Oxidizing Gases

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

This document covers basic chemical safety information for oxidizing gases. The use of any oxidizing gas 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 Oxidizing Gases. DO NOT USE ANY OXIDIZING GAS UNTIL YOU HAVE OBTAINED THE NECESSARY PRE-APPROVAL.

Oxidizing Gases

Oxidizing gases are gases that can contribute to combustion by acting as an oxygen source or those containing oxygen at higher than atmospheric concentrations (i.e., above 23-25 percent). These gases can react rapidly and violently with combustible materials or flammable vapors.

Examples of oxidizing gases include chlorine, nitrous oxide, oxygen, and compressed air.

Personal Protective Equipment & Personnel Monitoring		
 **Lab Coat**	 **Gloves**	 **Eye Protection**
Flame resistant lab coat.	For proper glove selection, review the chemical safety data sheet and consult glove manufacturer recommendations with your PI or supervisor.	ANSI Z87.1-compliant safety glasses or safety goggles.

Labeling & Storage

Store oxidizing gases away from combustible materials, flammable gases, flammable and combustible liquids, finely-divided metals, and other easily oxidized substances such as hydrides, sulfur and sulfur compounds, silicon, and ammonia and amine compounds. 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. Always use the correct pressure regulator. After attaching the regulator, and before the cylinder is opened, check the adjusting screw of the regulator to see

that it is released. Never permit the gas to enter the regulator suddenly. 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.

Engineering Controls, Equipment & Materials

Fume Hood

If your protocol does not permit the handing of these materials in a fume hood, contact EHS to determine whether additional respiratory protection is 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

Skin or Eye Contact

Without putting yourself at risk, move person into fresh air. Remove contaminated clothing and accessories; flush affected area with water for at least 15 minutes. Get medical attention immediately.

Inhalation

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

Name	Signature	Date