Acetylene

Principal Investigator: _____ ***Date Approved:*** _____

This document covers basic chemical safety information for acetylene. The use of acetylene is subject to pre-approval by the Principal Investigator (PI) and/or Supervisor. PI and/or Supervisor may use the sheet attached to this SOP to document any lab specific training for Acetylene. DO NOT USE ACETYLENE UNTIL YOU HAVE OBTAINED THE NECESSARY PRE-APPROVAL.

Acetylene

Acetylene is a flammable gas with the formula C2H2. Acetylene is unstable and can undergo explosive decomposition at high pressures. In order to prevent this, acetylene is typically sold as a dissolved gas. Modern cylinders are typically filled with a porous material and a solvent such as acetone, but older cylinders may be filled with carcinogenic *N,N*-dimethylformamide and/or asbestos.

Personal Protective Equipment & Personnel Monitoring		
 **Lab Coat**	 **Gloves**	 **Eye Protection**
Flame resistant lab coat.	Consult with your PI or supervisor to determine the proper glove for your operation (e.g., welding vs chemical synthesis).	ANSI Z87.1-compliant safety glasses or safety goggles.

Labeling & Storage

Store acetylene away from combustible materials, oxidizing substances, and ignition sources. OSHA regulation 1910.253(b)(4)(iii) requires that combustible cylinders in storage be separated from oxidizing gas cylinders by a minimum distance of 20 feet or by a noncombustible barrier at least five feet high and with a fire resistance rating of least one-half hour.

Ensure compressed gas cylinders are in an upright position to prevent tipping and rolling. This can be achieved by using a strap or chain 1/3 from the top of the cylinder. Alternatively, use a cylindrical casing to secure the cylinder to the floor next to your experimental setup. Refer to American Society of Mechanical Engineers code for Process Piping, ASME B31.3, to select compliant piping.

WHAT NOT TO DO: Never store cylinders on transportation carts. Never store cylinders with regulators still attached, instead remove the regulator and replace with the safety cap. Never use a cylinder without a regulator. Never try to stop a leak between a cylinder and regulator by tightening the union nut unless the cylinder valve has been closed first. Never strike an electric arc on the cylinder.

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Cautions & Considerations

Acetylene may be stored as a dissolved gas at pressures up to 200 psi but should never be used or stored in its pure form at pressures above 15 psig.

Acetylene and oxygen cylinders may be used together on a cart for welding (i.e., an oxy-acetylene torch), but must be separated for prolonged storage.

Engineering Controls, Equipment & Materials

Fume Hood

If your protocol does not permit the handling of these materials in a fume hood, contact EHS to determine whether alternative engineering controls are warranted

Ordering & Disposal

As of *July 1st 2022, Receiving & Stores will no longer coordinate the cylinder gas program for campus departments.* Beginning on July 1, departments will enter requisitions for cylinder gases into 49er Mart directly to the mandatory State Term Contract #1214A vendors, Airgas or ARC3 Gases, and deliveries/pickups will be made by the vendors directly to the department. Any order or service issues should be communicated directly to the vendor supplying the cylinder gas, or to the Purchasing Office who will assist the department with any issues encountered.

First Aid & Emergencies

Releases

Notify others in the area of the spill, including your supervisor. Evacuate the location where the spill occurred. Call 911 from any campus phone (or 704-687-2200 from a cell phone). Report any exposure to EHS at 704-687-1111. Remain on-site (at a safe distance) to provide detailed information to first responders.

Skin and Eye Contact

Remove contaminated clothing and accessories, flush affected area with water. If symptoms persist, get medical attention.

Inhalation

Move person into fresh air. If symptoms persist, get medical attention.

Name	Signature	Date