



Environmental Health and Safety
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Laboratory Setup Policy

PURPOSE

Due to the variety and amount of hazardous materials (biological, and chemical) routinely present in laboratories, the laboratory environment has the potential to negatively impact the safety of staff, the community and the environment as well as the violation of federal, state and local regulations. The following guidelines are intended to assist laboratory personnel in setting up their laboratories.

SCOPE

This program shall be utilized when setting up a laboratory at Drake University. All Principal Investigators shall assume primary responsibility for the proper set up of their laboratories as well as the handling, storage and disposal of all hazardous substances in their laboratories in order to protect students, faculty, staff, the community, and the environment and ensure compliance with all applicable institutional, local, state and federal regulations.

RESPONSIBILITIES

Principal Investigators:

The responsibilities of the Principal Investigator shall include the following:

- (a) Training laboratory staff pertaining to laboratory hazards as well as the safety practices and techniques required to ensure a safe work environment in their laboratory. Such training includes identification of hazards, storage and containment of hazardous materials, proper laboratory practices, and emergency response and notification procedures in the event of an accident, injury, exposure or potential exposure.
- (b) Supervising the laboratory staff's safety performance to ensure that the required safety practices and techniques are continuously employed;
- (c) Selecting and providing personal protective equipment to all laboratory staff members based on the procedures used in the laboratory and the individual requirements of the staff members;
- (d) Maintaining written documentation for all training activities, which includes instruction in laboratory safety procedures, for all laboratory staff personnel;

- (e) Investigating and reporting in writing to Drake University Environmental Health and Safety any significant problems affecting health and safety in their laboratory;
- (f) Complying with all applicable institutional, local, state and federal regulatory requirements.

Department Chairs:

The Department Chair is responsible for ensuring that all researchers understand their responsibilities and that the following procedures are followed when a researcher joins the University or transfers to a different department or laboratory.

Environmental Health and Safety (EHS):

EHS will provide proper guidance for laboratory setup.

PROCEDURE

The procedures detailed herein address the requirements for use of hazardous materials in the laboratory setting. Due to the various types of hazardous materials and regulatory requirements, these procedures have been subdivided by into specific checklists (appendices 1-4). The appropriate checklist must be completed prior to use of the associated hazardous materials.

Timeline

Prior to use of:	Contact	<u>Minimum</u> amount of time prior to use.
Chemicals	EHS	1 week
Radioactive materials	EHS	1 Month
Recombinant DNA, microorganisms, biological toxins	EHS	1 Month
Relocated Biosafety Cabinets	EHS and Facility Services	
Animals	IACUC	
Human Subjects	IRB	


APPENDIX 1

General Lab Safety Checklist

General Lab Safety Checklist (Page 1 of 1)	
	1. Prior to occupying lab space contact EHS for a site inspection to ensure the previous occupant has completed a detailed exit report and the lab is ready for occupancy.
	2. Review Drake University's chemical hygiene plan
	3. Contact EHS for a lab inspection. EHS will require a copy of the lab's chemical inventory providing complete chemical names and quantities. Lab entrances must be properly placarded. Contact ESH for assistance.
	4. Chemicals are clearly labeled.
	5. Labs are responsible for obtaining their waste containers including broken glass boxes, sharps boxes, Biologically Contaminated bags and containers, and biohazard bags. (provided by EHS) A) A broken glass container must be available. Dispose of broken glass in a rigid and labeled container. B) Place all disposable sharps (needles, syringes, blades, scalpels, etc.) in puncture resistant sharps boxes. C) Biologically Contaminated Containers and bags are required for disposal of biologically contaminated material. D) Infectious waste bags labeled with the biohazard symbol must be available for disposal of biohazardous waste.
	6. Personal protective equipment (PPE) must be available for lab personnel.
	7. All flammable liquids must be kept in a flammable storage cabinet, marked as "Flammable Storage". Flammable storage cabinets shall not contain more than 120 gallons of material. Only 10 gallons of flammable liquid can be stored outside of the cabinet for active use. No more than three flammable storage cabinets can be kept in one control area (lab). Flammable storage cabinets cannot be placed in exit corridors.
	8. Does any electrical equipment have frayed cords? If so, please contact Facilities Services to replace the cord.
	9. Have the eyewashes been tested? Upright eyewashes on sinks must be flushed weekly and documented. (conducted by EHS)
	10. Have the Emergency Showers been tested? Emergency Showers must be tested weekly and documented. (conducted by EHS)
	8. Label areas in shared storage (freezers, refrigerators, flammable cabinets, etc.) to identify those occupied by each Investigator.
	11. Is an extinguisher present and of the correct type?
	12. Are all fume hoods, biosafety cabinets and laminar flow hoods current in certification?
	13. All Drake University Employees must perform annual OSHA training

APPENDIX 2

Chemical Safety Setup Checklist

	Chemical Safety Setup Checklist (Page 1 of 2)
	<p>General Standards As you move in and unpack, do not keep chemicals that you know you will not need. Dispose of these chemicals or transfer them to a lab that can use them. Ensure all containers to be moved or disposed of are clearly marked as to the contents and hazard. Containers must be in good condition and must close securely. Ensure the outside of the containers are clean and not contaminated with any hazardous materials.</p>
	<p>Unknown Containers Be sure all containers you unpack are clearly labeled. Make every effort to identify any unknown substances since disposal of true unknowns are associated with high cost. If the contents of a container cannot be identified segregate it for identification during waste collection.</p>
	<p>Chemical Reuse Identify unopened chemicals that have not expired and will not be used. Such chemicals can be offered to neighboring labs. Donated chemicals must be removed from your chemical inventory and added to the receiving laboratory's chemical inventory.</p>
	<p>Pick-Up Requests To request a pick up for waste that has been properly labeled and containerized, go the site below, fill out the form completely and hit "Submit."</p> <p>http://drake.qualtrics.com/SE/?SID=SV_e41T6PpY8KHPTKd</p>
	<p>Chemicals Awaiting Disposal When chemicals in your lab are used, have expired or are no longer needed they must be sent for proper disposal. Containers must be sealed and labeled with hazardous waste or non-hazardous waste label as soon as any waste is placed in a container. If the chemical has expired or is no longer needed, it must be labeled as waste as soon as it is deemed to be a waste. This label should have the full noun name of the chemical. The chemical formula or structure can be on the label but cannot be substituted for the full noun name. Do not use abbreviations.</p> <p>No chemicals should be put into the trash or evaporated in a chemical fume hood. Only approved chemicals within acceptable limits should be discharged into the sanitary sewer system. Designate a safe, conspicuous, well-marked area to collect waste chemicals, keeping them properly segregated as prescribed in the Chemical Segregation section to facilitate collection.</p>



Chemical Safety Setup Checklist (Page 2 of 2)

Chemical Segregation

As you unpack your chemicals please store them according to hazard class and ensure incompatible chemicals are segregated. Fisher, Baker and other chemical manufacturers use a color coded system for segregating chemicals. This may help you to separate them according to hazard class.

Flammables and Combustibles (Red)

Flammable Solids (Red)

Corrosive Acids (White A)

Corrosive Bases (White B)

Poisons / Toxins (Blue I)

Cyanides (Blue C)

Oxidizers (Yellow OX)

Peroxide Formers (Yellow PF)

Water Reactives (Yellow WR)

Organic Peroxides (Yellow OP)

Chemical Inventory

As you unpack your chemicals, take this time to update your written chemical inventory. You will be required to provide EHS with an updated inventory after occupying the new laboratory location.

Spill Clean-Up


Have spill clean-up materials on hand before unpacking. Wear the proper personal protective equipment (gloves, lab coat, safety glasses or goggles). Ensure each chemical container is labeled and lids are on tightly and in good condition. **Contact EHS (271-3804) if spills occur.**

Transport Carts

Use sturdy carts with raised edges on all sides to contain boxes when moving chemicals. Be especially careful when entering or exiting elevators as the wheels of some carts may get stuck and cause carts to tip over.

APPENDIX 3

Biosafety Setup Checklist

	Biosafety Setup Checklist (Page 1 of 1)
	<p>1. Investigators working with recombinant DNA, microorganisms or biological toxins must register these agents with Drake University's Hazardous Waste Advisory Committee (HWAC). Registrations must be amended if relocating to new facilities within Drake University or adding additional agents. Agents may be transferred to Drake University Investigators who have received prior HWAC approval.</p> <p>HWAC registrations and amendments adding new agents or locations require lab inspections. Contact EHS to schedule lab inspections.</p>
	<p>2. Transfer of CDC / USDA Select Agents (including toxins above regulatory limits) require the notification of EHS and HWAC approval <u>prior</u> to arrival. See Listing of Select Agents- https://www.selectagents.gov/SelectAgentsandToxinsList.html</p>
	<p>3. Transport or shipment of biological materials, requires current shipping certification to ensure Department of Transportation (DOT) / IATA shipping regulations are followed. Individuals must have current training in order to package these items for shipment.</p>
	<p>4. Use of vertebrate animals must be registered with Drake University's Institutional Animal Care and Use Committee (IACUC).</p>
	<p>5. Human research studies must be approved by the Institutional Review Board (IRB).</p>
	<p>6. Biological Safety Cabinets must be certified upon installation, when moved, repaired or annually thereafter. Facilities Services and EHS can arrange for the relocation, maintenance, repair and recertification of biosafety cabinets. Contact EHS for assistance.</p>
	<p>7. Properly dispose of all biological waste. Dispose of all solid media, supplies and waste in either biologically contaminated or infectious waste bags. Live cells, cultures, frozen stocks, etc. must be autoclaved prior to disposal.</p>
	<p>8. Decontaminate all liquid biohazard waste by adding bleach to a final concentration of 10% by volume and allowing it 30 minutes of contact time before disposal down the drain with minimum 5 fold of excess water.</p>
	<p>9. Place all disposable sharps (needles, syringes, blades, scalpels, etc.) in puncture resistant sharps boxes.</p>
	<p>10. All biological materials must be transported on Drake University utilizing primary and secondary containment. The primary and secondary containers must be sealed, leak proof and labeled with the biohazard symbol.</p>

APPENDIX 4

(Insert On-Site Chemical List)