



UCCS SAFE OPERATING PROCEDURE

41. OXYGEN/ACETYLENE WELDING AND CUTTING

(For assistance, please contact [Environmental Health & Safety](#))

Improper use of OXYGEN/ACETYLENE torches places University, employees and students at increased risk of serious injury.

Storage

- ✓ **Keep cylinder caps in place** when cylinders are not in use or are being transported
- ✓ **Keep cylinders upright** and chained to a FIXED support
- ✓ **Store oxygen cylinders away from flammable gas cylinders** (minimum 20 feet or separated by fire barrier at least 5 feet tall)
- ✓ Cylinders in outside storage must be locked or attended at all times
- ✓ **While moving cylinders always use appropriate cart** and screw on the protective cap to protect the valves.
- ✓ **Do not store overnight with pressure on the regulator**
- ✓ **Remove leaking cylinders from inside storage** immediately and notify the supplier
- ✓ **Do not tamper with or attempt to repair cylinder valves** – Always notify the supplier
- ✓ When a cylinder is empty, close the valve and mark it “EMPTY”.

Prior to Use

- ✓ **Inspect equipment** to ensure good working condition and oil-free.
- ✓ **Blow out cylinder valves** before attaching regulators.
- ✓ Always use the proper pressure regulator for each gas and pressure range.
- ✓ **Never force connections** that do not fit – dispose and replace connectors with faulty seats
- ✓ **Check connections for leaks** using soapy water or its equivalent. NEVER USE A FLAME.
- ✓ **Replace or repair damaged equipment**, including hoses.
- ✓ **Release regulator adjusting screw** BEFORE opening cylinder valves.
- ✓ **Open cylinder valves SLOWLY** and **do not stand directly in front of the regulator**. Do not use acetylene at pressures higher than 15 psi.
- ✓ **Ensure that flashback arrestors are installed** between the regulator and the hose if the torch does not have one built into its handle.
- ✓ **Keep hoses, cables, and other equipment clear** of passageways, stairs, ladders, etc
- ✓ **Purge oxygen and acetylene lines** before lighting the torch.
- ✓ **When lighting torch**, point away from persons and combustibles.
- ✓ **Light torch only with friction lighter** or stationary pilot flame.
- ✓ **Light acetylene before opening oxygen** valve on torch.



Safety During Use

- ✓ **Keep a fully charged Class ABC Fire Extinguisher nearby** with an INDEPENDENT FIRE WATCH¹ responsible for ensuring a fire does not start or spread.
- ✓ **Remove combustibles at least 35 feet** from hot work. If combustibles cannot be relocated 35 feet from hot work, complete a hot work permit.
- ✓ **Take steps to prevent sparks from falling through floor cracks**, etc. Remove or protect combustible material in “falling spark” zones.
- ✓ **Provide adequate ventilation** whenever welding or cutting, particularly around cadmium, zinc, lead, fluorine compounds, or other toxic materials.
- ✓ **Keep flame and hot slag off concrete.** Intense heat may cause flying particles of concrete.
- ✓ **Before cutting or welding on** an “empty” container, be sure it does not contain flammable vapors or any residues that might burn or give off flammable or toxic vapors.
- ✓ **Keep sleeves and collars buttoned** on clothing.
- ✓ **Wear gloves and eye protection** with the appropriate shade²:
 - Soldering 2
 - Torch Brazing 3 or 4
 - Light Cutting, up to 1 inch 3 or 4
 - Medium Cutting, 1 inch to 6 inches 4 or 5
 - Heavy Cutting, 6 inches and over 5 or 6
- ✓ **A FIRE WATCH MUST BE STATIONED IN THE VICINITY OF THE WORK FOR AT LEAST HALF AN HOUR AFTER WELDING OR CUTTING OPERATIONS ARE COMPLETED.**

¹ The fire watch must be properly trained on fire extinguisher use, must know the location of the nearest fire alarm (or be provided with a cell phone or radio for emergency notification), must be provided with the appropriate PPE (including tinted eye protection) and must have no other assigned duties while posted.

² Source: AWS ANSI Z49.1 “Safety in Welding and Cutting.”

Last reviewed by Cynthia Norton on September 22, 2021