

HIGH HAZARD OPERATING PROCEDURE (HHOP) FORM

Procedure title			
Author			
Date of creation/ revision	Date created:	Date last revised:	
Principal Investigator (PI)			
Phone#	PI phone #		
Location	PI Office Building and room number#		
1.	HIGH HAZARD OPERATING PROCEDURES IS FOR:		
<input type="checkbox"/> Use of specific Highly Hazardous Chemical (HHC) <input type="checkbox"/> Other (describe):			
2.	PROCESS OR EXPERIMENT DESCRIPTION:		
<i>Briefly summarize the process or experiment, how long each experiment or procedure runs, how frequently it will be conducted.</i>			
3.	HAZARD AND RISK ASSESSMENT		
<i>Identify the highly hazardous chemical involved in the procedure and any additional potential hazards involving equipment or other physical hazards. Attach safety data sheets (See section 13).</i>			
Chemical Name:		CAS #.:	
Synonym:			
PRIMARY HAZARD CLASSIFICATION: DANGER			
Particularly Hazardous Substance (PHS) <input type="checkbox"/> Select Human Carcinogen <input type="checkbox"/> Reproductive Toxin <input type="checkbox"/> Mutagen <input type="checkbox"/> Teratogen <input type="checkbox"/> Acutely Toxics (GHS#: H300, H320, H330) <input type="checkbox"/> Explosives (GHS#: H200, H201, H204, H205)		<input type="checkbox"/> Flammable Gases (GHS#: H220, H221) <input type="checkbox"/> Self-Reactive Substances (GHS#: H240) <input type="checkbox"/> Pyrophoric Liquid and Solids (GHS#: H250) <input type="checkbox"/> Self-heating substances and mixtures (GHS#: H251) <input type="checkbox"/> Water Reactive Chemicals (GHS#: H261) <input type="checkbox"/> Other (Specify):	
Physical State:		Concentration:	
Maximum quantity kept on hand:		Estimated rate of use (e.g., grams/month):	

Reactivity and Incompatibility:	
SIGNIFICANT ROUTES OF EXPOSURE(S) (Check all that apply)	
<input type="checkbox"/> Inhalation <input type="checkbox"/> Skin contact <input type="checkbox"/> Percutaneous injection <input type="checkbox"/> Eye contact <input type="checkbox"/> Ingestion	
OCCUPATIONAL EXPOSURE LIMITS (Check all that apply)	
<input type="checkbox"/> OSHA-PEL: <input type="checkbox"/> ACGIH-TLV: <input type="checkbox"/> NIOSH:REL <input type="checkbox"/> IDLH:	
<input type="checkbox"/> Other Potential Hazards (describe):	
4.	ADDITIONAL MATERIALS TO BE REVIEWED BEFORE USING THIS HOP <i>Identify any additional material that should be reviewed prior to proceeding.</i>
DOCUMENT NAME:	LOCATION OF DOCUMENT:
✓ Safety Data Sheets (SDS)	https://cems.unh.edu/temple/CEMS/SearchSDS (CEMS account not required) <input type="checkbox"/> Other(Specify):
✓ EHRS SOPs & Guidelines	https://www.temple.edu/ehrs/safety/chemical-safety/SOPChemicalSafety.asp
<input type="checkbox"/> Laboratory/Experimental Protocol (specify):	
<input type="checkbox"/> Other:	
<input type="checkbox"/> Other:	
5.	EXPOSURE CONTROLS <i>Identify any required engineering, ventilation and PPE needed to safety perform this procedure.</i>
5.1.	Engineering / ventilation controls Examples: fume hood use, gas sensors, equipment interlocks ✓ Personnel must work under/in the following equipment to minimize personal exposure: <input type="checkbox"/> Chemical Fume Hood <input type="checkbox"/> Balance Enclosure <input type="checkbox"/> Glove box or AtmosBag: Identify gas environment: <input type="checkbox"/> Other (list):
5.2.	Personal protective equipment (PPE) Examples: safety glasses, nitrile gloves, cryogen gloves, lab coat ✓ Lab coats, long pants, long skirt or equivalent leg covering (no shorts); lab appropriate footwear. ✓ Safety Glasses ✓ Chemical Resistant Gloves (Specify type):

	<p>Identify additional PPE requirements for work with HHC:</p> <p>Eyes/Face: <input type="checkbox"/> Safety Goggles <input type="checkbox"/> Face Shield <input type="checkbox"/> Blast Shield</p> <p>Hand: <input type="checkbox"/> Other Gloves: (Specify type):</p> <p>Body: <input type="checkbox"/> Fire-resistant lab coat (e.g., Nomex)</p> <p>MISC: <input type="checkbox"/> Respirator (Specify type):</p> <p><input type="checkbox"/> Others (list):</p>																
6.	<p>SAFETY EQUIPMENT</p> <p><i>Specify the location of all safety equipment or supplies needed to safely perform this HHOP.</i></p>																
	<table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 30%;">Item</th> <th>Location</th> </tr> </thead> <tbody> <tr> <td>Eyewash / safety shower</td> <td></td> </tr> <tr> <td>First aid kit</td> <td></td> </tr> <tr> <td>Chemical spill kit</td> <td></td> </tr> <tr> <td>Fire extinguisher</td> <td></td> </tr> <tr> <td>Fire alarm manual pull station</td> <td></td> </tr> <tr> <td>Telephone</td> <td></td> </tr> <tr> <td>Other</td> <td></td> </tr> </tbody> </table>	Item	Location	Eyewash / safety shower		First aid kit		Chemical spill kit		Fire extinguisher		Fire alarm manual pull station		Telephone		Other	
Item	Location																
Eyewash / safety shower																	
First aid kit																	
Chemical spill kit																	
Fire extinguisher																	
Fire alarm manual pull station																	
Telephone																	
Other																	
7.	<p>STEP-BY-STEP METHODOLOGY</p> <p><i>Provide a sequential, detailed description of procedure or experiment and when special safety equipment and safety precautions are to be utilized. Include temperature, pressure, and other conditions required in the experiment. Include schematics, diagrams and/or photos for complex setups. May be attached to HHOP.</i></p>																
	<p>Step 1</p> <p>Step 2</p>																
8.	<p>DESIGNATED AREA</p> <p><i>Identify the designated work and storage location(s) and the necessary decontamination after completion of work.</i></p>																

Use Location:	Storage Location:
Building/Rooms:	Building/Rooms:
Check all that apply to HHC only: <input type="checkbox"/> Entire Lab <input type="checkbox"/> Chemical Hood <input type="checkbox"/> Designated area <input type="checkbox"/> Other (list):	Check all that apply to HHC only: <input type="checkbox"/> Refrigerator/freezer <input type="checkbox"/> Chemical Fume Hood <input type="checkbox"/> Vented cabinet <input type="checkbox"/> Flammable liquid storage cabinet <input type="checkbox"/> Other (list):
DECONTAMINATION	
Are special decontamination procedures required for this HHC? <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, provide information below.	
Identify items that require decontamination: <input type="checkbox"/> Work Areas <input type="checkbox"/> Non-disposable equipment <input type="checkbox"/> Glassware <input type="checkbox"/> Disposable lab equipment and supplies <input type="checkbox"/> Other (list):	
Decontamination Method (describe)	
9.	SPECIAL HANDLING PROCEDURES, TRANSPORT AND STORAGE REQUIREMENTS <i>Describe special handling and storage requirements for highly hazardous chemicals used in this procedure. Describe secondary containment requirements for transport between laboratory rooms.</i>
<input type="checkbox"/> Personnel must not work alone in the laboratory while handling this HHC. <input type="checkbox"/> Personnel must notify the PI or other PI approved knowledgeable and experienced senior laboratory staff prior to handling this HHC each day/event. Refer to Additional Prior Approvals Required in Section 14.	
HAZARD COMMUNICATION AND SIGNAGE:	
Confirm that the hazards of HHC are communicated to laboratory personnel and visitors where HHC are used and stored.	
<input type="checkbox"/> All containers are clearly labeled with the identity and hazards of the Highly Hazardous Chemical. <input type="checkbox"/> Designated storage and use locations with the laboratory have signage identifying the HHC's presence. <input type="checkbox"/> For entire lab cases: Doors signs at all lab entrances is updated to communicate the HHC's presence.	
<input type="checkbox"/> Other Requirements (describe):	

10.	WASTE DISPOSAL
<i>Identify and list all hazardous waste and to be generated and appropriate disposal procedures. Include liquid and solid waste.</i>	
<input type="checkbox"/> Chemical waste generated from this procedure will be collected and disposed of as hazardous waste according to the TU Chemical Waste Management policy and TU Chemical Waste Management Manual. <input type="checkbox"/> Neutralization or deactivation in laboratory prior to disposal. Requires EHRS pre-approval. Describe method: <input type="checkbox"/> Other disposal method. Requires EHRS pre-approval. Describe method:	
Chemical Waste Storage location:	
11.	EMERGENCY PROCEDURES
<i>Describe how spills, chemical exposure and other accidents should be handled and by whom. List emergency contact numbers. Attach specific procedures to be followed to this form.</i>	
MEDICAL ATTENTION AND FIRST AID	
Laboratory personnel should call TU Campus Safety Services at 215-204-1234 or 1-1234 (campus phone)	
Are special first aid-supplies or procedures required (e.g. Calcium gluconate gel for HF) for work with this HHC?	
<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, attached the specific procedures to be followed to this form.	
<input type="checkbox"/> Other Requirements (describe or attach to HHOP):	
EMERGENCY PROCEDURES AND SPILL RESPONSE	
Emergency Safety Equipment: Are there any other specialized emergency spill control or clean-up supplies that are required when working with this HHC in addition to the equipment and supplies listed in section 6? <input type="checkbox"/> Yes <input type="checkbox"/> No	
If yes, list all required supplies/equipment with locations:	
<input type="checkbox"/> Other Requirements (describe or attach to HHOP):	

12.	TRAINING REQUIREMENTS
<i>List the general and laboratory-specific training required for authorized users of this HHOP.</i>	
All laboratory personnel must at a minimum complete all of the EHRS required training courses.	
The Principal Investigator (PI) is responsible for ensuring that all laboratory personnel complete the following prior to handling and using this HHC:	
<input checked="" type="checkbox"/> Read the SDS and HHOP: <input checked="" type="checkbox"/> Hands-on training with the PI or other PI approved knowledgeable and experienced senior laboratory staff. Must be able to demonstrate proficiency on procedures and methodology including this HHOP, safety procedures and on executing emergency response procedures. <input type="checkbox"/> Always work under the close supervision of the PI or other PI approved knowledgeable and experienced senior laboratory staff. <input type="checkbox"/> Other (list):	
13.	SAFETY REFERENCES AND OTHER ATTACHMENTS
<i>List books, published papers, equipment safety manuals, webpages and others used as references in writing this HHOP. Attach chemical safety data sheets, schematic diagrams, and photographs for complex procedures.</i>	
1. 2.	
14.	REVIEWS, APPROVAL and AUTHORIZED USERS
<i>SOPs must be reviewed and approved by the laboratory Principal Investigator (PI).</i>	
AUTHORIZED PERSONNEL CATEGORIES	
<i>Identify categories of laboratory personnel who could obtain approval to handle and use this HHC.</i>	
<input type="checkbox"/> Principal Investigator <input type="checkbox"/> Lab Supervisor/Manager <input type="checkbox"/> TU Employees/Staff <input type="checkbox"/> TU Students <input type="checkbox"/> Volunteers <input type="checkbox"/> Post-Doctoral <input type="checkbox"/> Others (describe):	
ADDITIONAL PRIOR APPROVALS REQUIRED	
<i>List any tasks that require prior approval by the principal investigator (for example, working outside of normal business hours, use of restricted chemicals and other higher hazard chemicals and running of higher hazard operations, any deviation to this HHOP):</i>	
1. Task requiring prior approval 2. Task requiring prior approval	
AUTHORIZED USERS (attach a separate signature page as necessary)	
<i>Authorized users agree by signing below, that they have completed the required trainings listed in</i>	

Section 12, have read and understand the content of this HHOP and will follow all aspects of this HHOP.

NAME	TUID #	SIGNATURE	DATE

PRINCIPAL INVESTIGATOR (PI) APPROVAL

Signature	Effective Date