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1. STANDARD OPERATING PROCEDURE

Use this form to document the Health & Safety information associated with the procedure.

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| **Procedure Title:** | | Particularly Hazardous Substances (PHS) | | | | | | |
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| **Dept:** |  | |  | **Bldg/Rm:** |  |  | **Supervisor:** |  |

**Purpose:**

* This document describes the baseline requirements necessary for safe storage, use, handling and disposal of chemicals that have been designated as “particularly hazardous” by Occupational Safety and Health Administration (OSHA), International Agency for Research on Cancer (IARC), and the National Toxicology Program (NTP). This includes carcinogens, reproductive toxins, and teratogens. <http://www.ehs.iastate.edu/sites/default/files/uploads/publications/factsheets/CarcReproTerat.pdf>
* Careful handling and stringent controls of these chemicals are essential in order to protect workers and the environment from contamination.
* Additional requirements may apply, depending on the specific chemical. Examples include carcinogens that are also highly flammable and/or reactive.

**Health and safety information for materials used:** (briefly describe the hazards associated with the materials and/or equipment **OR** document your hazard assessment in Section II)

* **Reproductive** Toxins are chemicals that affect the reproductive capabilities including causing chromosomal damage (mutations) and adverse effects on fetal development (teratogenesis).
* **Carcinogens** are a category of chemicals where the available evidence strongly indicates that the substances cause human carcinogenicity.

**Hazard Control Measures:**

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

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|  | **Latex gloves** |  | **Insulated gloves** |  | **Face Shield** |  | **Respirator** |
|  | **Nitrile gloves** |  | **Safety glasses** |  | **Lab Coat** |  | **Fume hood** |
|  | **Neoprene gloves** |  | **Vented goggles** |  | **Apron** |  | **Biosafety cabinet** |
|  | **Vinyl gloves** |  | **Splash goggles** |  | **Dust mask** |  | **Glove box** |
|  | **Closed Toe/Closed Heel Shoes** | | |  | **Flame Resistant Lab coat** | | |

**Special Handling and Storage Requirements**

Areas in the laboratory where PHS are used must be identified as a “Designated Area” for use. PHS may only be used and stored in designated areas. Additionally, be sure to:

* Label this area using appropriate signage – e.g., CAUTION, CANCER HAZARD -REGULATED CARCINOGEN.
* Label waste containers containing PHS with warning labels.
* Label storage space with warning labels.
* Store non-flammable PHS within secondary containment.
* Store flammable PHS within flammable storage cabinet and designate a bottom shelf or secondary container

**Waste Disposal Procedures:**

* Some PHS are categorized as an extremely hazardous waste. You may not accumulate more than a quart of extremely hazardous waste. Please contact the Environmental Programs at EH&S (515-294-5359) to see if the substances you are working with are categorized in this manner.
* If it is not an extremely hazardous waste, handle & dispose of as hazardous waste through the EH&S hazardous waste pick-up. <http://www.ehs.iastate.edu/waste/wasteremoval>
* Always use secondary containment for hazardous waste

Handle and store chemical waste following the guidelines above while accumulating wastes and awaiting chemical waste pickup. Waste must be disposed of following the Waste and Recycling Guidelines.

<http://www.ehs.iastate.edu/sites/default/files/uploads/publications/manuals/warg.pdf>

**First Aid Procedures:**

Consult the SDS of the **specific** chemical.

**Chemical Splash Into Eyes – Immediately rinse eyeball and inner surface of eyelid with water for 15 minutes by forcibly holding the eye open. Seek medical attention. Notify supervisor and EH&S immediately.**

**Chemical Spill on Body or Clothes – Remove clothing and rinse body thoroughly in emergency shower for at least 15 minutes. Seek medical attention. Notify supervisor and EH&S immediately.**

**Life Threatening Emergency, After Hours, Weekends And Holidays – Dial 911 or go to the nearest Occupational Health Center or emergency room if it is after hours. *Note: All serious injuries must be reported to EH&S within 8 hours.***

**Non-Life Threatening Emergency – Go to the nearest Occupational Health Center or emergency room if it is after hours. *Note: All serious injuries must be reported to EH&S within 8 hours*.**

**Needle stick/puncture exposure (as applicable to chemical handling procedure)– Wash the affected area with antiseptic soap and warm water for 15 minutes. For mucous membrane exposure, flush the affected area for 15 minutes using an eyewash station. Page the needle stick nurse and then enter your extension or go the nearest Occupational Health Center or emergency room if it is after hours. *Note: All needle stick/puncture exposures must be reported to EH&S within 8 hours.***

**All accidents and injuries occurring at work or in the course of employment must be reported to the employee's supervisor as soon as possible (even if no medical attention is required).**

<http://www.ehs.iastate.edu/occupational/accidents-injuries>

**Spill/Release Containment, Decontamination, and Clean Up Procedures:**

**Spill** – Help contaminated or injured persons. Evacuate the spill area. Avoid breathing vapors. Eliminate sources of ignition if the chemical is flammable. If possible, confine the spill to a small area using a spill kit or absorbent material. Keep others from entering contaminated area (e.g., use signs, barriers, etc.).

**Small (<1 L)** – If you have training, you may assist in the clean-up effort. Use appropriate personal protective equipment and clean-up material for chemical spilled. Double bag spill waste in clear plastic bags, label and submit for chemical waste pick-up.

**Large (>1 L)** – Dial **911** and EH&S for assistance.

Call EH&S 4-5359 immediately for pick-up of spill clean-up materials.

Large spills of volatile hazardous materials such as ether must be referred to EH&S 515-294-5359.

**Using Substances Requiring Special Procedures?** No  Yes

(If Yes; identify authorized personnel, designate a use area and specify specialized safety precautions here. Refer to Section B in the ISU Laboratory Safety Manual for details.)

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

(PI or Lab Supervisor)

1. **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).

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| **Hazard** | **Engineering Control(s)** | **Administrative Control(s)** | **Required PPE** |
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1. **Training Record**

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

* Prior to conducting any work with PHSs, designated personnel must provide training to his/her laboratory personnel specific to the hazards involved in working with this substance, work area decontamination, and emergency procedures.
* The Principal Investigator must provide his/her laboratory personnel with a copy of this SOP and a copy of the PHS SDS provided by the manufacturer.
* The Principal Investigator must ensure that his/her laboratory personnel have attended appropriate laboratory safety training or refresher training.

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| **Print Name** | **Signature** | **Date** |
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**Note: Attach to or file with written materials and methods**