

**STANDARD OPERATING PROCEDURE**

**Oxygen**

According to the Safety Data Sheet (SDS) for **Oxygen** special precautions must be taken when working with this chemical. Below are some of the characteristics of **Oxygen** followed by some recommendations in handling the chemical and finally any paperwork needed in order to use the chemical in the laboratory. This Standard Operating Procedure will be followed along with the requirements of the Chemical Hygiene Plan.

GHS Classifications: **Signal Word: Danger**

 **Pictograms: Oxidizing Hazard and Compressed Gas Hazard**

Brief description of proposed chemical work: **Oxygen compressed gases have the potential for creating hazardous working environments. They are often used under high pressure (2000 psi/138 bar and higher) and weighing up to 150 pounds they can be extremely dangerous if proper handling procedures are not followed.**

**Section 1: Brief Safety Overview:**

● The Principal Investigator is responsible for training employees using the material on site. The training should include a discussion of the known and potential hazards; an explanation of the relevant policies, techniques and procedures including the proper use of personal protective equipment, emergency/spill procedures and containment equipment (engineering controls).

● Limit access to authorized users.

● Minimize the possibility of inadvertent ingestion, inhalation and direct skin or eye contact with the substance.

● Chemical has been entered in the Chemical Inventory (EHS Assistant)

● Require annual training.

**Section 2:Research Laboratory Procedures**

* **Handling Instructions**

Example: (Preparation of the stock solutions): **Preparation can depend upon the laboratory practices. Proper laboratory procedure must be followed and employees must be trained to handle the material. Do not store more than 1500 cubic feet in a non sprinklered area or 3000 cubic feet in a sprinklered area of Oxygen at any given time.**

**Storage:**

**Oxidizers should not be stored above eye level. Containers should be stored in a cool and dry location. Containers should be isolated from flammable chemicals and protected from ignition sources and combustible material. Containers must be closed and labeled. Hoses and valves should be checked for leaks. Oxygen should never be used to blow off clothing or bench tops as it will be absorbed and remain in materials.**

**Compressed gases which are flammable and oxidizing must be separated by at least 20 feet, or a non-combustible partition extending no less than 18 inches above and to the sides of the stored materials. Compressed gases must be capped when not in use. Compressed gases must be secured above the midpoint to a wall, holding cage, heavy work bench or lab bench or a non-tip base. Compressed gases should be stored in a well-ventilated area, in the upright position, and not in exit ways or egress routes. When transporting cylinders they must be strapped and a wheeled cart that cannot be tipped over must be used.**

***Location – Engineering controls***

[ ]  Ventilation (example: Fume Hood, Canopy Hoods, etc.):

[x]  Designated area (specify): *Area where cylinder can be secured properly...*

***PPE required:***

[x]  Skin/Body Protection (example: Lab Coat) **Laboratory Coat**

[ ]  Eye protection

[ ]  Face shield

[ ]  Respirator (example: N95):

[x]  Hand protection (example: Nitrile gloves): **Latex or Nitrile Gloves**

**Cleanup/Decontamination procedures for work area after use**:

**N/A**

* **Disposal Procedures**

**All gas cylinders should be returned to OSU Stores.**

**Section 3: Occupational Exposures**

* **Routes of Exposure**

Skin – **Harmful in case of eye and skin contact**.

Inhalation – **May be** **Hazardous in case of inhalation.**

Ingestion- **N/A**

Injection- **N/A**

* **Toxicological Effects**

Acute Effects/ Precautionary Safety Measures: **Can cause nasal stuffiness, cough, sore throat, chest pain and breathing difficulty.**

Chronic Effects/ Precautionary Safety Measures: **Can cause lung damage, dizziness, poor coordination, tingling sensation, visual and hearing disturbances, muscular twitching, unconsciousness and convulsions.**

* **Occupational Exposure Response and First Aid Measures**

Skin: **Wash skin with disinfectant soap and cover the contaminated skin with anti-bacterial cream. Seek immediate medical treatment.**

Eyes: **Flush eyes for at least 15 minutes while holding eyelids open. Remove contacts if they do not flush out. Seek immediate medical treatment.**

Inhalation: **Remove victim from the exposure area and take to fresh air immediately. Seek medical immediate treatment. Do not perform mouth-to-mouth resuscitation.**

Ingestion: **Do not induce vomiting. Seek medical immediate treatment.**

* **Emergency Procedure for Chemical Spills and Accidental Releases**

**In the event of a leak or explosion of the cylinder:**

**Make sure that the fume hood is working properly for appropriate ventilation. Turn off all ignition sources. Evacuate all personnel from the space and shut the door. Post the door with the chemical spill sign from the spill kit. Call Environmental Health and Safety Emergency Response Team.**

This Standard Operating Procedure must be placed in the Chemical Hygiene Plan and the SDS must be accessible. Also, all laboratory personnel must be familiar with safe handling practices (i.e., training with documentation of training) when working with these chemicals. This must be incorporated into the comprehensive chemical hygiene plan of the laboratory. If you have any questions regarding a comprehensive mandatory laboratory chemical hygiene plan please contact your Representative at Environmental Health and Safety (292-1284).

For any other questions or concerns, please contact:

PI contact information

Name:

Primary Contact Number:

Emergency Contact Number:

P.I. Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_