

Biosafety and Chemical Safety Lab Inspection Checklist Guidance

- Note: Biosafety and Chemical Safety Lab Inspection is conducted in Microsoft Forms.
- Laboratory Emergency Information card should be posted outside of the lab. The card was developed in conjunction with campus emergency responders and should be updated regularly. Review, sign, & date signage at least annually. In labs at biosafety level 2 and above, signs on the outside of the door should indicate biosafety level, agent(s), emergency contact information, and appropriate Personal Protective Equipment (PPE) required for entry. Contact OBS (263-2037) for signage options.
- Doors should be kept closed (even for BSL-1 work). This is for security, containment of hazardous material, and proper room pressure. See also the UW Madison Researchers' Biosafety Manual found on the OBS website.
- PPE should be readily available to anyone entering the lab and properly worn by everyone working in the lab to ensure effectiveness as described in the approved biosafety protocol. Typically, a lab coat and eye protection are worn regardless of the biosafety level with gloves, respiratory protection, face protection, etc. as required for specific procedures. PPE must be kept clean and ready for use for all employees. Lab coats are required by all personnel when a chemical hazard exists. Appropriate gloves need to be used for each chemical hazard. See the UW-Madison Researchers' Biosafety Manual found on the OBS website.
- PPE is removed upon exiting the laboratory since PPE can potentially be contaminated. If transporting research materials outside of the lab, exterior surfaces of the transport containers are surface disinfected so that PPE is not needed to transport materials. Even if PPE is clean or new, they are not worn in public areas as the public can perceive the PPE differently. Personnel should be trained in proper PPE removal procedures to help prevent contamination. Eye protection is required in all laboratories with hazardous materials.
- Laboratories should be kept relatively uncluttered. Cardboard cannot be properly disinfected, can harbor pests, and the storage of cardboard close to the ceiling is considered a fire hazard. We recognize that space is often at a premium, but a cluttered lab is difficult to disinfect and is more likely to lead to accidents. All benchtops and working surfaces need to be kept clear and uncluttered to prevent unintended reactions, exposures, or incident.
- All egress pathways must remain clear to allow for unobstructed exit during an emergency. For safe evacuation, exits and corridors should be free from obstructions. Lab aisle space is open at least 36-inches and hallways/corridors are open at least 44-inches for traffic.
- Surfaces that are not impermeable cannot be properly disinfected and may be more likely to be a potential fire hazard.
- Food, beverages, cosmetics, gum, etc. should be kept out of the laboratory. Exposures can occur by ingesting or applying contaminated products. No food or drink is allowed in lab working areas.
- Acids and bases should be stored below shoulder level.
- In the event of a container malfunction or spill, trays would capture the chemicals and potentially reduce the spill area.

- All containers in the lab (chemicals, reagents, water, disinfectants, etc.) need to be properly labeled to identify the materials inside.
- All equipment used for biohazardous materials (e.g., freezers used for human cell line storage, liquid nitrogen cryogenic storage containers, incubators, centrifuges, etc.) should be properly labeled with biohazard stickers; Contact OBS at 263-2037 for additional stickers or for information on biohazard stickers.
- Hand washing supplies should be readily available within the lab (i.e., sink, soap, towels, trash can). Hands are washed after activities and prior to exiting the lab.
- Sharps should not be left out and needles should never be recapped (unless the one-handed method is used). All sharps should be discarded in an appropriate sharps container and when full (2/3 to 3/4 full), the container should be taken to MERI barrel or drop-off location. Glass and sharps must be disposed of in designated containers. Note: Custodians usually do not handle or dispose of Sharps containers.
- Biohazard receptacles should be used whenever biological toxins or potentially infectious material are disposed. This includes contaminated PPE. Biohazard trash should be decontaminated/disposed of properly; this may be done by your lab, the buildings central autoclave group, or by an outside vendor. Contact OBS at 263-2037 for additional "OK to Trash" stickers or order stickers on our website. When you have chemicals for disposal, check if they are listed on the "Disposal Procedures by Chemical" document on the EHS website to determine if you can dispose of the material yourself. Many chemicals can be managed in the lab via sewer, trash, or added to existing solvent carboys. Chemicals not listed should be submitted to Chemical Safety for disposal.
- The Federal Select Agent Program does not regulate certain Select Agent (SA) toxins if the amount under the control of a PI does not exceed, at any time, the amounts indicated on their website. UW-Madison requires that PIs maintain an accurate inventory of SA toxins and secure the toxins in their laboratory. Inventory reports should be submitted semi-annually. Contact OBS (263-2037) for information.
- Plumbed emergency shower and eyewash units are available and unobstructed, within ten seconds (or 55 feet) from the lab (potential hazard area), and clearly marked. Shower and eyewash location(s) are known by all personnel working in the lab. Eyewash stations are flushed weekly to prevent bacterial and/or mineral build-up. An emergency safety shower and eyewash station must be readily available for immediate use if hazardous materials are used in the space. No obstructions are allowed to block access to any emergency devices. Regulatory requirements are found under ANSI standard Z358.1-2014 Eyewash and Shower Equipment. Flushing and maintenance of the eyewash station is documented. Eyewash logs can be found on our website.
- Appropriate materials to handle spills should be prepared in advance, placed in strategic locations inside or outside the laboratory, and all laboratory personnel informed of the location(s). The items that are generally recommended include personal protective equipment (PPE), absorbent materials, disinfectant(s), clean-up tools, and signage. More details on preparing a spill kit can be found on the Office of Biological Safety Website. More details on chemical spills is found on the Office of Chemical Safety website.
- Biological safety cabinets (BSCs) require annual certification to ensure they are functioning properly, and airflows are balanced. Submit any certification or service requests to the BSC Certification Program. For proper function, containment equipment is placed in a location with

minimum disruption of its airflow patterns. The ideal placement is away from doors, room supply air registers, fans, other containment equipment (e.g., fume hood), and foot traffic. Doors to rooms, incubators, refrigerators, and freezers open away from BSCs. There is minimum of 6-inch clearance to the sides of the BSCs and 6-inch clearance to the top of the BSC. The BSC is kept free of clutter with items at least 4 inches away from the front grate, and the front grate kept clear to help ensure proper function.

- Vacuum lines in the lab and in BSCs are protected with liquid trap and an in-line High Efficiency Particulate Air (HEPA) filter to prevent contamination of the pump or house vacuum system as per the National Institutes of Health (NIH) - Biosafety in Microbiological and Biomedical Laboratories (BMBL), current version. Contact your building manager, equipment manager, or contact OBS at 263-2037 for further information or assistance.
- Chemical fume hoods require annual certification. Contact the Physical Plant Customer Service (PPCS) at 608-263-3333 if certification or recertification is needed. The chemical fume hood is kept free of clutter to help ensure proper function and is not used for bulk chemical storage.
- Directional air flow into BSCs and fume hoods and an air curtain at the sash contain contaminated air inside the units affording personal protection. Chemical fume hoods provide only personal protection, exhaust air outside of the building and do not offer product or environmental protection. Centrifugation containment (e.g., seal rotors, buckets, or safety cups) are recommended due to aerosol generation when centrifuging biohazardous materials. Laboratory fume hoods are designed to protect laboratory users from exposure to hazardous materials. Fume hoods provide a safe, enclosed work area for chemical manipulations and provide critical ventilation for the user and laboratory. This ventilation is often the best engineering control available to keep chemical exposure below exposure limits. Proper fume hood use also assists with containing spills, providing shielding, removing odors, and reducing the concentration of flammable vapors.
- Centrifugation containment (e.g., seal rotors, buckets or safety cups) are recommended due to aerosol generation when centrifuging biohazardous materials. Additional practices may be needed (e.g., opening rotor in a BSC, checking the integrity of the centrifugation containers, opening and filling centrifugation containers in a BSC, and surface disinfection of the centrifugation containers).
- A log of the efficacy test results should be readily available and contains results, date, and tester initials. The log should be posted at the autoclave. If log is kept in another location, the location of the log should be posted at the autoclave.
- All personnel should have annual (or more frequent) lab specific training. This training may include hazard communication and, if applicable, information on additional precautions or special exposure response procedures. Annual training for animal caretakers or greenhouse staff is performed by laboratory staff. This training should include hazard communication, waste handling including decontamination procedures, agent, or material specific information, and, if applicable, information on additional precautions or special exposure response procedures. Training is documented. All laboratory personnel take Chemical Safety Training or receive training in General Safety Practices and the OSHA Laboratory Standard. Every employee must receive lab-specific procedures and emergency response training. All training records must be available for all employees.

- All personnel should be familiar with the First Report of Biological Exposure or Release Event form. The report form should be used within 24 hours of a potential exposure or release of recombinant DNA or other potentially hazardous substances. All personnel should be familiar with the Chemical Safety Incident Report Form to report any chemical-related incidents (e.g. spills, exposures, fires, explosions, or near misses) on UW–Madison campus and laboratories. This submittal will allow us to follow up, identify potential causes, and develop preventative measures for all campus labs.
- A chemical hygiene plan (CHP) is an OSHA Requirement for all labs. A template can be downloaded from the EH&S website.
- Safety Data Sheets (SDS's) are required for all chemicals present in a Laboratory, and must be readily available for all employees.
- Every employee must receive General Safety practices and OSHA lab standard Training.
- Standard Operating Procedures (SOP's) are required for all operations being performed per OSHA.
- All cryogenic liquids must be located in a well-ventilated location to prevent a low oxygen environment.