1 Purpose

Silver Eagle Distributors Houston, LLC (Silver Eagle Houston) will ensure that employees handling compressed gases are adequately trained in the inherent hazards of the cylinders and their contents, as well as proper handling, storage, and use according to OSHA requirements. Compressed gas cylinders can present a variety of hazards due to their pressure and /or contents. This standard covers the requirements which must be followed for the use of all compressed gases.

2 Requirements

2.1 Compressed Gas Cylinders

2.1.1 General Requirements

2.1.1.1 Inspection - Visual and other inspections shall be conducted to determine that compressed gas cylinders under his control are in a safe condition as prescribed in the Hazardous Materials Regulations of the Department of Transportation (49 CFR parts 171-179 and 14 CFR part 103). Where those regulations do not apply, inspections shall be conducted in accordance with Compressed Gas Association Pamphlets C-6-1968 and C-8-1962.

2.1.1.2 Storage - The in-plant handling, storage, and utilization of all compressed gases in cylinders or portable tanks shall be in accordance with Compressed Gas Association Pamphlet P-1-1965

2.1.1.3 Safety Relief Devices - Compressed gas cylinders shall have pressure relief devices installed and maintained in accordance with Compressed Gas Association Pamphlets S-1.1-1963 and 1965 addenda and S-1.2-1963.

2.1.1.4 OSHA's Oxygen-fuel gas welding and cutting regulations are found in 29 CFR 1910 .253. This information should be reviewed by persons who will be using acetylene, oxygen, and other fuel gases or those who are designing facilities and equipment for this purpose. Be sure that all fuel gases are shut off at the cylinder valve after each use.

2.1.2 Work Practices

2.1.2.1 Hazard Information – Compressed gas labeling must meet the requirements of OSHA hazard communications regulations. Never use a cylinder that cannot be identified positively.

2.1.2.2 Receiving - Be sure the cylinder tag (don't rely on cylinder stenciling or color coding) indicates the gas contained. Do not accept delivery of leaking or damaged cylinders.

2.1.2.3 Storage

2.1.2.3.1 Keep cylinders in storage upright, secure, and interlocked into a compact group. In storage, restrain cylinders of all sizes by straps, chains, or a suitable stand to prevent them from falling. Avoid areas that are damp or subject to other corrosive materials. Do not store flammables and oxidizers together. Segregate full cylinders of low hazard gases from "empty" cylinders awaiting return to the vendor. Protect cylinders stored

outside from standing water by providing proper drainage and store under an overhead cover to avoid sunlight and rain.

2.1.2.3.2 When not in use, close cylinder valves. The main cylinder valve should be tightly closed, but needle valves should only be finger tight to avoid ruining the valve and/or valve stem.

2.1.2.3.3 Assure hazardous gas cylinders are constantly stored in a suitable exhausted enclosure. Do not expose cylinders to temperatures higher than about 122 F. (50 C.) Never place cylinders where they may become part of an electric circuit.

2.1.2.4 Transporting Cylinders - Cylinders must never be transported without valve protection caps in place. Never move a cylinder with a regulator attached. Cylinders larger than lecture/sample bottle size should be chained or strapped to a wheeled cart during transport to ensure stability.

2.1.2.5 Shipping - Promptly remove the regulators from empty cylinders, leak test hazardous gases, and replace the protective caps at once. Mark the cylinder "MT". Never bleed a cylinder completely empty. Leave a slight pressure to keep contaminants out.

2.1.3 Emergency Procedures

2.1.3.1 Cylinders leaking at the cylinder valve should be reported to a supervisor. If a hazardous gas is released into an unexhausted enclosure and the gas supply cannot be promptly cutoff, evacuate the area. Leaking cylinders should not be removed from their exhausted enclosures.

2.1.3.2 Close the main cylinder valve if a leak is stopped or slow, hazardous gases are contained in their enclosure, and it is clearly safe to approach. Do not extinguish a flame involving a highly combustible gas until the source of gas has been shut off, otherwise, it can reignite, causing an explosion. Accidental discharges must be reported to the HSE Department.

2.2 Compressed Air Systems and Usage

2.2.1 General Requirements

2.2.1.1 Air compressors are used for a variety of applications at Silver Eagle Houston. Air compressor storage tanks store excess air that is generated from the compressor, providing a convenient and readily accessible air source. Because of the air pressure within these storage tanks, potential dangers can develop if certain practices and precautions are not followed. This standard provides guidelines for the safe use of air compressor storage tanks.

2.2.1.2 Only machinery that cannot be cleaned in any other way should be cleaned by compressed air. Never use compressed air to clean equipment or parts which are contaminated by toxic materials.

2.2.1.3 Compressed air used for cleaning machinery or shop areas and/or operated from a hand-held nozzle or similar device must have a nozzle pressure of less than 30 psig, if the nozzle is deadened. This may be accomplished using a pressure-reducing valve

in the air line or by air guns designed to reduce or relieve nozzle airline pressure to less than 30 psig.

2.2.2 Equipment

2.2.2.1 All safety valves, air receivers or tanks used for the storage of l cubic foot or more of compressed air at a pressure in excess of 50 psig. must be constructed in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code.

2.2.2.2 Air receivers and tanks are to be installed so that all drains handholds, and personnel access openings are easily accessible and allow enough clearance for complete external inspection. Air compressor storage tanks shall never be buried underground or located in an inaccessible place.

2.2.2.3 Each air compressor system must be provided with a connection of the appropriate size for attaching an inspector's test gauge when the system is in service and nothing must obstruct the connection of the inspector's test gauge.

2.2.3 Gauges and Valves

2.2.3.1 All air compressor storage tanks must be equipped with a least one safety valve and pressure gauge. Gauges and safety valves will be tested at least every six months to ensure proper operation. No valve of any type shall be placed between the air receiver and its safety valve.

2.2.3.2 Drain valves must be opened once a week to purge water build-up unless they are automatically operated traps.

2.2.3.3 Pressure gauges must be readily visible. Spring loaded safety devices with a total relieving capacity sufficient to prevent a rise in pressure of more than l0 percent above the maximum allowable working pressure of the receiver must also be installed.

2.2.3.4 At least one safety valve in each system must be set to operate at or below the maximum allowable working pressure.

2.2.3.5 All safety appliances such as safety valves, indicating devices, and controlling devices must be constructed, located, and installed so that they cannot readily be made inoperative by any means, including weathering.

2.2.4 Hoses, Lines and Fittings

2.2.4.1 All hoses, lines and fittings must be rated to meet the maximum operating pressure (both static and transient) of the equipment or apparatus.

2.2.4.2 Hoses and lines should be properly assembled; incorrect fittings should be avoided. Use of hose clamps to connect fittings to hoses is not permitted.

2.2.4.3 A system should be designed with the least number of bends and the largest diameter feasible.

2.2.4.4 Hoses and lines should be protected from external damage, e.g., heat, abrasion and corrosion. They should not be placed where they can be tripped over or driven over by personnel or equipment.

2.2.4.5 Vent pressure relief valves and rupture discs to a safe area, where personnel will not be affected, e.g. toward a wall.

3 Training

3.1 All persons handling or using cylinders must have training. Review of the information contained in this standard, review of any additional information in other relevant Silver Eagle Houston standards, and hands-on assistance by an experienced gas user will meet this minimum requirement.

3.2 Employees who use compressed air systems will be trained in:

- The purpose and basic operation of air compressor storage tanks;
- Maintenance requirements of drains and traps;
- Reading gauges and operating valves; and
- Identifying damage and defects in the storage tanks, hoses or air driven equipment.

This training must be performed upon initial employment and/or job reassignment. Periodic refresher training shall also be conducted at the discretion of the HSE Department.

4 References

OSHA 29 CFR 1910.101

OSHA 29 CFR 1910.253

OSHA 29 CFR 1926.153

OSHA 29 CFR 1926.350(a)(10)

DOT 49 CFR parts 171-179 and 14 CFR part 103

Compressed Gas Association Pamphlet P-1-1965

Compressed Gas Association Pamphlets C-6-1968 and C-8-1962

Compressed Gas Association Pamphlets S-1.1-1963 and 1965 addenda and S-1.2-1963

ASME Boiler and Pressure Vessel Code

5 Document Revision Register

Revision #	Section #	Date	Revision Description
0		01/01/2020	Initial Issue