**Personal Protective Equipment**

**Hazard Assessment Worksheet**

Personal protective equipment (PPE) may be needed to ensure adequate protection from hazards encountered at MIT. Get detailed information on different types of PPE on the [EHS PPE Webpage](https://ehs.mit.edu/workplace-safety-program/personal-protective-equipment/) and the [PPE SOP](https://ehs.mit.edu/sops/?title=personal+protective+equipment&key_term=). Common types of PPE include:

* Protective clothing – lab coats, smocks, aprons
* Eye and face protection – safety glasses, goggles, face shields
* Hand protection – gloves
* Respiratory protection – respirators
* Head protection – hard hats
* Hearing protection – earmuffs, ear plugs
* Protective footwear – steel-toed boots, shoe covers

PPE should not be used as a substitute for engineering controls such as fume hoods, glove boxes, biosafety cabinets, process enclosures, *etc*., or as a substitute for good work practices and personal hygiene. Conversely, use of engineering controls such as fume hoods does not preclude the need for wearing the proper PPE.

When PPE is needed, regulations require that a hazard assessment be performed to identify the specific hazards of concern and the PPE required for protection from those hazards. This hazard assessment may be done for a work area, or for a specific experiment, job, or task. PPE is selected based on the hazard assessment. This assessment needs to be documented in writing.

This form can be used to satisfy the hazard assessment and documentation requirement. Once completed, the form must be kept on file for the work area involved. It should be used for training new employees regarding the hazards associated with their work and the PPE required for the job. Employees must also receive training on the correct use, maintenance, and limitations of the equipment. The PI/Supervisor is responsible for providing or arranging that training.

Respiratory protection may be needed for chemical handling when there are not sufficient engineering controls in place. If you believe respiratory protection is warranted, you must also contact the Environment, Health and Safety (EHS) Office for a consultation before using respiratory protection.

The PPE listed as required in this document is based on MIT PPE requirements and represents the minimum PPE that must be worn in each circumstance. Contact th­­e EHS Office if there are cases in your Roomset where you think less PPE may be appropriate based the presence of additional controls or other extenuating circumstances.

For more information on PPE, visit the EHS Office website at <https://ehs.mit.edu/workplace-safety-program/personal-protective-equipment/>

**DLC:**       **Roomset Name:**       **Date Last Modified:**      /     /

**PI/Supervisor Name:**       **Signature:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Location-Based PPE and Clothing Requirements**

Determine if there will be minimum PPE requirements for entry into or working in labs or other spaces with hazards. In some cases, DLCs have established minimum requirements for all DLC spaces.

A combination of clothing and shoes that fully cover the legs and feet is required when working in spaces that have hazardous chemicals, which includes almost all lab spaces. Similarly, there are requirements to have the legs covered in spaces with other hazards that could pose a risk to individuals, such as physical hazards or biological and radioactive materials that pose an exposure risk.

Please outline any minimum DLC or lab PPE requirements as well as the shoe and clothing requirements for each space below.

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| **Room #** | **Minimum PPE and Clothing** | **Comments** |
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**Task and Material PPE Requirements**

Mark all hazards and operations performed in the roomset. Review the applicable PPE for all checked items.

Use the comments section for lab-specific details or for outlining stricter PPE usage to be implemented in the space.

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| **CHEMICAL HAZARDS** | | | |
| **Activity performed in lab?** | **Working With \_\_\_\_\_\_** | **Applicable PPE** | **Engineering Controls, Hazards, SOP Requirements, and Other Comments** |
| Yes | Liquid chemicals | *Lab Coat*: Lab coat required  *Eyewear*: Safety glasses or goggles required; face shield required if high splash risk  *Gloves*: Compatible gloves required  *Other*: In case of splash on whole body, chemical resistant coverall or apron | Potential Hazards:   * Skin burn * Eye damage * Skin irritation * Eye irritation * Skin sensitization (systemic reaction) * Spill on floor   Comments: |
| Yes | Dry chemicals | *Lab Coat*: Lab coat required  *Eyewear*: Safety glasses required; dust proof safety goggles for higher hazard chemicals  *Gloves*: Compatible gloves required; protective sleeves recommended  *Respiratory Protection*: Respirator required if engineering controls are insufficient | Potential Hazards:   * Inhalation of airborne particles * Contact with Eyes * Dermatitis * Skin burning * Contaminated floor and surfaces   Comments: |
| Yes | Highly exothermic reactions | *Lab Coat*: Flame‐resistant lab coat  *Eyewear*: Goggles and face shield required  *Gloves*: Compatible gloves required; additional fire resistant gloves may be necessary depending on the task  *Other*: Non-synthetic street clothing required | Potential Hazards:   * Fire * Explosion * Skin/eye contact with chemicals * Skin/Eye contact with hot liquids * Inhalation of vapors/gases * Spill on floor and surfaces   Comments: |
| Yes | Corrosive liquids | *Lab Coat*: Lab coat required; chemical-resistant (FR/CP) lab coat recommended  *Eyewear*: Safety glasses or goggles required  *Gloves*: Compatible gloves required | Potential Hazards:   * Eye/Skin/Respiratory burn * Eye damage * Inhalation of corrosive vapors/gases * Spill on floor   Comments: |
| Yes | Flammable liquids | *Lab Coat*: Lab coat required; flame resistant (FR) lab coat recommended based on fire hazard  *Eyewear*: Safety glasses or goggles required  *Gloves*: Compatible gloves required | Potential Hazards:   * Fire * Explosion * Skin/Eye absorption * Inhalation of vapors/gases * Spill and evaporation in lab   Comments: |
| Yes | Pyrophoric or water reactive compounds outside of glove box | *Lab Coat*: Flame‐resistant lab coat required  *Eyewear*: Goggles required; face shield recommended  *Gloves*: Compatible gloves required; FR gloves recommended  *Other*: Non-synthetic street clothing required | Potential Hazards:   * Fire * Explosion * Skin/Eye burn/damage * Inhalation of vapors/gases   Comments: |
| Yes | Explosive Compounds | *Lab Coat*: Flame resistant lab coat  *Eyewear*: Goggles + face shield required  *Gloves*: Heavyweight gloves, such as anti-static PVC gauntlets, required | Other Controls   * Lab specific SOP required   Engineering Controls   * Use blast shield   Potential Hazards:   * Fire * Explosion * Skin/Eye burn/damage * Inhalation of vapors/gases   Comments: |
| Yes | Particularly hazardous substances (PHSs) - select carcinogens, reproductive toxins, and substances with a high degree of acute toxicity | *Lab Coat*: Lab coat required  *Eyewear*: Safety glasses or goggles required  *Gloves*: Compatible gloves required  *Other*: Disposable sleeve guards may be recommended | Potential Hazards:   * Inhalation of gases and vapors * Eye/Skin absorption * Eating/drinking of contaminated food/drinks   Comments: |
| Yes | Toxic chemicals | *Lab Coat*: Lab coat required  *Eyewear*: Safety glasses or goggles required  *Gloves*: Compatible Gloves required | Potential Hazards:   * Inhalation of gases and vapors * Eye/Skin absorption * Eye/Skin irritation * Skin/respiratory sensitization * Eating/drinking of contaminated food/drinks   Comments: |
| Yes | Engineered nanomaterials in solution | *Lab Coat*: Disposable Tyvek-type coveralls or Lab coat  *Eyewear*: Safety glasses or goggles required  *Gloves*: Compatible gloves required; double gloves recommended; for choosing the proper gloves pay attention to the solvent | Potential Hazards:   * Eye/Skin absorption * Eye/Skin irritation * Skin/respiratory sensitization * Eating/drinking of contaminated food/drinks * Spill and surface contamination   Comments: |
| Yes | Engineered nanomaterials as dust/particles | *Lab Coat*: Disposable Tyvek-type coveralls or Lab coat  *Eyewear*: Safety glasses or goggles required  *Gloves*: Compatible gloves required; double gloves recommended  *Respiratory Protection:* Proper P100 respirator required if engineering controls are insufficient | Potential Hazards:   * Inhalation of airborne particles * Eye/Skin absorption * Eye/Skin irritation * Skin/respiratory sensitization * Eating/drinking of contaminated food/drinks * Spill and surface contamination   Comments: |
| Yes | Chemically preserved animal and/or human specimens | *Lab Coat*: Gown or lab coat required  *Eyewear*: Safety glasses or goggles required  *Gloves*: Compatible gloves required | Potential Hazards:   * Inhalation of gases and vapors * Eye/Skin absorption * Eye/Skin irritation * Eating/drinking of contaminated food/drinks * Exposure to formaldehyde   Comments: |
| Yes | Cryogenic liquids or dry ice (including working with cryogenic dewars) | *Lab Coat*: Lab coat required  *Eyewear*: Safety glasses or goggles required; face shield required when handling cryogenic liquids or cryogenically frozen tubes  *Gloves*: Insulated cryogenic gloves required | Potential Hazards:   * Skin burn * Eye burn * Asphyxiation * Frostbite of limbs   Comments: |
| Yes | Compressed gases | *Lab Coat*: Lab coat required  *Eyewear*: Safety glasses or goggles required  *Gloves*: Gloves required dependent on task (e.g., work gloves when handling cylinders, chemical‐resistant gloves when making/breaking connections with non-inert gases)  *Respiratory Protection*: May be needed when handling toxic gases | Other Controls:   * Gas cabinets and/or monitors may be required depending on type of gas.   Potential Hazards:   * Inhalation of gases and vapors * Eye/Skin absorption * Asphyxiation * Explosion   Comments: |
| Yes | Spray painting | *Lab Coat*: Disposable Tyvek-type coveralls or Lab coat  *Eyewear*: Safety glasses or goggles required; Face shield recommended  *Gloves*: Compatible gloves required  *Other*: Protective apron may be needed depending on engineering controls | Potential Hazards:   * Inhalation of gases, vapors & particles * Eye/Skin absorption * Eye/Skin irritation * Eating/drinking of contaminated food/drinks * Fire * Splash on face and body   Comments: |
| Yes | Hydrofluoric acid | *Lab Coat*: Lab coat required; chemical-resistant (FR/CP) lab coat recommended (refer to lab SOP)  *Eyewear*: Safety goggles and face shield required (refer to lab SOP)  *Gloves*: Neoprene gloves or double-nitrile gloves required (refer to lab SOP)  *Other*: Acid resistant apron required (refer to lab SOP) | Other Controls   * Lab-specific SOP required for use. * Calcium Gluconate gel and HF spill kit in lab.   Potential Hazards:   * Inhalation of HF vapors * Eye/Skin absorption * Systemic poisoning * Eating/drinking of contaminated food/drinks * Eye/Skin burn   Comments: |
| Yes | Aqua regia | *Lab Coat*: Lab coat required; chemical-resistant (FR/CP) lab coat recommended (refer to lab SOP)  *Eyewear*: Safety goggles required; Face shield recommended (refer to lab SOP)  *Gloves*: Neoprene gloves required (refer to lab SOP)  *Other*: Neoprene gauntlets and apron may be required (refer to lab SOP) | Other Controls   * Lab-specific SOP required for use.   Potential Hazards:   * Inhalation of acid vapors and toxic gases * Eye/Skin absorption * Eating/drinking of contaminated food/drinks * Eye/Skin/Respiratory burn * Explosion   Comments: |
| Yes | Piranha solution | *Lab Coat*: Lab coat required; chemical-resistant (FR/CP) lab coat recommended (refer to lab SOP)  *Eyewear*: Safety goggles required; Face shield recommended (refer to lab SOP)  *Gloves*: Neoprene gloves required (refer to lab SOP)  *Other*: Neoprene gauntlets and apron may be required (refer to lab SOP) | Other Controls   * Lab-specific SOP required for use.   Potential Hazards:   * Inhalation of acid vapors and toxic gases * Eye/Skin absorption * Eating/drinking of contaminated food/drinks * Eye/Skin/Respiratory burn * Explosion   Comments: |
| Yes | Bromine | *Lab Coat*: Lab coat required; chemical-resistant (FR/CP) lab coat recommended (refer to lab SOP)  *Eyewear*: Safety goggles required; Face shield recommended (refer to lab SOP)  *Gloves*: Fluorinated rubber gloves required for liquid bromine; nitrile or neoprene gloves required for aqueous solutions of bromine (refer to lab SOP) | Other Controls   * Lab-specific SOP required for use.   Potential Hazards:   * Inhalation of gas and vapor * Eye/Skin absorption * Skin/ Eye burn and damage * Respiratory irritation   Comments: |
| Yes | Phenol | *Lab Coat*: Lab coat required; chemical-resistant (FR/CP) lab coat recommended  *Eyewear*: Safety glasses or goggles required  *Gloves*: Double Nitrile gloves, Neoprene  *Other*: Neoprene gauntlets and apron may be required (refer to lab-specific SOP or EHS for guidance) | Other Controls   * Lab-specific SOP recommended   Potential Hazards:   * Eye/Skin absorption * Respiratory irritation * Eating/drinking of contaminated food/drinks * Respiratory and skin sensitizer * Skin/ Eye burn * Germ cell mutagen   Comments: |
| **BIOLOGICAL HAZARDS** | | | |
| **Activity performed in the lab?** | **Working With \_\_\_\_\_\_** | **Applicable PPE** | **Engineering Controls, Hazards, SOP Requirements, and Other Comments** |
| Yes | Splash hazard – infectious materials outside biosafety cabinet | *Lab Coat*: Lab coat required  *Eyewear*: Safety glasses required for minor splash risk; safety goggles or face shield required for higher risk activities  *Gloves*: Nitrile or latex gloves required  *Respiratory Protection*: Required if individual is immunocompromised | Comments: |
| Yes | Biological agents, recombinant DNA, or synthetic nucleic acids requiring Biosafety Level 1 containment | *Lab Coat*: Lab coat recommended  *Eyewear*: Safety glasses or goggles requiredif handling large culture volumes  *Gloves*: Nitrile or latex gloves required | Engineering Controls:   * Use biosafety cabinet for cell culture work.   Comments: |
| Yes | Biological agents, recombinant DNA, or synthetic nucleic acids requiring Biosafety Level 2 containment, including human materials | *Lab Coat*: Lab coat required  *Eyewear*: Safety glasses or goggles requiredif working at bench and there is a splash hazard  *Gloves*: Nitrile or latex gloves required | Engineering Controls:   * Biosafety cabinet recommended; BSC may be required based on organism.   Comments: |
| Yes | Biological agents, recombinant DNA, or synthetic nucleic acids requiring Biosafety Level 2+ containment | *Lab Coat*: Disposable gown or lab coat required (preferably with back ties)  *Eyewear*: Safety glasses or goggles required when transporting closed containers from biosafety cabinet to room equipment (centrifuge, incubator, *etc*.)  *Gloves*: Nitrile or latex gloves required; double-gloves recommended  *Other*: Refer to lab BL2+ manual for additional requirements - face shield, hair cover, shoe cover, cut resistant gloves | Engineering Controls:   * Biosafety cabinet use required unless deactivated or in sealed container.   Comments: |
| Yes | Live animals (Animal Biosafety Level 1 Containment) | *Lab Coat*: Lab coat required; DCM specifies lab coat type based on facility area  *Eyewear*: Safety glasses or goggles requiredif there is a splash hazard  *Gloves*: Nitrile or latex gloves recommended  *Respiratory Protection*: When required by DCM or if there is an allergy  *Other*: Hair cover and shoe covers required when in DCM facilities | Comments: |
| Yes | Live Animals (Animal Biosafety Level 2 or Risk Category 1 animals) | *Lab Coat*: Lab coat required; DCM specifies lab coat type based on facility area  *Eyewear*: Safety glasses or goggles requiredif there is a splash hazard; face shield and goggles required for primate work  *Gloves*: Nitrile or latex gloves required  *Respiratory Protection*: When required by DCM or if there is an allergy  *Other*: Hair cover and shoe covers required when in DCM facilities | Engineering Controls:   * Biosafety cabinet recommended; BSC may be required based on organism.   Comments: |
| Yes | Surgery | *Lab Coat*: Lab coat required  *Eyewear*: Safety glasses or goggles recommended; follow DCM requirements for specific area  *Gloves*: Nitrile or latex gloves required; puncture-resistant gloves may be recommended  *Respiratory Protection*: When required by DCM or if there is an allergy  *Other*: Hair cover and shoe covers required when in DCM facilities | Comments: |
| Yes | Perfusion using paraformaldehyde | *Lab Coat*: Lab coat required  *Eyewear*: Safety glasses or goggles required  *Gloves*: Nitrile gloves required  *Respiratory Protection*: Dependent on location of work | Engineering Controls:   * Fume hood or other local exhaust recommended   Comments: |
| Yes | Tissue cutting using micro or vibratome | *Lab Coat*: Lab coat recommended  *Eyewear*: Safety glasses or goggles required  *Gloves*: Nitrile or latex gloves recommended; consider cut resistance gloves when handling blades | Other Controls:   * Recommend tweezers for blade handling.   Comments: |
| **RADIATION HAZARDS** | | | |
| **Activity Performed in the lab?** | **Working With \_\_\_\_\_\_** | **Applicable PPE** | **Engineering Controls, Hazards, SOP Requirements, and Other Comments** |
| Yes | Unsealed radioactive materials or waste | *Lab Coat*: Lab coat required  *Eyewear*: Safety glasses or goggles required  *Gloves*: Nitrile or latex gloves required | Engineering Controls:   * Volatile radioactive iodine must be used in a HEPA/charcoal filtered chemical fume hood, with RPP oversight/approval   Comments: |
| Yes | Class 3B or 4 laser | *Eyewear*: Appropriate laser safety glasses required  *Other*: Clean rooms with high powered lasers require fire or flame resistant clothing | Other Comments:   * Nitrile gloves melt when hit by high power laser   Comments: |
| Yes | Laser(s) modified by optics | *Eyewear*: Appropriate laser safety glasses required | Comments: |
| Yes | Ultraviolet (UV) radiation (from sources other than lasers) | *Eyewear*: UV-blocking eye protection or UV-blocking face shield with safety eyewear required if not otherwise shielded  *Gloves*: Appropriate UV blocking gloves required  *Other*: Lab coat or other clothing to block UV skin exposure required | Comments: |
| Yes | Infrared‐emitting equipment | *Eyewear*: Appropriately‐shaded eyewear for infrared radiation required | Comments: |
| Yes | Other light sources | *Eyewear*: Appropriately-shaded safety eyewear required | Comments: |
| Yes | Magnets over 5 G | *Other*: Be cognizant of magnetic materials that may be on themselves or as implants | Comments: |
| **PHYSICAL HAZARDS** | | | |
| **Activity performed in the lab?** | **Working With \_\_\_\_\_\_** | **Applicable PPE** | **Engineering Controls, Hazards, SOP Requirements, and Other Comments** |
| Yes | Machine Tools (e.g., lathes, saws, sanders) and hand tools | *Eyewear*: Safety glasses or goggles required(add face shield if flying fragments or particles generated)  *Gloves*: Gloves not recommended where there is potential for getting hands caught in rotating/moving parts; gloves may be worn during setup if handling hazardous materials.  *Respiratory Protection*: Respirator required if hazardous or dusty materials are machined with insufficient engineering controls  *Other*: No jewelry or loose clothing; long hair tied back; hearing protection may be required based on noise level; safety shoes may be required. Long sleeves and long pants to minimize skin exposure to flying pieces and machining fluids | Comments: |
| Yes | Chips, particles, dust, glass shards/broken glass | *Eyewear*: Safety glasses required; goggles recommended for more protection  *Gloves*: Cut resistant gloves required when handling broken glass; ANSI Level 3 or 4 recommended; Consider double gloving if chemical exposure is possible. | Comments: |
| Yes | Glassware (or other vessels) under pressure or vacuum | *Eyewear*: Safety glasses required; face shield required if other barrier not present  *Gloves*: Cut resistant gloves recommended; ANSI Level 3 or 4 recommended | Engineering Controls:   * Use blast shield, as appropriate.   Comments: |
| Yes | Sharp objects (knives, scalpels, razor blades, etc.) | *Gloves*: Required based on other hazards present (bio/rad/chem); cut resistant gloves recommended | Other Controls   * Consider purchasing a razor blade holder   Comments: |
| Yes | Concrete cutting/ crashing | *Eyewear*: Safety glasses or goggles required  *Gloves*: Heavy duty gloves required  *Respiratory Protection*: Respiratory mask with dust cartridge or N95 mask required unless air sampling has shown that engineering controls have reduced quartz exposures to below the OSHA PEL  *Other*: Long sleeves and long pants to minimize skin exposure to flying pieces | Comments: |
| Yes | Centrifuge | *Eyewear*: Safety glasses or goggles required  *Other*: If centrifuging hazardous materials, wear additional PPE to match the hazard | Comments: |
| Yes | Sonicator or other loud equipment | *Other*: Ear plugs or ear muffs may be required; Request a noise survey by EHS if necessary | Comments: |
| Yes | Removing freezer vials from liquid nitrogen | *Lab Coat*: Lab coat required  *Eyewear*: Safety glasses and face shield required  *Gloves*: Insulated cryogenic gloves required; wear nitrile or latex gloves underneath if handling biological vials  *Other*: Closed-toed, impermeable shoes required | Comments: |
| Yes | Handling hot items (e.g., autoclaved materials, furnaces, heated glassware, water or oil bath) | *Lab Coat*: Lab coat required  *Eyewear*: Safety glasses or goggles required  *Gloves*: Thermally insulated gloves required; wear chemical‐resistant gloves underneath, as needed | Comments: |
| Yes | Compressed air | *Eyewear:* Safety glasses or goggles required | Comments: |
| Yes | Arc Welding | *Eyewear*: Welding helmet or goggles (model and shade number depends on type of welding)  *Gloves*: Gloves required, with features based on type of welding (Cut resistance, burn behavior, heat resistance, and dexterity of welding gloves)  *Respiratory Protection*: Respirators required whenever a carcinogen is present at any detectable concentration  *Other*: Fire/flame resistant clothing and aprons required; safety or heavy duty shoes recommended | Comments: |
| Yes | Electrical work over 50 V | *Eyewear*: Safety glasses or goggles required  *Other:* Non-synthetic street clothing and/or FR clothing required | Other Controls:   * Training as a qualified person is required for work on exposed conductors over 50v.   Comments: |
| Yes | Working from heights (*e.g.* ladder, unguarded surface >48”) | *Other*: Harness and lanyard required | Other Controls:   * Authorized person training requirement   Comments: |
| Yes | Collaborative robotics or autonomous vehicles | *Eyewear*: Safety glasses recommended  *Other*: Closed-toed shoes required | Other Controls:   * An SOP should be developed for this work.   Comments: |

**Other Hazards**

List any hazards or hazardous operations not listed above. For each item listed specify the minimum PPE that must be worn in the Roomset for that item. For more guidance see the Personal Protective Equipment website at <https://ehs.mit.edu/site/content/personal-protective-equipment-ppe> or contact your DLC’s EHS Coordinator.

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| **Working With \_\_\_\_\_\_** | **Applicable PPE** | **Engineering Controls, Hazards, SOP Requirements, and Other Comments** |
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