



TEMPLE UNIVERSITY  
A Commonwealth University  
Environmental Health & Radiation Safety (EHRS)

**STANDARD OPERATING PROCEDURE (SOP): Particularly Hazardous Substance (PHS)**

**TYPE OF SOP:**

Process

Hazardous Chemical

Hazardous Class

**LABORATORY/USER INFORMATION**

Principal Investigator (PI): \_\_\_\_\_ Phone # \_\_\_\_\_

Department: \_\_\_\_\_

Building #: \_\_\_\_\_ Office Room#: \_\_\_\_\_

Creation Date: \_\_\_\_\_ Revision Date: \_\_\_\_\_

Location/Area (s) Covered by this SOP.

Building (s)

Lab (s) #

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Note: The Occupational Safety and Health Administration (OSHA) require a written SOP for any work involving a Particularly Hazardous Substance (PHS). This SOP must be customized for each lab/area using a PHS. Insert a copy (either hard or electronic) into your chemical hygiene plan.

Note: This SOP must be reviewed on an annual basis or whenever changes are made to the use and/or location.

### USE & PROCEDURE

Use this section to describe the process or circumstances of use, including the chemical name (s) (IUPAC), common name, CAS #, concentration and quantity. Attach experimental protocol or written lab specific procedures.

### GENERAL INFORMATION

- All work involving a PHS must be conducted in a certified operating chemical fume hood, negative pressure glove box, Class II ducted Biological Safety Cabinet (BSC) or other EHRS approved ventilation system.
- Individuals planning a family or pregnant can contact EHRS for exposure determination, consultation, and recommendations.
- All purchases of a PHS must have approval from the Principal Investigator (PI) before ordering.
- All workers must meet the training requirements listed in the training section of this SOP prior to using any PHS.
- Any deviation from this SOP requires approval from the PI.

### POTENTIAL HAZARDS

- **Reproductive Toxins**-chemicals that affect the reproductive capabilities including causing chromosomal damage (mutations) and adverse effects on fetal development (teratogenesis).
- **Acute Toxins**-chemicals that pose a high level of immediate health risk to individuals.
- **Select Carcinogens**- a category of chemicals where the available evidence strongly indicates that the substances cause human carcinogenicity.
- Consult your Safety Data Sheet (SDS) for additional information.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

The level of skin and eye protection should be selected based on the potential for splashing and other forms of exposure. A site specific risk assessment and review of SDS must be conducted by the PI to determine if any additional PPE is required. The specific type of PPE determined is required to be specified in the section below.

- Minimum potential for splash & exposure:
  - Single pair of chemical resistant gloves (Change gloves frequently and immediately replace with new gloves when gloves become contaminated.)
  - Protective clothing shall be worn to prevent any possibility of skin contact with urethane.

- Lab coats
  - Closed toed shoes
  - Long pants
  - Long sleeved clothing
- Safety glasses, goggles or face shields shall be worn during operations in which a PHS might contact the eyes (e.g., through vapors or splashes of solution).
  - Safety glasses with side shields or chemical splash goggles-Must meet ANSI/OSHA specifications.
- When using or transferring large quantities or when using in systems under pressure.
  - Chemical splash goggles-Must meet ANSI/OSHA specifications.
  - Double pair of chemical resistant gloves (Immediately replace with new gloves when gloves become contaminated.)
  - Chemical resistant apron/smock/lab coat
  - Protective Clothing
    - Impervious sleeves
    - Closed-toed shoes
- Respiratory protection- Is not required when proper engineering controls are implemented. Respirator usage may require training, fit testing and a medical evaluation. Contact EHRS (2-252) for information on the Respiratory Protection Program prior to wearing respirator.

**NOTE: A certified chemical fume hood or approved ventilation system must be used in any task that has the potential for airborne inhalation exposure.**

**INSERT ADDITIONAL PPE AS NECESSARY:**

### **ENGINEERING CONTROLS**

- All work involving a PHS must be conducted in a certified operating chemical fume hood, negative pressure glove box, Class II ducted Biological Safety Cabinet (BSC) or other approved ventilation system.
- Use a high efficiency particulate air (HEPA) filters, carbon filters, or scrubber systems with containment devices to protect effluent and vacuum lines, pumps, and the environment whenever feasible.
- Use ventilated containment to weigh out solid chemicals.
- Work with a PHS should be avoided and not permitted if there is a reasonable likelihood of workers exceeding regulatory exposure limits.

- Safety engineered syringes must be used for any PHS injection
- Safety Shower and Emergency eyewash should be easily accessible within the immediate work environment in areas where a PHS is used.
- Laboratory rooms shall have general room ventilation and must be at negative pressure with respect to the corridors and external environment.
- Laboratory/Room doors must be kept closed at all times.

**INSERT ADDITIONAL ENGINEERING CONTROL AS NECESSARY:**

**SPECIAL HANDLING PROCEDURES & STORAGE REQUIREMENTS**

- A plastic backed absorbent pad shall be placed under the work area during use of a PHS. The pad should be changed at the end of each process or whenever there is a spill.
- Keep containers of PHS closed at all times.
- Wash hands, forearms, face and neck thoroughly with soap and water after removing your gloves and any other PPE.
- Use the smallest practical quantities for the experiment being performed.
- All areas which use PHS must have a chemical spill kit present.
- Label each container and storage areas with appropriate warnings; Example-Cancer Hazard
- Store flammable PHS within a flammable storage cabinet and designated a bottom shelf or secondary container.
- All PHS must be stored in a secure location.
- The PI should consult Occupational Health to determine if medical surveillance is required.

**INSERT ADDITIONAL HANDLING & STORAGE REQUIREMENTS AS NECESSARY:**

**SECURITY REQUIREMENTS**

**Use this section to describe what security measure(s) you will utilize for the receipt, storage and use of the PHS**

**TRAINING REQUIREMENTS**

- All personnel are required to complete the EHRS chemical safety training prior to working with a PHS.
- The Principal Investigator (PI) must provide lab specific training to all laboratory workers specific to the hazards (physical and health) involved in working with the substance, sources of exposure, risk assessment, personal protective equipment, engineering controls, waste disposal, work area decontamination and emergency procedures. In addition, the PI must review and provide a copy of the SDS and this SOP to any lab worker prior to working with any of the materials covered by this SOP.
- The PI must ensure that all lab personnel have attended the required training and/or refresher training.

**DESIGNATED AREAS**

- Designated area(s) for use and storage of PHS must be established where limited access, special procedures, knowledge and work skills are required. A designated area can be the entire lab, a specific lab, workbench or hood.
- PHS may only be used and stored in designated areas.
- All chemicals must be in secondary containment with proper signage.
- Designated areas must be clearly marked with signs that identify the PHS, hazards and includes the appropriate warning: Example:

WARNING  
FORMALDEHYDE WORK AREA  
CANCER HAZARD-REGULATED CARCINOGEN

- All PPE should be removed and properly disposed prior to leaving a designated area.
- Access to the designated areas shall be limited to trained and knowledgeable personnel.

**INSERT LOCATION OF DESIGNATED AREA(S):**

**SPILL PROCEDURES**

- Spills-General Instructions
  - Notify others of the spill and keep spill area confined.
  - Review SDS
  - Don appropriate PPE (double nitrile gloves, splash goggles, face shield and lab coat)
  - Extinguish all ignition sources
  - Collect all spilled material and clean up material and place into an appropriate waste container or double lined bag. Label the bag/container with a Hazardous waste label.
  - Call EHRS at 215-707-2520 and report the spill.
- Minor Spills-Liquid
  - Neutralize and/or absorb freestanding liquid with spill kit absorbent, inert material (vermiculite, sand, etc.) or absorbent pads.
  - Place clean up items in waste container or double lined bag.
  - Wait 10 minutes and wash spill area with soap and water
- Minor Spills-Solid
  - Wet paper towels or absorbent pads and gently place on top of the powder to avoid creation of dust.
  - Carefully wipe up the area and place clean up material into an appropriate waste container or double lined bag. Label the bag/container with contents.
  - Wait 10 minutes and wash spill area with soap and water
- Major Spills-Liquid & Solid
  - Evacuate room or immediate area
  - Call EHRS at 215-707-2520
  - Post signs at entrances/exits notifying others of spill.
  - Provide assistance and information to spill responders.

**INSERT LOCATION OF PHS SPILL KIT:**

**FIRST AID/ EXPOSURES**

- General Instructions
  - Obtain SDS
  - Contact Campus Police at 1-1234 if immediate medical assistance is necessary.
  - Notify Supervisor
  - Notify EHRS at 215-707-2520
- Seek medical assistance after any accidental exposure.

**INSERT LOCATION OF NEAREST STUDENT HEALTH, EMPLOYEE HEALTH AND HOSPITAL**

- Inhalation
  - Remove exposed individual to fresh air
  - Seek medical attention
- Skin/Body Contact
  - Remove clothing and rinse body in emergency shower for at least 15 minutes
  - Seek medical attention
- Eye Contact
  - Immediately rinse eyeball and inner surface of eyelid for at least 15 minutes
  - Seek medical attention
- Ingestion
  - Seek immediate medical attention

**DECONTAMINATION PROCEDURES**

- All work areas, lab benches, equipment (glove boxes, hoods) and glassware where a PHS is prepared and/or used should be cleaned immediately following each task completion.
- Specific decontamination methods and procedures for personnel, equipment and area must be described in the section below.
- Decontaminate all equipment before removing from the designated area.
- Decontamination shall be carried out in a glove box or fume hood.
- Contaminated PPE must not be removed from the designated area until properly decontaminated.
- After working with a PHS, immediately remove gloves, wash hands and arms with soap and water.

**INSERT ADDITIONAL DECOMTAMINATION PROCEDURES**

**WASTE DISPOSAL**

- All PHS waste must be disposed of through EHRS. The EHRS Waste Management section can be reviewed for information on how to properly identify and dispose of Hazardous Waste.
- All PHS waste including gloves, vials, and solution containers should be placed in a labeled 5 gallon white pail. The waste container must be located within the designated area and should be closed at all times except when actively adding waste. All sharps must be placed in a labeled and an EHRS approved sharps container.
- Label all waste containers with an EHRS approved Hazardous Waste Label- Specify the chemical(s) and type (s) of hazard on the label (example-Carcinogen, Toxin, reproductive hazard, etc...)
- Carcasses suspected to be contaminated with a PHS must be disposed of in accordance to Institutional Animal Use and Care Committee requirements.
- Some PHS are categorized as an extremely hazardous waste. You may not accumulate more than a quart of extremely hazardous waste.

**INSERT ADDITONAL WASTE DISPOSAL PROCEDURES**

**PRINCIPAL INVESTIGATOR CERTIFCATION**

I certify that I have read and understand the requirements of this Standard Operating Procedure (SOP) and that I agree to fully adhere to its requirements.

Principal Investigator (PI): \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_