SECTION 4 CHAPTER 12
OXYGEN AND FUEL GAS SUPPLIED EQUIPMENT

Purpose

This chapter describes the safety guidelines for installing, operating, and maintaining oxygen and fuel-gas supplied equipment.

Scope

These regulations apply to all Company facilities.

In this chapter

General Guidelines

Purpose

This section describes general policies for operating and maintaining fuel-gas and oxygen supply equipment, including those that cover:

- authorized personnel
- availability of instructions
- approved mixing devices
- safety regulations for handling acetylene and oxygen

Authorized personnel

Only employees who have been trained and judged competent by the Company may work with the oxygen or fuel gas supply equipment.

Posting safety warnings and instructions

The safety rules and instructions for operating and maintaining the equipment must be posted on the walls of the work area. The safety information must include the required personal protective equipment.

Approved mixing devices

Any devices that mix fuel gases and air or oxygen prior to consumption must be approved for the purpose. Approved devices include:

- torches
- regulators on the oxygen and fuel gas bottles
- pressure reducing valves
- manifolds

Prior to starting operations, check equipment. Set the regulators as follows:

- oxygen between 25-40 psi
- acetylene between 7-15 psi

Handling acetylene and oxygen

Keep oxygen and acetylene separated by at least 20 feet or an approved $^{1}/_{2}$ hour, 5-foot tall firewall.

The following rules apply when installing equipment or using pressure regulators.

- Use the equipment only for the gas it was designed for.
- Do **not** exceed the pressure the equipment was designed to handle.

Do **not** use liquid acetylene.

Check equipment manuals for the correct settings for rosebud equipment.

These pressure requirements do **not** apply to piping acetylene in approved cylinder manifolds. The manufacturer's specifications for that manifold apply.

Be sure work area is well-ventilated.

Selecting and Marking Cylinders

Purpose

This section describes the guidelines for selecting compressed gas cylinders and marking empty cylinders.

Selecting appropriate cylinders

Select compressed gas cylinders that:
- conform to DOT regulations
- have CGA fittings and connections
- have connections conforming to ANSI B57.1 1965

IF the compressed gas cylinder's capacity is over 30 lbs. of water weight, **THEN** it must have either:
- a means of connecting a valve protection cap **OR**
- a collar or recess to protect the valve

Marking cylinders

IF the vendor does not mark chemical names on the cylinders, **THEN**:
- mark the compressed gas cylinders with the chemical or trade name they will contain. Use a permanent stencil, stamp, or label near the shoulder of the cylinder.

Storing Cylinders

Purpose

This section describes the requirements for:

- choosing the storage area
- storing cylinders
- storing fuel-gas and acetylene cylinders
- storing oxygen cylinders
- preventing fires
- moving cylinders

Choosing the storage area

Store cylinders in a location that is:

- well-protected
- dry
- protected from tampering
- in an assigned place where cylinders will not be knocked over or damaged. This must be away from:
  - elevators
  - stairs
  - gangways
  - doorways
  - passages

Do **not** store cylinders in:

- lockers
- unventilated spaces
- paint booths
- welding areas
- areas with potential ignition sources

Storing cylinders

Do **not** store more cylinders than you need for normal operations.

Mark empty cylinders and store them in a separate location.

Store cylinders:

- with a secure strap around them
- upright
- with valves closed
- with the valve protection cap in place, hand-tight

Storing fuel-gas cylinders

Acetylene

Recommended to store acetylene cylinders:

- outside
- with the valve end up and caps hand tight
- properly by securing to prevent overturning

If stored inside:

- keep cylinders with valve end up and caps hand tight
- keep cylinders 20 ft. away from oxygen cylinders, **OR**
- separated by a 5 ft. tall firewall with at least a $^{1}/_{2}$ hour fire resistance rating
- do not store more than 2,000 cu. ft

Store larger amounts:

- outdoors
- in a separate room or compartment
- have a fire resistant barrier with a rating of 1 hour
- in a special building (see below)

Special buildings and rooms

Special buildings and rooms built for fuel gas storage must:

- have no open flames for heating or lighting
- be well ventilated
- have signs warning against smoking, matches, and open lights

Storing oxygen cylinders

Avoiding hazardous combinations

Do **not** store oxygen cylinders near:

- highly combustible material (especially oil and grease)
- acetylene and other fuel gases
- acetylene generator compartment
- anything that will cause or accelerate fire

Separate the stored oxygen cylinders from these materials by:

- at least 20 ft. **OR**
- a non-combustible barrier at least 5 ft. high with at least a $^1/_2$ hour fire resistance rating

Outside generator storage areas

In outside generator storage areas, separate stored oxygen from generators or carbide storage by a partition that is:

- gas-tight
- non-combustible
- without openings
- rated for at least 1 hour of fire resistance

Preventing fire

Do **not** store cylinders near:

- highly combustible materials, especially oil and grease
- radiators and heat sources

Separate the cylinders from these materials by:

- at least 20 feet **OR**
- a 5 foot, $^1/_2$ hour rated firewall

Moving gas cylinders

Always use a dolly or cart to move gas cylinders. Secure the cylinders to the dolly using straps or chains.

Using Regulators

Purpose

This section describes the safety procedures for:

- preparing the valve and regulator for use
- attaching regulators to the cylinders used for welding

Preparing the valve and regulator

Follow these steps to clean the cylinder valves and regulators.

Step	Action
1	Inspect the cylinder valve threads for traces of: • dust • dirt • oil • grease **IF you find…** / **THEN…** dirt or dust, / remove it with a clean cloth oil or grease, / inform your supervisor. Do **not** use the cylinder.
2	Crack (momentarily open and close) the cylinder valve to dislodge any dirt, dust or rust that may be present. Caution: Open the valve only slightly. **IF** the valve is opened too much, **THEN** the cylinder could tip over. Do **not** stand directly in front of the valve when cracking it.
3	Repeat Step 1 with the regulator valve threads.
4	Check the regulator valve for damaged thread. **IF** you find damaged thread, **THEN** have a qualified technician repair the damage.
5	Inspect the union nuts and the connections on the regulator for faulty seals.

Attaching the regulators

Oxygen regulator

Attach the oxygen regulator to the oxygen cylinder valve. Tighten clockwise with a proper wrench until the connection is secure.

Fuel regulator

Attach the fuel regulator to the fuel-gas cylinder valve. Tighten counter clockwise with a wrench until secure.