



# **LABORATORY HAZARD ASSESSMENT TOOL**

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This form must be completed by the PI, Lab Supervisor, (*most experienced*) or their designee to conduct a laboratory hazard assessment specific to activities in their laboratories. The laboratory hazard assessment identifies hazards to employees and specifies personal protective equipment (PPE) to protect employees during work activities. The PI assessment must verify that it is complete and that training has been conducted.

This assessment consists of four sections and serves as a step in satisfying PPE requirements.

**Section 1:** Lab Information

**Section 2:** Laboratory Hazard Assessment

**Section 3:** Conduct PPE Training

**Section 4:** Verification of PPE Training

EH&S personnel are available at your request to assist with completing this form or with reviewing it after you have completed it. EH&S may also be consulted by calling the numbers listed above.

## **Section 1: Lab Information**

Department	
Lab location(s) with building & room number(s)	
Principal Investigator	
Laboratory Safety Coordinator	
Name & title of person conducting assessment	
Phone number	
Email address	
Date assessment completed	
Signature	



## Section 2: Laboratory Hazard Assessment

In this section, you will:

- Conduct a hazard assessment of the laboratory to identify activities when PPE is needed to protect the lab staff from exposure to hazards.
- Certify the hazard assessment for the laboratory by signing in Section 1.

The following checklists are an overview of common lab activities and associated potential hazards and applicable PPE. Check each box that describes activities performed by lab personnel.

Chemical Hazards				
Are the following activities performed in the lab?				
Yes	No	Activity	Potential Hazard	Applicable PPE
<input type="checkbox"/>	<input type="checkbox"/>	Working with small volumes (<4 liters) of corrosive liquids.	Eye or skin damage.	Safety glasses or goggles. Light chemical-resistant gloves. Lab coat.
<input type="checkbox"/>	<input type="checkbox"/>	Working with large volumes (>4 liters) of corrosive liquids, small to large volumes of acutely toxic corrosives, or work which creates a splash hazard. <sup>1</sup>	Poisoning; increased potential for eye and skin damage.	Safety goggles. Heavy chemical-resistant gloves. Lab coat and chemical-resistant apron.
<input type="checkbox"/>	<input type="checkbox"/>	Working with small volumes (<4 liters) of organic solvents or flammable organic compounds.	Skin or eye damage, potential poisoning through skin contact.	Safety glasses or goggles. Light chemical-resistant gloves. Lab coat.
<input type="checkbox"/>	<input type="checkbox"/>	Working with large volumes (>4 liters) of organic solvents, small to large volumes of very dangerous solvents, or work which creates a splash hazard. <sup>1</sup>	Major skin or eye damage, potential poisoning through skin contact. Fire.	Safety goggles. Heavy chemical-resistant gloves. Flame-resistant lab coat (e.g. Nomex).
<input type="checkbox"/>	<input type="checkbox"/>	Working with toxic or hazardous chemicals (solid, liquid, or gas). <sup>1,2</sup>	Skin or eye damage, potential poisoning through skin contact.	Safety glasses (goggles for large quantities). Light chemical-resistant gloves. Lab coat.
<input type="checkbox"/>	<input type="checkbox"/>	Working with acutely toxic or hazardous chemicals (solid, liquid, or gas). <sup>1, 2, 3</sup>	Increased potential for eye or skin damage; increased potential poisoning through skin contact.	Safety goggles. Heavy chemical-resistant gloves. Lab coat.
<input type="checkbox"/>	<input type="checkbox"/>	Working with an apparatus with contents under pressure or vacuum.	Eye or skin damage.	Safety glasses or goggles; face shield for high risk activities. Chemical-resistant gloves. Lab



				coat, chemical-resistant apron for high risk activities.
<input type="checkbox"/>	<input type="checkbox"/>	Working with air or water reactive chemicals.	Severe skin and eye damage. Fire.	Work in inert atmosphere, when possible. Safety glasses or goggles. Chemical-resistant gloves. Lab coat, flame resistant lab coat for high risk activities (e.g. Nomex). Chemical-resistant apron for high risk activities.
<input type="checkbox"/>	<input type="checkbox"/>	Working with potentially explosive chemicals.	Splash, detonation, flying debris, skin and eye damage. Fire.	Safety glasses face shield, and blast shield. Heavy gloves. Flame-resistant lab coat (e.g. Nomex).
<input type="checkbox"/>	<input type="checkbox"/>	Working with low and high temperatures.	Burns; splashes. Fire.	Safety glasses. Lab coat. Thermal insulated gloves, when needed.
<input type="checkbox"/>	<input type="checkbox"/>	Minor chemical spill cleanup.	Skin or eye damage, respiratory damage.	Safety glasses or goggles. Chemical-resistant gloves. Lab coat. Chemical-resistant apron and boot/shoe covers for high risk activities. Respirator as needed. Consider keeping Silver Shield gloves in the lab spill kit.
<input type="checkbox"/>	<input type="checkbox"/>	Reactive Materials		

## Biological Hazards

### Are the following activities performed in the lab?

Yes	No	Activity	Potential Hazard	Applicable PPE
<input type="checkbox"/>	<input type="checkbox"/>	Working with human blood, body fluids, tissues, or blood borne pathogens (BBP). <sup>5</sup>	Exposure to infectious material.	Safety goggles with face shield or facemask plus goggles, latex or nitrile gloves, lab coat or gown.
<input type="checkbox"/>	<input type="checkbox"/>	Working with preserved animal and/or human specimens.	Exposure to infectious material or preservatives.	Safety glasses or goggles, protective gloves such as light latex or nitrile for unpreserved specimens (select protective glove for preserved specimens according to preservative used), lab coat or gown.
<input type="checkbox"/>	<input type="checkbox"/>	Working with radioactive human blood, body fluids, or blood borne pathogens (BBP).	Cell damage, potential spread of radioactive contaminants, or potential BBP exposure.	Safety glasses (goggles for splash hazard), light latex or nitrile gloves, lab coat or gown.
<input type="checkbox"/>	<input type="checkbox"/>	Working with agents or recombinant DNA classified as Biosafety Level 1 (BSL-1).	Eye or skin irritation.	Safety glasses or goggles for protection from splash or other eye hazard, light latex or nitrile gloves for broken skin or skin rash, lab coat or gown.



<input type="checkbox"/>	<input type="checkbox"/>	Manipulation of cell lines, viruses, bacteria, or other organisms classified as Biosafety Level 2 (BSL-2). <sup>5</sup>	Exposure to infectious material, particularly through broken skin or mucous membranes.	Safety glasses or goggles for protection from splash or other eye hazard, light latex or nitrile gloves, lab coat or gown.
<input type="checkbox"/>	<input type="checkbox"/>	Manipulation of infectious materials classified as Biosafety Level 2 facility with BSL-3 practices (BSL-2+). <sup>5</sup>	Exposure to infectious materials with high risk of exposure by contact or mucous membranes.	Safety glasses or goggles for protection from splash or other eye hazard, light latex or nitrile gloves (double), lab coat or disposable gown (preferred), surgical mask.
<input type="checkbox"/>	<input type="checkbox"/>	Manipulation of infectious materials classified as Biosafety Level 3 (BLS-3).	Exposure to infectious materials with high risk of exposure, particularly through the inhalation route.	Safety glasses or goggles for protection from splash or other eye hazard, light latex or nitrile gloves (double), full disposable gown or Tyvek suite (preferred), respirator, shoe cover or dedicated shoe.
<input type="checkbox"/>	<input type="checkbox"/>	Working with live animals (Animal Biosafety Level 1, ABL-1).	Animal bites, allergies.	Safety glasses or goggles for protection from splash or other eye hazard, light latex, nitrile or vinyl gloves for broken skin or skin rash, lab coat or gown. Consider need for wire mesh glove.
<input type="checkbox"/>	<input type="checkbox"/>	Working with live animals (Animal Biosafety Level 2, ABL-2). <sup>5</sup>	Animal bites, exposure to infectious material, allergies.	Safety glasses or goggles for protection from splash or other eye hazard, light latex, nitrile or vinyl gloves, lab gown, hair cover, shoe covers, surgical mask. Consider need for wire mesh glove.



## Radiological Hazards

**Are the following activities performed in the lab?**

Yes	No	Activity	Potential Hazard	Applicable PPE
<input type="checkbox"/>	<input type="checkbox"/>	Working with solid radioactive materials or waste.	Cell damage, potential spread of radioactive materials.	Safety glasses, impermeable gloves, lab coat.
<input type="checkbox"/>	<input type="checkbox"/>	Working with radioactive materials in hazardous chemicals (corrosives, flammables, liquids, powders, etc.).	Cell damage or spread of contamination plus hazards for the specific chemical.	Safety glasses (or goggles for splash hazard), light chemical-resistant gloves, lab coat. Note: Select glove for the applicable chemical hazards above.
<input type="checkbox"/>	<input type="checkbox"/>	Working with ultraviolet radiation.	Conjunctivitis, corneal damage, skin redness.	
<input type="checkbox"/>	<input type="checkbox"/>	Working with infrared emitting equipment (e.g. glass blowing).	Cataracts, burns to cornea.	UV face shield and goggles, lab coat.
<input type="checkbox"/>	<input type="checkbox"/>	Working with X-Rays		Appropriate shaded goggles, lab coat.



## Laser Hazards

Are the following activities performed in the lab?

Yes	No	Activity	Potential Hazard	Applicable PPE
		<b>Open Beam</b>		
<input type="checkbox"/>	<input type="checkbox"/>	Performing alignment, troubleshooting or maintenance that requires working with an open beam and/or defeating the interlock(s) on any Class 3 or Class 4 laser system.	Eye damage.	Appropriately shaded goggles/glasses with optical density based on individual beam parameters.
<input type="checkbox"/>	<input type="checkbox"/>	Viewing a Class 3R laser beam with magnifying optics (including eyeglasses).	Eye damage.	Appropriately shaded goggles/glasses with optical density based on individual beam parameters.
<input type="checkbox"/>	<input type="checkbox"/>	Working with a Class 3B laser open beam system with the potential for producing direct or specular reflections.	Eye damage, skin damage.	Appropriately shaded goggles/glasses with optical density based on individual beam parameters, appropriate skin protection.
<input type="checkbox"/>	<input type="checkbox"/>	Working with a Class 4 laser open beam system with the potential for producing direct, specular, or diffuse reflections.	Eye damage, skin damage.	Appropriately shaded goggles/glasses with optical density based on individual beam parameters, appropriate skin protection.
		<b>Non Beam</b>		
<input type="checkbox"/>	<input type="checkbox"/>	Handling dye laser materials, such as powdered dyes, chemicals, and solvents.	Cancer, explosion, fire.	Gloves, safety glasses, flame resistant lab coat or coveralls.
<input type="checkbox"/>	<input type="checkbox"/>	Maintaining and repairing power sources for large Class 3B and Class 4 laser systems.	Electrocution, explosion, fire.	Electrical isolation mat, flame-resistant lab coat or coveralls.



## Physical Hazards

Are the following activities performed in the lab?

Yes	No	Activity	Potential Hazard	Applicable PPE
<input type="checkbox"/>	<input type="checkbox"/>	Working with cryogenic liquids.	Major skin, tissue, or eye damage.	Safety glasses or goggles for large volumes, impermeable insulated gloves, lab coat.
<input type="checkbox"/>	<input type="checkbox"/>	Removing freezer vials from liquid nitrogen	Vials may explode upon rapid warming. Cuts to face/neck and frostbite to hands.	Face shield, impermeable insulated gloves, lab coat.
<input type="checkbox"/>	<input type="checkbox"/>	Working with very cold equipment or dry ice.	Frostbite, hypothermia.	Safety glasses, insulated gloves (possibly warm clothing), lab coat.
<input type="checkbox"/>	<input type="checkbox"/>	Working with hot liquids, equipment, open flames (autoclave, Bunsen burner, water bath, oil bath).	Burns resulting in skin or eye damage.	Safety glasses or goggles for large volumes, insulated gloves (impermeable insulated gloves for liquids, steam), lab coat.
<input type="checkbox"/>	<input type="checkbox"/>	Glassware washing.	Lacerations.	Heavy rubber gloves, lab coat.
<input type="checkbox"/>	<input type="checkbox"/>	Working with loud equipment, noises, sounds, alarms, etc.	Potential ear damage and hearing loss.	Earplugs or ear muffs as necessary.
<input type="checkbox"/>	<input type="checkbox"/>	Working with a centrifuge.	Imbalanced rotor can lead to broken vials, cuts, exposure.	Safety glasses or goggles, lab coat, latex, vinyl, or nitrile gloves.
<input type="checkbox"/>	<input type="checkbox"/>	Working with a sonicator.	Ear damage, exposure.	Safety glasses or goggles, lab coat, latex, vinyl, or nitrile gloves.
<input type="checkbox"/>	<input type="checkbox"/>	Working with sharps.	Cuts, exposure.	Safety glasses or goggles, lab coat, latex, vinyl, or nitrile gloves.



## Nanomaterial Hazard

**Is the following activity performed in the lab?**

Yes	No	Activity	Potential Hazard	Applicable PPE
<input type="checkbox"/>	<input type="checkbox"/>	Working with engineered nanomaterials. 8	Inhalation, exposure, dermal exposure.	Goggles, gloves, lab coat.

1. Use a chemical fume hood or other engineering control whenever possible. In addition to engineering controls and PPE, consider personal clothing that provides adequate skin coverage.
2. Consult SDS.
3. Chemical-resistant gloves are to be selected based on the specific chemical(s) used.
4. Use a Biosafety cabinet to minimize exposure
5. Appropriate skin protection can include lab coat, gloves, sun block, barrier cream.
6. Working with dry engineered nanomaterials (e.g. synthesizing, storage) should be separately evaluated for respiratory protection.





## Section 3: Conduct PPE Training

PPE training consists of **site specific training** conducted by the lab PI. Verification is required to document that training has been conducted (see the following page).

### Step 1

1. The PI, lab manager, or their designee reviews the **completed** *Hazard Assessment Tool* (this document) with the employee. It describes the tasks in the lab when employees need PPE to protect themselves from exposure to hazards. In this step, the hazard assessment is used as a training tool.
2. While discussing lab activities and the associated hazards with lab staff, the supervisor will address how their lab obtains PPE, what types of PPE are used in the lab and for which tasks, where and how the PPE is stored and maintained, how to properly use the PPE, and discuss any limitations of the PPE. The supervisor should also discuss general PPE safety practices, including not wearing PPE outside of lab hazard areas (e.g. hallways and eating areas).

### Step 2

When the supervisor believes the employee has demonstrated understanding, the employee(s) and the supervisor then sign the following *Verification of PPE Training* form (next page) to document that PPE training has been conducted. A copy of this signed form is to be maintained in the respective lab's Lab Safety Manual.

### Step 3

Repeat or conduct a refresher training whenever the hazard assessment is updated (at least annually).



**Section 4: Verification of PPE Training**

The following employees of \_\_\_\_\_ (laboratory) have received training on the proper use of PPE in Research Laboratories:

1. When PPE is necessary.
2. What PPE is required.
3. How to properly don, doff, adjust, and wear PPE.
4. The limitations of PPE.
5. The proper care, maintenance, useful life, and disposal of PPE.

<u>Employee Name</u>	<u>FNDY COF Number</u>	<u>Employee Signature</u>

As a part of this training, employees were informed of the personal protective equipment selected by this facility for their use. By my signature and those of the employees listed above, we certify that each employee has demonstrated his/her understanding of this training.

\_\_\_\_\_  
 (Signature of Principal Investigator)

\_\_\_\_\_  
 (Date)