

## Compressed Gas Safety Guidelines

2020

### Storage

1. Store cylinders in areas that are dry, well-ventilated, and secure to protect cylinders from tampering or damage.
2. Store cylinders in areas protected from external heat sources.
3. Cylinders must be stored and secured in a “valve end up” upright position.
4. If a cylinder can take a valve protection cap it must be on at all times except when connected for use.
5. Cylinders must be stored in a secure manner, restrained using a cylinder rack with double chains or similar.
6. Flammable gases must be separated from oxidizing gases. A distance of 20 ft. or a noncombustible barrier at least 5 ft. high is a minimum requirement.
7. Empty cylinders must be marked with “Empty” or MT”.

### Handling

1. Compressed gases are to be handled only by properly trained persons.
2. Cylinders are transported with the cylinder valve closed, the valve protection cap secured, and using a hand truck designed to transport cylinders. Do not pick up a cylinder by its valve protection cp.
3. Prior to us, check cylinders for dents, bulges, cracks, or any other, visible signs of damage. A cylinder shall not be used if damaged.
4. Cylinders shall not be struck or permitted to strike each other.

### Use

1. Wear ANSI-approved eye protection and refer to the Safety Data Sheet for any additional protective equipment.
2. Use only cylinders properly labeled with its contents.
3. Match the regulator CGA number correctly with the CGA number on the cylinder valve stem.
4. Regulators must be free of oil, grease, or other contaminants. Do not use plumbers tape or other adhesives on CGA fittings.
5. Check compressed gas cylinder connections such as pressure regulators, manifolds, hoses, gauges, and relief valves for integrity and tightness.
6. Stand to the side of cylinder valve outlet when using a cylinder valve.
7. **Using wrenches or other tools for opening and closing valves is prohibited.**
8. Use an approved leak-detection liquid to detect gas links.
9. When not in use, gas cylinder valves are to be closed and the gas system depressurized.
10. Ensure the regulator is depressurized before removal.
11. **Repair or alteration to the cylinder, valve or safety relief device is prohibited.**
12. For corrosive gases the cylinder valve stem should be periodically opened and closed to prevent freezing of the valve stem.
13. Toxic gases must be stored in a ventilated enclosure such as a gas cabinet or fume hood.
14. A flash arrestor should be installed in the line when flammable gas is being used, if possible.
15. Compressed gases (air) greater than 10 psi must not be used to clean clothing, equipment, or workbenches.

### Manifolds, Valves, & Regulators

1. Only use valves, regulators, manifolds, piping, and other associated equipment that is designed for use with the specific gas(es) and pressures being worked with
  - a. Flammable and reactive gases require equipment specifically designed for use with those types of gases.
2. Distribution lines and their outlets must be clearly labeled.
  - a. Labeling must include the name of the gas and a directional arrow
3. Piping or hoses should be examined regularly.
  - a. Do not use unnecessarily long hose(s).
  - b. Keep hose(s) kink free.
4. Piping connections should be checked using an approved leak detection liquid.
5. Valve and regulator histories must be known before usage.
  - a. Label or handwrite the date of purchase on the regulator.
6. Regulators should be replaced when the age of the regulator reaches:
  - a. Non-corrosive gases expect a 10 year service life.
  - b. Corrosive gases expect a 3-4 year service life.

## Compressed Gas Safety Checklist

### Storage

- Are the cylinders, including lecture bottles, stored in an upright position with chains on top and bottom?
- Are incompatible gases segregated?
- Are valve protection caps in place for cylinders not in use?

### Handling

- Are cylinders inspected prior to use?

NOTE: Inspection should include checking for dents, bulges, cracks, evidence of excess heat, or any other visible sign of damage. A cylinder shall not be used if damaged.

### Use

- Don the proper Personal Protective Equipment?
- Does the regulator CGA number correctly match the CGA number on the cylinder being used?
- Has a leak check of the gas connections been performed/occurred?

### Manifolds, Valves, & Regulators

- Are distribution lines and their outlets clearly labeled?

NOTE: Labeling must include the name of the gas and a directional arrow.

- Has the system comprised of valves, regulator, manifold, piping, and any other associated equipment designed for the use with toxic, flammable, or reactive gases (if applicable)?