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SP 48 Compressed Gas Cylinder Safety

1.0 PURPOSE:

- 1.1 The purpose of this program is to provide basic guidelines that will protect the health and safety of employees involved in operations related to the transporting, handling, storage, and usage of compressed gas cylinders.

2.0 SCOPE:

- 2.1 This program applies to all personnel who may handle, store, or work around compressed gas cylinders.

3.0 REFERENCES:

- 3.1 29 CFR 1910.253 Oxygen-fuel Gas Welding and Cutting
- 3.2 29 CFR 1910.101 Compressed Gases (CGA Pamphlet P-1-1965)
- 3.3 29 CFR 1910.110 Storage and Handling of Liquefied Petroleum Gases (NFPA 58)

4.0 RESPONSIBILITIES:

- 4.1 Department Managers shall ensure that personnel under their direction receive training and that they maintain compliance with this program.
- 4.2 Safety Representative shall ensure that team leaders and employees are trained on this program and shall provide advice and counsel for the program.
- 4.3 Supervisors shall ensure that all employees who handle, use, or work around compressed gas cylinders are properly trained on these program guidelines.
- 4.4 Employees shall maintain compliance with the guidelines contained within this program.

5.0 PROCEDURE:

5.1 Compressed Gas Cylinder Storage

- 5.1.1 Propane/LP/fuel gases shall be limited to no more than 300 lbs. in any indoor storage locations (where the public does not have access to the location).
- 5.1.2 Cylinders shall be stored where they will not be exposed to physical damage or tampering by unauthorized persons. Cylinders shall be kept away from radiators and other sources of heat.
- 5.1.3 Cylinders shall be stored in assigned places where cylinders will not be knocked over or damaged by passing or falling objects (away from elevators, stairs, or gangways).

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Cylinders must not be stored where they can make unexpected contact with electrical equipment or conductors if they should roll or fall.

- 5.1.4** Oxygen cylinders in storage shall be separated from fuel gas cylinders by 20 ft. or by a noncombustible barrier at least 5 ft. high and having a fire resistance of one-half hour.
- 5.1.5** Additionally, all cylinders in storage shall be separated from flammable and combustible liquids and from easily ignited materials such as wood, paper, packaging materials, oil, and grease by at least 20 ft. or by a noncombustible barrier at least 5 ft. high having a fire resistance of one-half hour.
- 5.1.6** Cylinder storage areas shall be prominently posted with the name of the gases to be stored.
- 5.1.7** Regulators from empty cylinders shall be removed and the protective caps put in place. Empty cylinders shall be marked "MT", or other equally effective notation. Never bleed a cylinder completely empty. Leave a slight pressure to keep contaminants out. Full and empty cylinders shall be separated.
- 5.1.8** While in storage, compressed gas cylinders' valve protection caps shall be in place and secure. Note: some compressed gas cylinders may have a permanent valve collar affixed and a cap is not required.
- 5.1.9** Compressed gas cylinders must be stored in racks or secured in an upright position (chained or strapped). No cylinder shall be left free-standing.
- 5.1.10** Compressed gas cylinders must be stored in approved storage areas and not in areas with poor ventilation or subsurface areas. Ensure that all indoor storage locations are properly ventilated.
- 5.1.11** Avoid areas that are damp or subject to other corrosive materials. Protect cylinders stored outside from standing water by providing proper drainage. Where outdoors storage is necessary, an overhead cover is necessary to avoid sunlight and rain.
- 5.1.12** All storage areas must be marked with signs, such as "*No Smoking*" or "*No Open Flames*". Oxygen cylinders must be stored with non-flammable gases or by themselves.
- 5.1.13** Never use oil or grease to lubricate any part of a cylinder (e.g., the threads on the cap or the cylinder, or the regulator).
- 5.1.14** Portable fire extinguishers (of carbon dioxide or dry chemical types) must be available for fire emergencies at cylinder storage locations. Extinguisher(s) will be readily identifiable and be properly mounted in the storage room.
- 5.2** Compressed Gas Cylinder Transport and Handling
 - 5.2.1** Compressed gas cylinders must never be transported in closed-bodied vehicles or automobiles not equipped with an approved cylinder transport rack.

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- 5.2.2** A suitable cylinder truck and steadying device (ex. chain, strap) shall be used to keep cylinders from being knocked over while being moved or in use. Compressed gas cylinders must not be rolled or dragged.
- 5.2.3** When transporting or moving compressed gas cylinders, valve protection caps shall be in place and secure (unless a permanent collar is in place). Compressed gas cylinders must never be lifted by the valve cap, collar, or by the use of magnets.
- 5.2.4** Unless cylinders are secured on a cylinder truck, regulators shall be removed and valve-protection caps shall be put in place before cylinders are moved. When cylinders stored on a cylinder truck are to be moved to a nearby area with the regulators attached, the cylinder valves shall be closed with no pressure in the regulators.
- 5.2.5** While a cylinder is in use, nothing shall be placed on top of the cylinder which may damage the safety device or interfere with the quick closing of the shutoff valve.
- NOTE:** NEVER WRAP HOSES AROUND THE NECK OF COMPRESSED GAS CYLINDERS. THIS MAY INTERFERE WITH THE QUICK CLOSING OF THE SHUTOFF VALVE IN AN EMERGENCY.
- 5.2.6** Oxygen and fuel cylinders shall be kept far enough away from the actual welding or cutting operation so that sparks, hot slag, or flame will not reach them. If this is not possible, the cylinders shall be protected.
- 5.2.7** A hammer or wrench shall not be used to open cylinder valves. If valves cannot be opened by hand, the supplier shall be notified.
- 5.2.8** Only use the appropriate regulator for the type of gas. Never mix fuel gas and oxygen regulators.
- 5.2.9** Before connecting a regulator to a cylinder valve, the valve shall be opened slightly and closed immediately. The valve shall be opened while standing to one side of the outlet, never in front of it. Employees must be wearing the appropriate eyewear (ex. safety glasses with side shields).
- 5.2.10** When work is finished, the cylinder valve shall be closed and the valve protection cap put on (Note: Valves of empty cylinders shall be closed).
- 5.2.11** Compressed gas cylinders shall not be taken into confined spaces.
- 5.2.12** No damaged, leaking or defective cylinder shall be used. If cylinders are found to have leaky valves or fittings, which cannot be stopped by closing of the valve, the cylinders shall be taken outdoors away from sources of ignition and slowly emptied. Leaking cylinders shall be tagged as such.
- 5.2.13** No one except the owner of the cylinder or persons authorized by the owner shall fill a cylinder.

5.3 Marking and Labeling

- 5.3.1** All compressed gas cylinders shall be legibly marked with either the chemical or trade name of the gas as required by DOT. Do not use cylinders in which the labeling is

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missing or illegible. If unable to identify contents, the cylinder shall be returned to the supplier.

5.3.2 Compressed gas cylinders shall be marked by stenciling, stamping, or labeling. The numbers and markings on cylinders shall not be tampered with and not be easily removed.

5.3.3 Marking shall be located on the slanted area (shoulder) directly below the cap.

5.3.4 Numbers and symbols shall consist of the following:

5.3.4.1 DOT number

5.3.4.2 Serial number and identifying symbol (the serial number and symbol are located immediately after or below the DOT number.)

5.3.5 The hydrostatic test date shall be marked on the cylinder as required by DOT. Hydrostatic testing of compressed gas cylinders shall be done in accordance with DOT requirements for the type of cylinder.

5.4 Inspection

5.4.1 Each employee shall determine that compressed gas cylinders are in a safe condition by means of a visual inspection. A visual inspection shall be conducted before transporting, moving or using a compressed gas cylinder. A periodic inspection should be made of compressed gas cylinder storage areas.

5.4.2 If evidence of any unsafe condition is discovered, the cylinder(s) shall be immediately removed from service and appropriately tagged. The owner/supplier shall be notified.

6.0 TRAINING:

6.1 All employees handling or using compressed gas cylinders must have basic safety training on transporting, storing, handling, and using compressed gas cylinders. This training is to be covered in the employee's orientation and at periodic interval.

6.2 Gas users must be thoroughly familiar with the properties of each gas they are using. A review of the Safety Data Sheet (SDS) for the gas may be necessary.

7.0 REVISION REGISTER:

Date	Description of Change	Page No.	Initials