**THIS IS A TEMPLATE/BASIC STARTING POINT. CUSTOMIZE THIS TEMPLATE WITH INFORMATION PERTINENT TO YOUR SETUP AND THE REACTION YOU WILL BE RUNNING/YOUR GROUP’S PERSONAL USE.**

STANDARD OPERATING PROCEDURE

|  |  |
| --- | --- |
| **Procedure Title:** | Setting up and Using Compressed Oxygen Cylinder |
|  |  |
| **Dept:** |  |  | **Bldg/Rm:** |  |  | **Supervisor:** |  |

**Procedure Overview:**

Oxygen is a strong oxidizer. Compressed oxygen cylinders require special procedures when changing and leak-testing.

Always read and understand the safety data sheet (SDS) for a chemical before use or storage.

**Hazard Control Measures:**

(Lab coat, eye and hand protection, and fully enclosed shoes must be selected as required by Section D of the ISU Laboratory Safety Manual.)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| [ ]  | Latex gloves | [ ]  | Insulated gloves | [ ]  | Face shield | [ ]  | Respirator |
| [x]  | Nitrile gloves | [x]  | Safety glasses | [x]  | Lab coat | [ ]  | Fume hood |
| [ ]  | Neoprene gloves | [ ]  | Vented goggles | [ ]  | Apron | [ ]  | Biosafety cabinet |
| [ ]  | Vinyl gloves | [ ]  | Splash goggles | [ ]  | Dust mask | [ ]  | Glove box |
| [x]  | Fully enclosed shoes | [ ]  | Flame resistant lab coat |

**Procedure:**

1. Do not ride in an elevator with a compressed gas cylinder/dewar.
2. In storage, ensure at least 20 feet of segregation of oxidizing cylinders from flammable materials and heat sources.
3. Secure compressed gas tank or dewar onto a sturdy surface, with the belt/chain at ~2/3 the height of the cylinder.
4. Place a warning sign on/near the cylinder that says “Oxygen” and “Use no grease/oil”
5. Regulators should be marked as “Oxygen only”
6. Ensure that the correct cylinder regulator is used – do not use grease or Teflon tape on any of the cylinder connections. They are designed to fit without it, and tape may contribute to leaks or damage to the threads.
7. When leak-testing oxygen cylinder fittings, do not use soap or oil-based substances – these leave residue that may react with oxygen to start a fire). Ensure that the detector solution is compatible with oxygen cylinders.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Written By:** |  |  | **Date:** |  |
|  |  |  |  |  |
| **Approved By:** |  |  | **Date:** |  |

 (PI or Lab Supervisor)

**HAZARD ASSESSMENT**

Use the hierarchy of controls to document the hazards and the

corresponding control measure(s) involved in each step of the procedure.

Consider *elimination or substitution* of hazards, if possible.

*Engineering Control(s):* items used to isolate the hazard from the user (i.e. fume hood, biosafety cabinet).

*Administrative Control(s):* policies/programs to limit the exposure to the hazard (i.e. authorizations, designated areas, time restrictions, training).

*Required PPE*: indicate PPE including specific material requirements if applicable (i.e. flame resistant lab coat, type of respirator or cartridge).

|  |  |  |  |
| --- | --- | --- | --- |
| **Hazard** | **Engineering Control(s)** | **Administrative Control(s)** | **Required PPE**  |
| Strong oxidizer – will contribute to fire. Reactive with organic materials – may be explosive or cause a fire. | Store segregated from flammables and heat sources, as well as other incompatible materials (see SDS).  | Ensure no sparks or open flames are present.  | fully enclosed shoes, safety glasses, gloves.  |
|  Toxicity – breathing pure oxygen under pressure can result in lung damage and damage to the central nervous system – dizziness, loss of coordination, tingling, twitching, loss of consciousness, and convulsions. |  Use in a fume hood or ventilated space.  | Training on proper set-up and leak testing | fully enclosed shoes, safety glasses, gloves. |
|  Compressed gas cylinder – weight and pressure | Chain or clamp to a survey surface.  | Cap cylinders when not in use | fully enclosed shoes, safety glasses, gloves.  |
| **INSERT SPECIFIC HAZARDS/CONTROLS HERE** |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Training Record**

Use the following table to record the training associated with this Standard Operating Procedure.

|  |  |  |
| --- | --- | --- |
| **Print Name** | **Signature** | **Date** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |