

**UWM BIOLOGICAL
SCIENCES GREENHOUSE
Laboratory-Specific
Chemical Hygiene Plan
Documentation**

**PI: Paul M. Engevold
Includes Lab Rooms: NWQC 4600-4699**

**Department of
University
Safety & Assurances**

Revised May 27, 2020
Supersedes January 13, 2020

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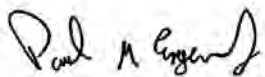
Section 1

Certification, Review and Updates:

By signing and dating here, the Laboratory Safety / Chemical Hygiene Officer and Principal Investigator certify that this Laboratory-Specific Chemical Hygiene and Laboratory Safety Documentation is accurate and that it effectively provides for the laboratory and chemical safety of employees and students in this laboratory.

Principal Investigator:

Paul M Engevoid



May 26, 2020

Printed Name

Signature

Date

By signing and dating here the Laboratory Safety and Chemical Hygiene officer certifies that the required review (and update if needed) of the Laboratory-Specific Chemical Hygiene and Lab Safety Documentation has been completed and that this document continues to be accurate and to effectively provide for the chemical safety of employees in this laboratory.

Reviewed by:

Review Date:

Reviewed by:

Review Date:

Reviewed by:

Review Date:

Reviewed by:

Review Date:

Reviewed by:

Review Date:

Reviewed by:

Review Date:

Reviewed by:

Review Date:

Section 2: Contact Information

Emergency Information:

PI/ Laboratory Supervisor: **Greenhouse Manager – Paul Engevoid**
Emergency Phone: **414-659-4179 (personal cell)**
414-229-4248 (office)

Department: **Biological Sciences**
Laboratory Building: **NWQ-C**

Room#: **4600-4699**

University of Wisconsin – Milwaukee Emergency and information phone Numbers

Emergency - First Responders / Campus Police	414-229-9911
Campus Police - Non-emergency	414-229-4627
Fire	414-229-9911
Ambulance	414-229-9911
Hazardous Materials Response Team (Milwaukee Fire Dept)	414-229-9911
Off-Campus Laboratory Emergency Number	911
University Safety and Assurances	414-229-6339
UWM Chemical Hygiene Officer	414-430-7508
Norris Health Center	414-229-4716
Utility Problems	414-229-4742
Environmental Protection (Hazardous Waste disposal)	hazwaste@uwm.edu
Building Chair: Chad Zahrt & Paul Engevoid	
Departmental Chair: Dr. Douglas Steeber	
Department Manager: Erin Daun	

Location of Chemical Spill Kit: **LEFT-MOST CABINET ABOVE POTTING BENCH IN ROOM 4630 (HEADHOUSE), ROOM 4642 (FERTILIZER & PESTICIDE STORAGE)**

Location of Eyewash/ Shower: **EYEWASH: AT SINK IN ROOM 4630 (HEADHOUSE), ROOM 4642 (FERTILIZER & PESTICIDE STORAGE), ROOM 4643 (WET LAB), EYEWASH AND SHOWER: HALLWAY NEXT TO ROOM 4642**

Section 3: Laboratory Room Locations

Building	Rooms	Room Assigned to the PI (Y/N)	Shared Facility (Y/N)
NWQ-C	4602	NO-STUDENT LOUNGE	YES
NWQ-C	4602A	YES-ENGEVOLD	NO
NWQ-C	4630	NO-COLD STORAGE	YES
NWQ-C	4642	YES-ENGEVOLD	NO
NWQ-C	4646	YES-ENGEVOLD	NO
NWQ-C	4643	NO-WET LAB	YES
NWQ-C	4647	NO-STORAGE	YES
NWQ-C	4649	NO-INSTRUCTIONAL HOUSE	YES
NWQ-C	4650	NO-HEADHOUSE	YES
NWQ-C	4656	NO-INSTRUCTIONAL HOUSE	YES
NWQ-C	4660	NO-INSTRUCTIONAL HOUSE	YES
NWQ-C	4671	YES-DR. KARRON	NO
NWQ-C	4675	YES-YDR. OUNG	NO
NWQ-C	4681	YES-DR. KARRON	NO
NWQ-C	4682	NO-INSTRUCTIONAL HOUSE	YES
NWQ-C	4686	YES-DR. ZHAO	NO
NWQ-C	4690	YES-DR. YANG	NO
NWQ-C	4694	YES-DR. YANG	NO
NWQ-C	4695	YES-DR. RODRIGUEZ	NO
NWQ-C	4699	NO-OUTSIDE GARDENS	YES

Section 4: Procedures for Exposures and Hazards

4.1 Controlling Exposures and Hazards- Standard Operating Procedures (SOPs) and Safety Guidelines

Refer to <https://uwm.edu/safety-health/chem-hygiene/> for requirements for standard operating procedures.

Chemical Name or Hazard Class:	Notes:
Sodium hypochlorite (bleach)	For use in sterilizing pots and surfaces. See SOP in

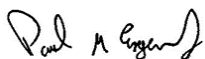
This lab does not have or need Chemical SOPs.

4.2 Controlling Exposures and Hazards – Chemical High Risk Procedures

Chemical high-risk procedures are lab procedures that pose significant risk of serious Injury or major property damage if a malfunction were to occur (such as a utility outage, runaway reaction, container failure or chemical spill or release) and/or which may require any of the following:

1. Engineering controls (include but not limited to) that are more specialized than good room ventilation, chemical fume hoods, biological safety cabinets and / or local exhaust such as snorkel or canopy hoods, inert- atmosphere glove boxes, vented gas cabinets, oxygen monitors and /or toxic gas monitors.
2. Personal Protective Equipment (PPE) in addition to gloves, lab coats, eye/face protection and or chemical or thermal protective aprons or sleeves
3. Chemical specific first aid treatments or antidotes

Contact US&A at 414-229-6339 or send a questions to sop-approval@uwm.edu if you have any questions regarding chemical high risk procedure or if you need US&A permission (as indicated in list below).

<input checked="" type="checkbox"/>	Our lab does not perform any chemical high-risk procedures based on the definition above and the examples listed below. Name of person making this decision: Paul Engevoid Signature  and Date May 20, 2020
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<input type="checkbox"/>	Chemical High Risk Procedure	Date of PI approval	Date and form of written approval, Name of US&A approver
<input type="checkbox"/>	<p>Use of liquid nitrogen or other cryogen in large quantities or in a manner that could displace oxygen. Specify Cryogen(s): Amount(s) Task (if applicable, Location, (bldg./room): Approximate room dimensions: For liquid nitrogen, "large quantities would be more than one freezer or one attached liquid cylinder per room. Filling a cryocart or cooler is a task that could displace oxygen. Re-evaluate if the quantities involved or the tasks move to a different room or if the procedure or ventilation change significantly.</p>		
<input type="checkbox"/>	<p>Heating of concentrated perchloric acid (60% or more) Amount/ concentration: Location, (bldg./room): Frequency of use: Location of Perchloric Acid Hood:</p>		
<input type="checkbox"/>	<p>Use, Creation or Synthesis of Nanomaterials List materials created, Size of particles Materials area created as a powder or in suspension:</p>		
<input type="checkbox"/>	<p>Use of chemicals for which an antidote or specific first-aid treatment is required. (Note: Use of HF does not require US&A approval and is listed in the next section.) List chemical and antidote/ first aid Indicate if the location of antidote: Indicate if US&A is aware.:</p>		
<input type="checkbox"/>	<p>Any chemical found to need an SOP as per the Highly Hazardous Chemical list. NOTE: US&A and Chemical Safety Committee review and approval are also required. sop-approval@uwm.edu</p>		
<input type="checkbox"/>	<p>Chemical procedures involving pressure, vacuum, or heat when failure of the container would result in significant physical hazards, exposure to toxic materials or fire. List procedures</p>		
<input type="checkbox"/>	<p>Scale up of a previously approved high-risk procedure.</p>		

Section 5: Laboratory-Specific Policies

Include below all laboratory-specific policies instituted by the Principal Investigator (i.e.: Lab coats must always be worn in the lab, No working alone, etc.) This space provides the opportunity to document the labs safety policies related to the use of hazardous chemicals and equipment in one location.

5.1 Working Alone Policy:

Introduction

The University of Wisconsin – Milwaukee (UWM) along University Safety and Assurances will establish specific practices and procedures to minimize the risks of injury or violence to staff, faculty, and students who, due to the nature of their work, are required to work alone and may require emergency assistance during the course of working alone.

Purpose

The Working Alone policy and procedures are intended to promote employee awareness and facilitate employee safety when they are working alone. UWM will ensure that there are safety plans in place for those who work alone. UWM will ensure, applying all reasonable measures, the protection of faculty, staff, and students who are performing their duties in areas or under conditions where they are required to be on their own.

Scope

This policy applies to all faculty, staff, and students who work or perform research on UWM premises or those who may be required to work off campus or in a field research capacity. Workers who are required to work alone may require assistance if they are exposed to conditions that may result in a job related injury, health impairment of any kind, victimization through criminal violence, or other adverse conditions.

Definitions

High risk activities: activities where the potential for the occurrence of accidents or injuries is deemed to be highly likely and where the severity of the injury or accident will bring serious consequences.

High risk activities include the following:

- Working from heights
- Working in confined spaces (under the current EH&S policy, a worker is not permitted to work alone in a confined space)
- Lock out/tag out
- Working with hazardous substances or materials
- Working with material under high pressure
- Working where there is a possible threat of violence
- Working in isolation from first aid services or immediate/emergency assistance

Low Risk activities: activities where the potential for the occurrence of accidents and injuries is deemed to be highly unlikely and where the severity of an accident or injury is generally thought not to have serious consequences.

Risk Assessment: Individually and collectively, supervisors and workers are required to assess the conditions or circumstances under which an employee may be working alone to determine the risks, the level of risk, and prevention measures required to reduce those identified risks to acceptable levels. A critical part of the risk assessment is the determination of emergency assistance procedures.

Working alone: Individuals are considered to be working alone when they are working by themselves in an office, vehicle, laboratory, workshop, field site, or any area owned or operated by UWM or place where work is being conducted for UWM. Assistance, in the event of an injury, illness, or emergency, is not readily available to the individual.

Emergency Assistance: a means of communication to gain assistance in the event of an emergency involving an accident or serious injury, illness, or threat of violence.

After Hours: The period of time when “normal” weekday or shift operations cease.

Field Work: Field work consists of work activities conducted for the purpose of study, research, or training that are undertaken by faculty, staff or students of UWM at locations outside the geographical boundaries of UWM facilities.

Responsibilities

In order for the Working Alone policy and procedures to be effective, they will be implemented with reason and diligence. To achieve this, respective responsibilities have been defined to ensure those who can positively impact on the potential risks of working alone are aware of their responsibilities and have the knowledge and skill to effectively implement working alone guidelines.

Supervisor responsibilities

- Identify risks or hazards associated with the work to be performed or the environment where the work is to be done.
- Conduct and document a risk/hazard assessment for each different (specific) type of work or work location that can be deemed to be a working alone situation.
- Communicate the results of the risk assessment to all affected workers and others conducting similar work.
- Provide written working alone procedures in their area of responsibility in order to eliminate or minimize identified risks.
- Develop effective methods of communication for those who require emergency assistance, depending on the specific work, location of the work, and nature of the work. (For example: cell phones, radio, and pager). When electronic devices are not feasible, an effective contact system must be established (For example: check-in procedures and periodic site visits requiring worker to check in after the completion of specific tasks). The length of time a worker may be out of contact with a supervisor (the frequency of regular communications) must be based on the result from the risk assessment.
- Schedule potentially hazardous work for times when supervisors and appropriate help will be available.

Worker responsibilities

- Participate in the working alone risk assessment and risk management decisions with the supervisor.
- Follow safe work practices outlined in safe work procedures.
- Maintain regular communication as directed by supervisors.

Working Alone Prohibited

There are certain situations where working alone will not be permitted. Working alone will be prohibited under the following circumstances:

- Confined space entry
- The use of fall arrest equipment and scaffolds.
- Quick-acting, acutely toxic material as described by the Safety Data Sheet (SDS).
- Use of supplied air respiratory equipment or self-contained breathing apparatus.
- Tasks which, based on the risk assessment conducted by the supervisor in consultation with the employee and EH&S are deemed to require more than one person.

Communication

The Working Alone procedure may include the following to ensure the most practical and effective means of communication:

- Portable or cell telephone,
- In lab stationary telephone,
- Check-in system and requirement for updating an individual's status while working alone, or
- Any other method that may be considered most effective to the specific department's safe operations.

Each working alone scenario will use these communication options, either singularly or in combination in the development of a site-specific working alone communication plan.

Guidelines for Conducting Working Alone Risk Assessments

There are a number of scenarios within the University setting that call for jobs having working alone situations. It is essential that employees and their supervisors work together to develop safe work procedures. It is mandatory that the working conditions or circumstances that present high safety risks be assessed so the probability of accident or injury can be minimized. Supervisors and employees will evaluate working alone assignments on a case-by-case basis and will consider the following risk factors for working alone:

- Tasks and hazards involved in the work to be performed.
- Consequences resulting from a “worst case” scenario. This will be accomplished by asking the question, “What if”
- Likelihood for other persons to be in the area.
- Possibility that a critical injury or incident could prevent the employee from calling for help or leaving the workplace.
- Emergency response time.
- Worker’s training and experience.
- Worker’s physical handicaps or any preexisting medical conditions.
- Frequency of job supervision, if at all.
- The time or shift when the job is to be done.
- Whether the individual is accustomed to working alone.

Supervisors shall provide written working alone safety plans for the safety and security of persons working alone. Safety plans shall include:

- Identification of the risks or hazards associated with the work to be performed or the environment where the work is to be done;
- Procedures to eliminate or minimize the identified risks (e.g., BOSS systems);
- Methods of communication by which the workers can secure emergency assistance and how emergency assistance will be provided in the event of incidents or accidents.
- The length of time a worker may be out of contact with a supervisor (i.e., the frequency of regular communications); and
- Confirmation where and when working alone is permitted.

Supervisors must review working alone safety plans with affected employees with particular emphasis on safe work procedures and the provision of assistance to employees at risk due to infrequent supervision, intermittent communication, or physical isolation. Completed working alone plans must be copied to the employee, department Chairs, and to EH&S. Written safety plans should be reviewed and updated, if required, at least annually.

5.2 Eating and Drinking Locations:

Food or drink may only be consumed in the Student Lounge area, Rom 4602.

5.3 Personal Protective Equipment (PPE): [*i.e.; use and storage of lab coats, safety eyewear, gloves, respirators, hearing protection cryo safety gear*]

- No loose clothing, tank tops, short pants, short skirts, bare feet, sandals, open-toed or perforated shoes permitted in the laboratory area.
- Shoes with non-slip soles are recommended for working on wet floors
- Long hair must be pulled back.
- Lab coats and gloves are recommended in BSL-1 labs
- Appropriate PPE must be worn when working with bleach

5.4 Equipment Use and Training Guidelines:

-No student, employee or volunteer may use the Biological Safety Cabinet or Fume Hood without prior training from the PI or Greenhouse Manager

5.5 Information for Chemical Waste Disposal

A. Our Lab is a chemical waste generator and waste accumulation containers are stored in these locations:

-Fume hood in the Wet Lab Room 4643
-Fume hood in the Pesticide Storage Area Room 4642

5.8 Controlling Exposure and Hazards – Work Practices Requiring Prior Approval. Some laboratory work may not meet the definition of high-risk procedures but may introduce additional risk because of when and/or how the work is conducted. The following work practices require prior approval of the PI or Lab Safety Coordinator. Detail scenarios that are applicable and how approval will be documented in the lab

- no chemical may be taken into the greenhouse or associated facilities without prior consent of the Greenhouse Manager
- Permission to use chemicals is temporary and only those that are being actively used (at least once per month) may be stored in the facility. A Safety Data Sheet must accompany the chemical at all times or provided to the Greenhouse Manager. Chemicals used less frequently must be transported to and from the greenhouse in accordance with Campus Policy.

Section 6:

SDS and Inventory of Hazardous Chemicals Information

Several regulations require that Safety Data Sheets (SDS) are maintained and readily accessible for all chemicals present in the lab. The Campus Chemical Hygiene Plan also requires that inventories be maintained for chemicals. Updated electronic copies of lab inventories are to be supplied to University Safety and Assurances on a yearly basis. Provide a description of where the SDS are stored and how inventory records are maintained:

Location of SDS: Green binder in Room 4602 and electronically in Room 4602A

Format of SDS

- Electronic
- Hard Copy

Method of Maintaining Inventory: Annual update and as new chemicals are purchased

Location of Inventory Records 4602

Location of DHS Inventory Records: 4602

Section 7.

Laboratory-Specific Safety Orientation Checklist

A checklist for all laboratory personnel listed in section 1 must be filled out and saved with the lab training records.

Name:

Date:

As part of my orientation with the laboratory operation, I have read and am familiar with the contents and location of:

- | | |
|--|---|
| <input type="checkbox"/> The UW-Milwaukee Campus CHP | <input type="checkbox"/> SOPs for lab chemicals and Equipment |
| <input type="checkbox"/> The Laboratory Specific CHP | <input type="checkbox"/> SDS for Lab Chemicals |
| <input type="checkbox"/> Laboratory Inventory List | <input type="checkbox"/> DHS list |
| <input type="checkbox"/> I have been given the opportunity to read the OSHA Lab Standard (http://tinyurl.com/ov9p27g) and its Appendices. | |

I have been instructed on:

- | | |
|---|---|
| <input type="checkbox"/> The chemical hazards in the lab | <input type="checkbox"/> Laboratory-Specific Policies |
| <input type="checkbox"/> Equipment use and training guidelines | <input type="checkbox"/> Eyewash Maintenance guidelines |
| <input type="checkbox"/> The relevant exposure limits to items used in the labs [PELs (OSHA), TLVs (ACGIH), etc.] | |
| <input type="checkbox"/> The signs and symptoms associated with exposures to hazardous chemicals used in the lab | |
| <input type="checkbox"/> The physical hazards of the laboratory (heat, electrical, mechanical, etc.) | |
| <input type="checkbox"/> Hazardous Waste Generator Training and our Hazardous Waste Accumulation Area. | |
| <input type="checkbox"/> Hazard information about chemicals and safe handling, storage and disposal practices for chemicals found in this Laboratory. | |
| <input type="checkbox"/> I am aware that the Department of University Safety and Assurances may be contacted to evaluate chemical exposure if needed. | |

I have reviewed the laboratory laboratory's emergency procedures including:

- | | |
|--|--|
| <input type="checkbox"/> Emergency phone numbers | <input type="checkbox"/> Procedures for uncontrolled chemical releases |
| <input type="checkbox"/> Evacuation Routes | <input type="checkbox"/> Safety equipment failure procedures |
| <input type="checkbox"/> Chemical Spill Kit | <input type="checkbox"/> Laboratory exhaust failure procedures |

I am aware of the location of emergency equipment:

- | | |
|--|---|
| <input type="checkbox"/> Fire Extinguisher | <input type="checkbox"/> Eyewash Stations |
| <input type="checkbox"/> Safety Showers | <input type="checkbox"/> First Aid Supplies |
| <input type="checkbox"/> Spill Kit | |

I have been made familiar with routine operations of the laboratory, including:

- | | |
|---|--|
| <input type="checkbox"/> Lab cleaning and maintenance rules | <input type="checkbox"/> Waste handling procedures |
| <input type="checkbox"/> Proper use of PPE | <input type="checkbox"/> Chemical procurement practices |
| <input type="checkbox"/> Chemical storage policies for the lab | <input type="checkbox"/> The proper use of chemical fume hoods |
| <input type="checkbox"/> Liquid nitrogen use/ training guidelines | <input type="checkbox"/> The proper use of biosafety cabinets and autoclaves |

In addition, I have been made familiar with the following lab -specific health and safety features and safety resources:

- | |
|--|
| NWQ Biological Sciences Greenhouse Use Policy |
|--|

I have completed orientation of all the above items

Name

Date:

Signature: _____

PI (or GSR) Signature: _____

Section 8.

Documentation of Laboratory-Specific Chemical Hygiene Plan Training:

The individuals listed below have read and fully understand the Chemical Hygiene Plan for this lab. The individuals have received Safety Training from the Greenhouse Manager and are aware of all potential hazards and countermeasures related to working in a laboratory, how to practice good chemical hygiene, and where to find safety information to perform their duties in a safe manner.

	Name	Signature	e-mail	Date	Trainer Initials
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Section 9.

Written Procedures for Working Alone Approval Form

NWQ Biological Sciences Greenhouse, Department of Biological Sciences, UW – Milwaukee

1. (Name of Employee) _____ will be working alone at NWQC Rooms 4600-4699 between the hours of _____ am/pm and _____ am/pm on the following days of the week: (list days)

2. (Name of supervisor, building security, etc) _____ is responsible for checking on the above-noted employee at these set intervals:

a. (list times – e.g., every 2 hours at 3:00 am, 5:00 am, 7:00 am and at end of shift, etc)

3. Method of contact will be by (cell phone/email/face to face contact, etc.).

4. If the worker cannot be reached or does not respond within (_____ minutes), the designated contact person will arrange for face to face contact to be made with the employee by (e.g., driving to the office, calling a neighboring office, campus police)

5. If the worker encounters an unsafe situation while working alone, the worker is to immediately alert the Greenhouse Manager at 414-659-4179 and, if deemed necessary, the police (9-911 from work or 911 from home).

6. As part of the worker's orientation, the Supervisor will review these procedures and provide copies to the worker and the designated contact person before the worker commences working alone.

7. Working alone procedures developed for this work location will be reviewed at least annually or more frequently if there is a change in work arrangements affecting the worker's wellbeing or, if the reporting system is not working effectively. The worker and/or the designated contact person are expected to inform the supervisor of any concerns they may have with the reporting system.

8. Signatures: The following persons have agreed to the above procedures

_____ Signature of Worker/Date

_____ Signature of Designated Contact Person/Date

_____ Signature of Supervisor Date

Section 10. Chemical SOPs

10.1 Sodium hypochlorite (bleach) Standard Operating Procedure for Hazardous Chemicals Use

Chemical name: Sodium Hypochlorite (Bleach)

Synonyms: Clorox Germicidal Bleach

CAS Number: 7681-52-9

Principal Investigator(s) Paul Engevold PI e-mail engevold@uwm.edu

For chemical processes use only, return completed form sections 1-8 and Appendix to the Shemical Safety Committee (CSC) / US&A (sop-approval@uwm.edu)

IACUC Hazardous Chemical procedures return completed sections 1-9 and Appendix to the Animal Care program (acp@uwm.edu)

Information on Chemical Purchasing Procedures are located on our website: [University Safety and Assurances Chemical Purchasing Procedure](#)

1. Submit a copy of the Safety Data Sheet(s) [SDS] with this form
The SDS is stored in the room in this location: [4602](#)
2. Chemical Concentration (as purchased) and Health and Physical Hazards:

Concentration. As purchased	5-10%
List all health and Physical Hazards	Found on the SDS section 2 Causes severe skin burns and eye damage
Known Incompatibilities	Reacts with household chemicals such as toilet bowl cleaners, rust removers, acids, or products containing ammonia to produce hazardous irritating gases such as chlorine and other chlorinated compounds
Hazardous Decomposition Products	Thermal decomposition can release sodium chlorate and irritating gases and vapors.

3. Authorized Use:

<input checked="" type="checkbox"/> Principal Investigator	<input type="checkbox"/> Laboratory Manager
<input checked="" type="checkbox"/> Post Doc	<input checked="" type="checkbox"/> Employees
<input checked="" type="checkbox"/> Graduate Students	<input type="checkbox"/> Technical Staff
<input checked="" type="checkbox"/> Undergraduate Student	<input checked="" type="checkbox"/> Adult Volunteer
<input type="checkbox"/> Other	

4. Storage Information:

Chemical Storage Location	Where will the chemical be used (building and room number)	Storage Requirement
tall cabinets in 4650 <input checked="" type="checkbox"/> Area inspected regularly by engevold	NWQC - 4600-2699	<input type="checkbox"/> Refrigerator <input type="checkbox"/> Explosion Proof <input type="checkbox"/> Non-Explosion Proof <input type="checkbox"/> Flammable storage <input type="checkbox"/> Corrosive storage <input type="checkbox"/> Shelf <input type="checkbox"/> Locked cabinet <input checked="" type="checkbox"/> Secondary containment <input checked="" type="checkbox"/> Closed, & labeled container <input checked="" type="checkbox"/> Other Reclose cap tightly after each use. Store this product upright in a cool, dry area, away from direct sunlight and heat to avoid deterioration. Do not contaminate food or feed by storage of this product.

5. Personal Protective Equipment [PPE]

Personal Protective Equipment Use	During Chemical Preparation
Gloves *Check integrity of gloves before each use.	<input checked="" type="checkbox"/> Type (Specify): Rubber or neoprene gloves
Safety glasses (impact)	<input type="checkbox"/>
Safety goggles (splash)	<input checked="" type="checkbox"/>
Lab Coat	<input checked="" type="checkbox"/>
Apron	<input type="checkbox"/>
Dust Mask	Specify: N95 <input type="checkbox"/> N100 <input type="checkbox"/> Other
Respirator	<input type="checkbox"/>
Hearing Protection:	<input type="checkbox"/>
Other: (i.e. double glove, barrier cream)	<input type="checkbox"/> Specify
Describe how you will employ PPE, Engineering and Administrative controls	

6. Engineering Controls

- | | |
|--|--|
| <input type="checkbox"/> Fume Hood | <input type="checkbox"/> Laminar Flow Hood |
| <input type="checkbox"/> Biosafety Cabinet | <input type="checkbox"/> Snorkel/ Elephant Trunk |
| <input type="checkbox"/> Glove Box | <input type="checkbox"/> Vented Gas Cabinet |

Other (includes but is not limited to; pressure relief valves, intrinsically safe hot plates. Automatic shut -offs) Adequate ventilation. Eyewash/ shower

7. Chemical Spill Procedure

Describe the spill cleanup protocol for the maximum volume of the chemical that would be in use at any one time. Refer to the SDS or guidance from University Safety and Assurances for procedures. <http://uwm.edu/safety-health/emergency/>
Check all that apply and explain below:

A spill kit or cleanup materials are present in each lab.

Specify special materials required for the chemical cleanup. **absorbant pads.**

Personnel are trained on spill cleanup procedure of each chemical and emergency contacts.

Proper personal protective equipment (PPE) available for spill cleanup. See #5 for PPE.

Emergency eyewash and/or safety shower located nearby (within 10 seconds) and unobstructed.

Personnel trained on eyewash/ shower location and operation

Eyewash/ shower inspected annually and activated weekly to verify operability.

Explain spill procedure: **Small spills: Absorb and containerize. Wash residual down to sanitary sewer. Immediately alert people in your area, especially your PI or supervisor. Wear proper PPE, including gloves, goggles, and lab coat. Avoid breathing vapors. Apply portion of absorbent roll from spill kit to absorb the fluid. Contain used absorbent roll in bag or container. Place sealed bag or container in garbage for disposal. In the event of a large spill, alert others to evacuate area and close doors to affected area. Call 9-911 from a campus phone or 414-229-9911 from a cellphone and provide responders with your name, location of incident, and the name and approximate quantity of material spilled.**

8. Chemical Use Process

List each step of the procedure including the hazards associated with the step and controls that will be used to ensure safety. Be as specific as possible.

NOTE: Identify potential methods of human exposure to the chemicals during sample preparation. Also identify health hazard or routes(s) of entry into the body and explain how they affect the body.

Process Step	Hazards	Safety Controls
ex.) Transfer 5 ml of hydrofluoric acid to a plastic 50 ml beaker.	Corrosive, splash, fluoride ion readily penetrates skin and bonds to calcium ions	Lab coat, splash goggles, face shield, nitrile gloves- initial thin glove inside gauntlet glove
transfer required volume into container or sink for dilution to working concentration	splash hazard to skin, eyes and clothing	lab coat, nitrile gloves and goggles required for use

University Safety & Assurances Web Guidance for Hazardous Chemical SOPs

Use the following links to go to web page.

- ♣ Laboratory Safety <http://wwwdev.uwm.edu/safety-health/lab-safety/>
- ♣ Biosafety <http://wwwdev.uwm.edu/safety-health/biosafety/>
- ♣ Carcinogens <http://wwwdev.uwm.edu/safety-health/rtk-health-hazards/>
- ♣ Eyewash/ Safety Shower <http://wwwdev.uwm.edu/safety-health/laboratory-equipment/>
- ♣ Flammable Liquid Storage <http://wwwdev.uwm.edu/safety-health/chem-safety/>
- ♣ Fume Hood Procedures <http://wwwdev.uwm.edu/safety-health/laboratory-equipment/#General>
- ♣ Hazardous Communication <http://wwwdev.uwm.edu/safety-health/chemrtk/>
⇒ Material Safety Data Sheets (source) <http://uwm.edu/safety-health/chemrtk/>
- ♣ On-Line Safety Training <http://uwm.edu/safety-health/laboratory-training/>
Including:
⇒ Laboratory Safety, Bloodborne Pathogens, Hazard Communication, Hazardous Waste Orientation, Mercury Spill Clean-up Procedures
- ♣ Personal Protective Equipment <http://uwm.edu/safety-health/general-ppe/>
- ♣ Sharps Disposal <http://uwm.edu/environmental-rotection/non-hazardous-waste/#a7>

Appendix

Documentation of Training

The individuals listed below have read and fully understand this Standard Operating Procedure. The individuals have received training from their Supervisor, Group Safety Representative (GSR) or Laboratory Manager/Graduate Student and are aware of all potential hazards and countermeasures related to this Standard Operating Procedure.

	Name	Signature	E-Mail	Date	Trainer Initials
1			@uwm.edu		
2			@uwm.edu		
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