provides employees with the basic information for assuring all compressed gas cylinders are maintained in good working order, and are used and stored properly.

Member-Level Responsibilities

On the line below, list the job title of the person who has primary responsibility for oversight of this policy. _____

Compressed gas cylinders come in many different sizes and colors, from small tallow MAP gas cylinders to larger green oxygen cylinders, to silver/white LPG fuel cylinders. Regardless of the size or color, it is important that each cylinder be clearly labeled with the type of gas it contains. To help control the hazards that compressed gas cylinders pose, they must be stored correctly, protected from damage, and have the proper safety devices installed.

Storage & Separation

Cylinders of flammable gas and cylinders of oxygen each present specific hazards, and should be stored separately, according to those hazards. Oxygen cylinders should be stored away from fuel- gas cylinders or other flammable or combustible materials (especially oil or grease) a minimum distance of 20 feet, or be separated from them by a noncombustible barrier at least 5 feet high and having a fire-resistance rating of at least one-half hour. Oxygen and acetylene cylinders on welding carts should also be separated by a noncombustible barrier at least 5 feet high and having a fire-resistance rating of at least one-half hour.

Cylinders should be stored away from heat, direct sunlight, water, or other corrosive liquids or solids (like road salt). Protective caps must be hand-tight on any cylinder that is not in use to protect the cylinder's valve stem. These caps should only be removed after a cylinder has been moved and secured in the location it will be used, and a regulator needs to be attached.

[1] The content of this program is based upon the following regulations:
- Pennsylvania Title 34, Part VIII, Bureau of Workers Compensation – Chapter 129, Subchapter D §129.452; Program requirements.
- Federal Occupational Safety and Health Administration (OSHA) regulations for Compressed Gases found at 29 CFR 1910.101 and Subpart Q- Welding, Cutting, and Brazing.

Protection

It is important that cylinders be protected from damage. Cylinders should be stored in areas away from high foot or vehicle traffic. If the cylinders are near areas that could have forklifts or other vehicles, concrete reinforced steel bollards or similar devices should be installed to protect the cylinders. To prevent gas cylinders from being damaged from falling, they need to be securely attached to a wall, welding table, or other fixed structure using straps or chains. These straps or chains should be secured approximately 2/3 up the cylinder and be snug. If there are cylinders of different heights stored together, there should be straps available for each size.

Handling

Small cylinders, less than 25 pounds, can easily be picked up and moved by hand. Larger cylinders (over 24" high or more than 25 pounds in weight) should only be moved using a cylinder cart. Never move a cylinder by rocking it back and forth, or by rolling it on its edge. Contractors or suppliers that deliver cylinders to the facility should also be instructed to follow these handling requirements.

Protection Devices

There are three main types of protective devices related to the flow and/or use of flammable gases or gas mixtures; the backflow preventer, the flashback preventer, and the free flow preventer. Each of these types of devices have specific models based on the type of gas being used. The backflow preventer is a spring-loaded device that prevents gas from flowing back into a lower pressure hose, such as oxygen flowing back into the acetylene hose when the acetylene cylinder is approaching empty. This device prevents the creation of a flammable mixture of gases in the hose itself. A flashback preventer is a device with an interior mesh screen that prevents a flame from entering back into a hose. A hose without either a backflow preventer or flashback preventer could potentially have a flammable or explosive gas mixture in the hose that is ignited by a flashback. One or both of these types of devices should be installed between the hose and welding nozzle assembly. A free-flow preventer is a spring-loaded device that will automatically close if a free-flow situation, such as a ruptured or cut hose, occurs. This type of device should be placed between the regulator and the hose. If a single device that incorporates all of these functions is used, it should be placed between the regulator and the hose.

Compressed Gas Cylinder Storage MONTHLY Inspection Checklist	Yes	No	NA
1. Signage requirement met (name, hazard warning, no smoking).			
2. Cylinders are protected from vehicles and other sources of physical damage & stored upright in a well-ventilated area.			
3. Cylinders are securely attached to a wall or other fixed structure using straps or chains.			
4. Oxygen cylinders are separated from fuel-gas cylinders and other flammable/combustible materials (especially oil or grease) a minimum distance of 20 feet, or are separated from them by a noncombustible barrier at least 5 feet high and having a fire-resistance rating of at least one-half hour.			
5. Cylinders that are not in use are stored with the valve covers on and hand tightened.			
6. A suitably sized dry chemical fire extinguisher (10-pound B type or larger) is located within 50 feet of cylinder storage areas, and is readily available, fully charged, and properly inspected.			
7. Empty cylinders are marked as “EMPTY” or “MT”, but are treated in the same manner of full cylinders.			
8. Oxygen and acetylene cylinders used for welding are equipped with gas-specific back-flow or flashback prevention devices, and the devices are mounted between the regulators and the hose.			
9. There is no evidence of open flames or smoking near the cylinder storage area.			
10. Oxygen and acetylene cylinders on welding carts are secured to the cart, and the valves of the cylinders are closed when not in use.			
Corrective Actions for each “NO” above:			

Liquid Propane Gas (LPG) Storage MONTHLY Inspection Checklist	Yes	No	NA
1. LPG cylinders are stored in secure designated areas, and less than 300 pounds of liquid propane is stored indoors.			
2. LPG stored outdoor is secured in a designated cage or other area that is protected from vehicles and other sources of physical damage.			
3. LPG is transferred from bulk storage tanks into smaller fuel cylinder tanks only by properly trained personnel.			
4. A suitably sized dry chemical fire extinguisher (10-pound B type or larger) is located within 50 feet of cylinder storage areas, and is readily available, fully charged, and properly inspected.			
Corrective Actions for each “NO” above:			