

Compressed Gas Safety

University Facilities (UF)
Internal Procedure: 01.B.09.01
Effective Date: July 2013
Last Modified Date: July 2013
Approved by: Bob Wells, updated Todd Barnette

This document establishes official safety Procedure while using compressed gas.

Program Objective

University Facilities has adopted this policy to inform employees of the written procedures for Handling and Storage of Compressed Gas Cylinders. This will ensure the safety and health of the employees.

Purpose and Scope

The following covers the general procedures for safe handling and storage of all compressed cylinders and provides recommended safe practices for the handling of oxygen and acetylene.

Identification

UF will ensure that all compressed gas cylinder contents be clearly identifiable.

- Gas identification should be stenciled or stamped on the cylinder or a label.
- No compressed gas cylinder should be accepted for use that does not legibly identify its content by name.

Inspection

- All compressed gas cylinders must be visually inspected.
- When cylinders arrive on the UF site, the receiving person will ensure that all gas cylinders are in safe condition to the extent that this can be determined by visual inspection.

Proper Use of Cylinders

To ensure the proper use of all compressed gas cylinders, the following requirements must be followed:

- Valves must be closed when cylinders are not in use.
- Cylinders shall not be used as rollers or supports.

- Cylinders must be protected from sparks, slag or flame from welding, burning or cutting operations.
- Empty cylinders must be returned to designated storage areas as soon as possible after use.
- Cylinders shall not be placed where they can come in contact with electrical circuits.

Oxygen Cylinders

- Oxygen should never be used for compressed air since a spark may quickly start a fire.
- Oxygen cylinders and fittings will be kept away from oil, grease and hydrocarbon solvents. These substances have the potential to violently ignite in the presence of oxygen under pressure.
- Oxygen from a cylinder will never be used except through an oxygen pressure-reducing regulator.
- Oxygen cylinder valves should never be opened using a hammer or wrench. If valves cannot be opened by hand, the cylinders will be returned.
- When a pressure-reducing regulator is attached, the oxygen cylinder valve should be opened slightly at first, then opened all the way. If high pressure is suddenly released it may damage the regulator.
- Oxygen cylinder valves and regulators should never be tampered with.

Acetylene Cylinders

- Acetylene cylinders should always stand with the valve end up and should never lie on their sides when in storage or while in use.
- Fusible plugs are provided on all acetylene cylinders and act as safety releases when exposed to excessive temperatures. Therefore, these plugs should never be tampered with.
- If the valve outlet becomes clogged with ice, thaw using warm water.
- Always used the special T-wrench or key for opening or closing the cylinder valves. These wrenches should be left in position, ready for immediate use, so that the acetylene can be turned off quickly in case of emergency.
- The acetylene cylinder valve should not be opened more than one and one-half turns which permits an ample flow.
- Tools should not be stored in the recessed top of cylinders.

Proper Storage

To ensure the proper storage of cylinders:

- Cylinders must be secured at all times in such a way as to avoid them being knocked over or damaged.
- Cylinders must be stored in a vertical position, not stored in hallways.
- Cylinders must be segregated based upon the contents.
- 20 feet should be maintained between oxidizers and flammables or firewalls erected at least 5 feet high and have a fire rating of 30 minutes.
- Cylinders must be protected from damage, corrosion, sunlight, and be kept away from heat sources.
- Cylinders should be capped when they are not being used.

UF will ensure that cylinders are stored in well ventilated areas. Inside of building, cylinders will be stored in a well-protected, well ventilated, dry location. Cylinders will not be kept in unventilated enclosures such as lockers and cupboards.

Storage Areas

UF will ensure that areas for full and empty cylinders will be designated and labeled. Cylinders will be stored in definitely assigned places, away from elevators, stairs, and gangways.

Transportation

To ensure the proper transportation of cylinders

- Cylinders must be transported in a vertical secured position using a cylinder basket or cart and must not be rolled.
- Regulators should be removed and cylinders capped before movement.
- Cylinders should not be dropped or permitted to strike violently.
- Protective caps are not to be used to lift cylinders.

Proper Handling

To ensure the proper handling of leaking cylinders:

- Leaking cylinders should be moved to an isolated, well-ventilated area, away from ignition sources.
- Soapy water should be used to detect leaks.
- If the leak is at the junction of the cylinder valve and cylinder, do not try to repair it. Instead, contact the supplier and ask for response instructions.

Empty Cylinders

When cylinders are no longer needed they should be marked as "MT" and dated when empty. Never mix gases in a cylinder and only professionals should refill cylinders. Empty cylinders must be handled as carefully as when full.

Hoses and Connections

To ensure hoses and connections are in good working condition:

- Hoses and connections should be inspected regularly for damage.
- Hoses should be stored in cool areas and protected from damage.