

Appendix A – General Rules for Laboratory Work

Prudent Laboratory Practices

It is prudent to minimize all chemical exposures. Few laboratory chemicals are without hazards. General precautions for handling all laboratory chemicals should be adopted, as well as specific guidelines for certain chemicals.

Exposure should be minimized even for substances of no known significant hazard, and special precautions should be taken for work with substances that present special hazards. One should assume that any mixture will be more toxic than its most toxic component and that all substances of unknown toxicity are toxic. Avoid inadvertent exposures to hazardous chemicals by developing and encouraging safe habits and thereby promoting a strong safety culture.

Safe Laboratory Practices

- Never work alone while working on procedures involving hazardous chemicals, biological agents, or other physical hazards.
- Wear closed-toe shoes with an enclosed heel and full-length pants, or equivalent, at all times when in the laboratory.
- Ensure that appropriate PPE is worn by all persons, including visitors, where hazardous chemicals or materials are stored or handled.
- Utilize appropriate PPE while in the laboratory and while performing procedures that involve the use of hazardous chemicals or materials. These items may include but not limited to laboratory coats, gloves, and safety glasses or goggles.
- Wear appropriate gloves when the potential for contact with toxic materials exists; inspect the gloves before each use and replace them often.
- Remove laboratory coats or gloves immediately on significant contamination, as well as before leaving the laboratory. Wash hands thoroughly before leaving the laboratory or upon completion of an experiment to further remaining contamination.
- Avoid use of contact lenses in the laboratory unless necessary. If they are used, inform the laboratory supervisor so special precautions can be taken.
- Confine long hair, loose clothing, and dangling accessories.
- Use appropriate respiratory equipment when air contaminant concentrations are not sufficiently restricted by engineering controls.

- Inspect the respirator before use. Use of respirators requires a respirator hazard assessment, successful completion of the EH&S respirator training and fit test in alignment with Cal Poly Humboldt's Respiratory Protection Program.
- Be aware of the locations of first aid kits, emergency eyewash and shower stations, and other emergency or first aid equipment.

Chemical Handling

- Use only those chemicals for which the quality of the available ventilation system is appropriate.
- Vent apparatus which may discharge toxic chemicals (vacuum pumps, distillation columns, etc.) into local exhaust devices.
- Properly label and store all chemicals. Always use secondary containment.
- Deposit chemical waste in appropriately labeled receptacles and follow all other waste disposal procedures of the Chemical Hygiene Plan.
- In the case of an accident or spill, refer to the emergency response procedures for the specific material. These procedures should be readily available to all personnel.
- Do not smell or taste chemicals.
- Do not allow release of toxic substances or fumes into cold or warm rooms, as these types of areas typically involve re-circulated atmospheres.
- Never use mouth suction for pipetting or starting a siphon.
- Do not dispose of any hazardous chemicals through the sewer system. These substances might interfere with the biological activity of waste water treatment plants, create fire or explosion hazards, cause structural damage, or obstruct flow.

Information on chemical spill mitigation may also be referenced in Section 9 of the Chemical Hygiene Plan and Appendix H for general spill clean-up procedures.

Equipment Storage and Handling

- Use equipment only for its designed purpose.
- Do not use uncertified fume hoods or glove boxes for hazardous chemical handling.
- Avoid storing materials in hoods and do not allow them to block vents or air flow.
- Keep hood closed at all times, except when adjustments within the hood are being made or when the hood is actively being used by a researcher.

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- Leave the fume hood “on” even when it is not in active use if toxic substances are in the fume hood or if it is uncertain whether adequate general laboratory ventilation will be maintained when it is “off”.
- Do not use damaged glassware or other equipment, under any circumstances. The use of damaged glassware increases the risks of implosion, explosion, spills, and other accidents.

Laboratory Operations

- Keep the work area clean and uncluttered.
- Seek information and advice about hazards, plan appropriate protective procedures, and plan positioning of equipment before beginning any new operation.
- If unattended operations are unavoidable and have been approved by the PI/Laboratory Supervisor, place an appropriate sign on the door, leave lights on, and provide for containment of toxic substances in the event of failure of a utility service (such as cooling water).
- Be alert to unsafe conditions and ensure that they are corrected when detected.
- Receive both CSU Laboratory Safety Fundamentals and lab specific training prior to starting work in a lab.

Food/Drink

- Do not eat, drink, smoke, chew gum, or apply cosmetics (including Chapstick) in areas where laboratory chemicals are present. Wash hands before conducting these activities.
- Do not store, handle, or consume food or beverages in storage areas or refrigerators which are also used for laboratory operations.
- Do not use glassware or utensils used in laboratory operations to store, handle, or consume food or beverages.
- Wash areas of exposed skin well before leaving the laboratory.