



Laboratory Safety

General Overview for Researchers

Environmental Health and Safety Services (EHSS) partners with principal investigators (PIs) and research laboratory members to establish and maintain safe and compliant laboratory operations. EHSS provides information and services to support laboratory safety and reduce lab hazards and risks. This document provides a general overview of University research safety requirements and services offered by EHSS.

For more information contact EHSS at ehss@syr.edu or 315.443.4132

◆ Laboratory Safety Training

- All students, faculty and staff working in a research laboratory (lab members must complete required lab safety training.
- All lab members must attend the in-person initial laboratory safety training provided by EHSS. Lab members may register to attend initial lab safety training by completing the [lab safety training registration form](#).
- Lab members must also complete additional lab safety training modules depending on the hazards in their lab. Visit [EHSS' lab safety training website](#) to review, complete or register for these additional lab safety trainings modules.
- Lab members can check their individual lab safety training requirements via EHSS' [lab safety training website](#).
- Principal investigators (PIs) are required to monitor their lab members' training requirements and completion.

◆ Laboratory Incidents and Emergency Response

- Contact Department of Public Safety (DPS) 315-443-2224 if an incident or emergency occurs in a laboratory. This includes hazardous materials spill, personal injury or contamination, fire or other serious incidents.
- DPS will dispatch EHSS, and other emergency responders as needed.
- DPS must be notified of any unintended fire occurring in a lab even if the fire has been extinguished.
- Following any lab incident or near miss incident, the PI or involved lab member must complete an EHSS' [Lab incident report form](#). EHSS will review and assist lab members in implementing actions to prevent reoccurrence.

◆ Emergency Equipment

Fire Extinguishers

- Fire extinguishers are provided in or near labs where flammable chemicals are used, and in other locations in University buildings.
- Fire extinguishers must be kept visible and accessible. Do not block.
- Fire and Life Safety Services offers fire extinguisher trainings upon request (315.443.3583).

Emergency Wash Equipment (eyewash and safety showers)

- Emergency wash equipment (eyewash and/or safety showers) are provided in or near labs where hazardous materials are used or stored.
- Emergency wash equipment must be kept visible and accessible. Do not block.
- EHSS inspects emergency wash equipment at least annually.
- Lab members are encouraged to operate lab eyewashes weekly to confirm proper function.

First Aid Kits

- The University has on site emergency response available at all times through the Department of Public Safety (315.443.2224), therefore first aid kits are not required to be present in labs.
- PI's may choose to purchase a first aid kit(s) to have available in their lab.
- If a first aid kit is purchased, it must be OSHA approved, periodically inspected and have its contents replenished if used or expired.

Spill Clean Up Supplies

- EHSS maintains spill response, neutralization and clean up supplies to support the cleanup of most hazardous material spills.
- Certain labs, depending on the chemicals/materials used in the lab, may be required to procure, and maintain lab specific spill clean up supplies.

◆ Personal Protective Equipment (PPE)

Lab members must wear appropriate personnel protective equipment (PPE) to protect from the hazards present in the laboratory. Visit [EHSS' PPE Website](#) for information on PPE selection, procurement, and use.

General Lab PPE

- Lab members must minimally wear a shirt, long pants, and closed-toe shoes in labs with chemicals or other hazards.
- Lab members must wear PPE when using hazardous materials and chemicals including a hazard appropriate lab coat, gloves, and eye protection.
- Additional PPE may be warranted depending on the nature of the hazard(s).
- PPE must be provided to lab members at no cost, be properly maintained and replaced when worn or damaged.
- Use of a respirator, including an N-95 respirator, requires prior EHSS approval and must adhere to the University's [Respiratory Protection Program](#).

◆ Laboratory Signage and Postings

EHSS provides standardized safety and informational signs and postings for labs.

Laboratory Door Sign

- Lab door signs are posted at the entrance to each lab space and provide lab specific hazard and contact information.
- Lab PIs or managers are responsible for identifying which hazards should be posted on each lab's door sign.
- Submit a [Lab Door Sign Information form](#) to request or update a lab door sign.

Standard Lab Safety Postings

EHSS provides safety postings for hazardous materials use/storage labs, including:

- Lab Safety Rules poster
- Hazardous Materials Spill procedure posting
- Safety Data Sheet (SDS) access posting

◆ Standard Operating Procedures (SOPs)

- Lab specific standard operating procedures for operations and processes involving hazardous materials and equipment should be written and readily available to lab members.
- Standard operating procedures must be available for any processes involving what OSHA defines as particularly hazardous substances (carcinogens, reproductive toxins, acutely toxic materials).
- Visit EHSS' [Laboratory SOP website](#) for templates and more information.

◆ Chemical Inventory Management

EHSS maintains an inventory of all hazardous chemicals in laboratories and manages centralized laboratory chemical receiving and shipping services.

All chemical use labs are required to participate in these services. Visit EHSS' [Chemical Management](#) website for more information

Chemical Inventory Tracking System

- BioRAFT is the University's chemical inventory management software system.
- Each hazardous chemical is barcoded by EHSS and tracked in the chemical inventory system.
- The Chemical Inventory System is accessed by visiting Syracuse.bioraft.com and logging in with a University NetID and password.
- Lab members will have access to their labs' chemical inventory in the System.
- Lab members must remove the barcode from the chemical container when empty or disposed of and place removed barcode on the lab's "chemical out of inventory" sign to notify EHSS to remove the chemical container from BioRaft.

General Chemical Storage

- Store incompatible chemicals separately
- Store flammable chemicals in flammable cabinet
- Visually assess chemical storage areas frequently and dispose of degrading, expired and unneeded chemicals

Gas and Cryogenic Cylinders

- Gas and cryogenic cylinders are included in the chemical inventory tracking system, but are tracked differently than other chemicals and are not received through EHSS' centralized chemical receiving area.
- A gas cylinder inventory sign is posted in labs with gas cylinders and will include a bar code for each cylinder in the lab. Actual cylinders are not bar coded. Lab members must update EHSS if the number or type of cylinders in a lab changes.
- Dewars and other secondary gas storage containers are excluded from chemical inventory tracking.
- Cylinders must be properly secured at all times and capped when not in use.

Safety Data Sheets (SDS)

- Safety Data Sheets for hazardous chemicals in University laboratories are maintained and accessed online through the BioRAFT software system.
- SDSs can be searched and accessed by visiting Syracuse.bioraft.com and logging with a University NetID and password.
- For more information on searching for an online SDS in BioRAFT, review [How to Search for an SDS instructions](#).

◆ Chemical Ordering, Receiving and Shipping

Chemical Ordering

- Hazardous chemical purchase requests must be initiated by completing a [Laboratory Order Form](#) and submitting the completed form to the department's budget manager.
- University credit cards may not be used to purchase hazardous chemicals.
- Hazardous chemicals purchases must be requested separate from non-chemical purchases. Separate laboratory order forms must be submitted.
- Gas cylinders are ordered directly from the supplier. Contact the departmental budget manager for assistance.
- Visit EHSS' [Chemical Management](#) website for more information.

Chemical Receiving

- Chemical purchases will be directed for delivery to the EHSS managed centralized chemical receiving in 032 Lyman Hall.
- Upon delivery, EHSS will barcode the chemical container, enter the chemical container into BioRAFT chemical tracking system, and deliver the chemical to the appropriate lab space.
- Pls must designate where in the lab chemical deliveries should be placed.
- Visit EHSS' [Chemical Management](#) website for more information.

Chemical Shipping

- Hazardous material shipments must be coordinated through EHSS.
- Trained and certified EHSS staff will assist researchers in meeting the hazardous material shipping compliance obligations.
- Complete EHSS' hazardous material [Intent to Ship form](#) at least 24 hours in advance of a needed hazardous materials shipment.
- EHSS will advise on how to properly package and prepare the material for shipment, review and sign shipping papers, and coordinate with the carrier to pick up the shipment.
- International shipments must also comply with [export control requirements](#) and may require approval from the University's export control program manager.
- Visit EHSS' [Hazardous Materials Shipping website](#) for more information.

◆ Laboratory Waste Management

Lab members are obligated to properly manage wastes generated in research laboratories in accordance with regulatory requirements and university procedures.

Chemical/Hazardous Waste

- EHSS coordinates the disposal of all chemical hazardous wastes.
- EHSS establishes a chemical waste storage area(s), referred to as a satellite accumulation area (SAA), in each chemical use laboratory.
- The waste SAA will be identified by signage.
- Lab members are responsible for providing appropriate waste containers for their wastes.
- EHSS provides chemical waste labels. Each waste container must be labeled with this label to identify the contents and hazards it contains.
- Chemical waste generated in the laboratory must be:
 - stored in containers compatible with the waste
 - stored closed except when adding waste
 - properly labeled.
- EHSS picks up waste from SAAs and coordinates disposal of the waste.
- Waste pickups can be requested by submitting EHSS' [Request for Service form](#). EHSS will also routinely visit labs to pick up full waste containers from the SAA.
- Empty containers, free from chemical residue, can be disposed of as trash. Mark "empty" on container before placing in trash.
- Visit EHSS' [Waste Management website](#) for more information.

Biohazardous Waste

- EHSS manages the disposal of biohazardous waste as regulated medical waste.
- EHSS provides biohazard/medical waste containers and bags for labs to use.
- Liquid biohazardous wastes must be deactivated prior to disposal. Generally, labs can dispose of deactivated biohazardous liquid waste down the drain.
- Waste pickups can be requested by submitting EHSS' [Request for Service form](#).

Sharps Waste

- Sharps waste includes needles, syringes, razor blades and other sharps that can cut or puncture skin.
- Sharps waste must be disposed of in a puncture-proof container.
- Labs are responsible for procuring sharps containers if sharps waste is generated.
- EHSS handles the disposal of sharps containers.
- Waste pickups can be requesting by submitting EHSS' [Request for Service form](#).

Broken Glass Waste

- Broken glassware must be placed into puncture proof box or bag.
- Facilities Services provides special lined paper bags for disposal of broken glass.
- Glass waste bags and waste pickups can be requested by completing the [Facilities Services Maintenance Request form](#).

Electronic Waste

- Facilities Services coordinates the disposal of electronic wastes.
- Electronic waste must not be disposed of in regular trash.
- Electronic waste pick-ups can be requested by completing the [Facilities Services Maintenance Request form](#).

Regular Trash

- Facilities Services custodial staff retrieve trash from University buildings.
- Coordinate with building custodial staff to facilitate trash retrieval from lab areas, especially if areas have restricted access or entry requirements.
- Contact Facilities Services at 315.443.1234.

◆ Laboratory Activities Requiring Special Approval

The following activities require prior approval from a University oversight committee, regulatory agency, EHSS and/or University leadership prior to occurring in a laboratory. These activities may also require special facilities and training.

Use of Biohazardous Materials

All use of biological materials requires prior review by EHSS.

- To initiate the EHSS review, complete a [Biohazardous Materials Use Application](#) and send the completed application to ehss@syr.edu for review.
- All biohazardous materials use involving biological materials classified as BSL-2 (or higher), human materials, and/or recombinant or synthetic nucleic acids covered under the NIH Guidelines, must be reviewed and approved by the University's Institutional Biosafety Committee (IBC) prior to use.
- All use of biohazardous materials must comply with the [University's Biological Safety Program](#) and applicable regulations and standards.
- Biological use laboratories must meet the University's biohazard laboratory design standards.
- Contact [EHSS](#) for questions or support in completing the biohazard application.

Use of Radioactive Material and/or Radiation Producing Equipment

All use of ionizing radiation including radioactive materials, radioactive sealed sources, x-ray equipment or other radiation producing equipment, requires prior review and approval from the University's Radiation Safety Committee (RSC).

- To initiate the RSC review and approval process, complete the appropriate [Application for Use of Ionizing Radiation](#) and submit the completed application to ehss@syr.edu.
- All use of ionizing radiation must comply with the requirements outlined in the University's [Radiation Safety Program](#), license and registration, and applicable regulations and standards.
- Procurement of radiation sources or radiation producing equipment requires prior approval from EHSS.
- Radiation use areas must be reviewed by EHSS, approved by the RSC, and meet University radiation lab design standards.
- Contact [EHSS](#) for questions or support in completing a radiation use application.

Use of Lasers (Class 3B or Class 4)

Procurement and use of Class 3B or 4 lasers requires prior approval from EHSS. New or modified Class 3B and 4 laser use areas require prior review and approval from EHSS.

- To initiate the EHSS review and approval process for a laser and/or a laser use area, complete the University's [Laser Registration](#).
- Class 3B and 4 Laser use must comply with the [University's Laser Safety Program](#) and procedures, and applicable laser safety regulations and standards.
- Class 3B and 4 Laser use area must meet University laser lab design standards and applicable laser safety regulations and standards..
- Contact [EHSS](#) if you have questions, need assistance in determining a laser's class, or need support in completing the Laser Registration.

Use of Animals/Animal Parts

All use of live vertebrate animals and animal parts in research requires prior approval for the Syracuse University Institutional Animal Care and Use Committee (IACUC). Approval must be obtained prior to procurement of animals or animal parts.

- To initiate the IACUC live animal use approval process visit the University's [IACUC website](#).
- All use of live animals must comply with the University's [Animal Care and Use Program](#) and applicable regulations and standards.
- Contact the IACUC administrator for more information at 315.443.1690.

Use of Human Subjects

Research involving Human Subjects may require Institutional Review Board (IRB) for Human Research review.

- Visit the Office of Research Integrity Protection's [Human Research website](#) for more information on the human research approval process and requirements.
- Contact the Office of Research Integrity Protection at 316.443.3013 for more information.

Use of DEA Controlled Substances

All use of US Drug Enforcement Agency (DEA) Controlled Substances requires prior EHSS approval.

- Principal Investigators must obtain their DEA License or registration if one is required.
- All use of DEA controlled substances must comply with the University's [Control Substances Program](#) and procedures and all applicable regulations.
- Visit EHSS's Controlled Substance website for more information or assistance.

Use of CDC Select Agents or Toxins

All use of biological agents or toxins classified as Select Agents by the Center for Disease Control and Prevention's (CDC) [Federal Select Program](#) requires prior approval from EHSS and the Vice President of Research.

- If applicable, the use of a select agent may also require prior approval from a research oversight committee such as the Institutional BioSafety Committee.
- Contact EHSS at ehss@syr.edu for assistance in determining if a biological agent or toxin is deemed a select agent and coordinating approval to use a select agent.