What are the Requirements for OSU's Chemical Inventory Program?

- The Oregon State Fire Marshall's Office requires annual updating and reporting of chemical inventories over certain threshold quantities.
- Oregon OSHA requires a complete inventory of all chemicals regardless of threshold quantities to fulfill "worker-right-to-know" requirements.
- Your chemical inventory must be reviewed by **JUNE 30th** and certified annually.
- The laboratory's Principal Investigator is responsible for filing the annual report using the EHS Chemical Inventory Program on the EHS website.

Using the Chemical Inventory Program

- A user name and password is required to use the Inventory Program. If you are a new Principal Investigator, contact EH&S for access.
- Your chemical inventory is held as confidential information except for your employees, emergency response personnel, and Chem Stores personnel.

Using the Chemical Reuse Program

- OSU collects unneeded chemicals that are sealed and in good condition and makes them available to other University departments for reuse. Such chemicals include solvents, acids/bases, salts, etc. This helps reduce waste and save money for the University. The chemical reuse inventory is integrated into the Chemical Inventory Program.
- Access your chemical inventory (above) then select 'Used Chemical Exchange' to view currently available chemicals.

Call Environmental Health & Safety (541-737-2273) for further information.

CHEMICAL INVENTORY & REUSE PROGRAM

How Should My Laboratory Handle Hazardous Waste?

Storage

- Wastes must be stored in containers that are in good, leak proof condition and with tight fitting lids (no open containers, used food/drink containers, etc.).
- The container type must be compatible with the chemical to be stored.
- Do not place waste containers on the floor unless stored in spill proof secondary containment tubs.
- Do not store incompatible wastes in the same general area.
- Containers must be closed when not actually adding waste. Funnels may not be left in open containers.

Labeling

- Containers are to be labeled as soon as the waste is added.
- Container must have a filled out EH&S hazardous waste label that has the room number, contact info, hazard class, and % by-weight or % by-volume of each constituent.
- Hazardous Waste Labels can be downloaded from the EHS web site.
- Attach a label to each waste container.

Pickup

- To request a waste pickup, use the Hazardous Waste Pickup Request on the EHS website. List wastes to be picked up in the comments section and select any replacement containers you wish to have delivered.

For additional information, visit our website and click on the Hazardous Waste Determination and Waste Pickup Process safety instruction.

Call Environmental Health & Safety (541-737-2273) for further information.

HAZARDOUS WASTE

You have a solid waste that you want to discard or is no longer useful. Is it hazardous?

You will need to ask yourself is it “hazardous” in order to determine how to properly dispose of the material. This process is called a “waste determination”. Waste determinations can be conducted using one of two methods: 1) Sampling and analysis or 2) Using generator knowledge. The below process applies to method #2: After completing the waste determination, complete a waste label and affix to the container.

Note: The hazardous waste determination must be conducted by the person generating the waste at or near the point of generation.

1. Is the "solid waste" **excluded** from the definition of a hazardous waste? Check exclusion list.	YES - waste is **NOT** hazardous
	NO - go to step 2
2. Is the material on the K, F, P, or U lists? Check lists or run **Report** from online chemical inventory program.	YES - waste **IS** hazardous
	NO - go to step 3
3. Does the waste exhibit one or more characteristic hazards? Check D-list or run **Report** from online chemical inventory program.	YES - waste **IS** hazardous
	No - go to step 4
4. Waste is not hazardous by state/federal hazardous waste regulations, but may be hazardous by local or OSU rules.	

WASTE DETERMINATION PROCESS

“Sharps Waste” Definition:

Sharps waste includes needles, scalpels, razor blades, lancets, cannulas, and syringes. In addition, glass pipettes, microscope slides, culture tubes and broken glass are considered sharps for purposes of disposal if they have come into contact with microbial cultures. In the State of Oregon, all syringes removed from their original wrappers, whether a needle is attached or not, are treated as regulated sharps waste. Wastes that meet the above definition must be segregated at the point of use into approved sharps disposal containers.

Proper Handling and Disposal of Regulated Sharps Waste

- Use disposable, safety-engineered sharps whenever possible.

- After use, prior to discard, do not re-sheath, shear, remove or otherwise manipulate needles, scalpel blades or other disposable sharps.
- All used sharps must be collected into approved sharps disposal containers. At the time of discard, these should not be autoclaved, and may not be placed into dumpsters.
- Approved sharps containers can be acquired on campus from Chemical Stores (Gilbert Hall) or from commercial vendors. Contact EH&S if you need assistance.
- Do not fill sharps containers above the "Fill-Line".
- When the sharps container is full, request a Waste Pickup on the EHS website.

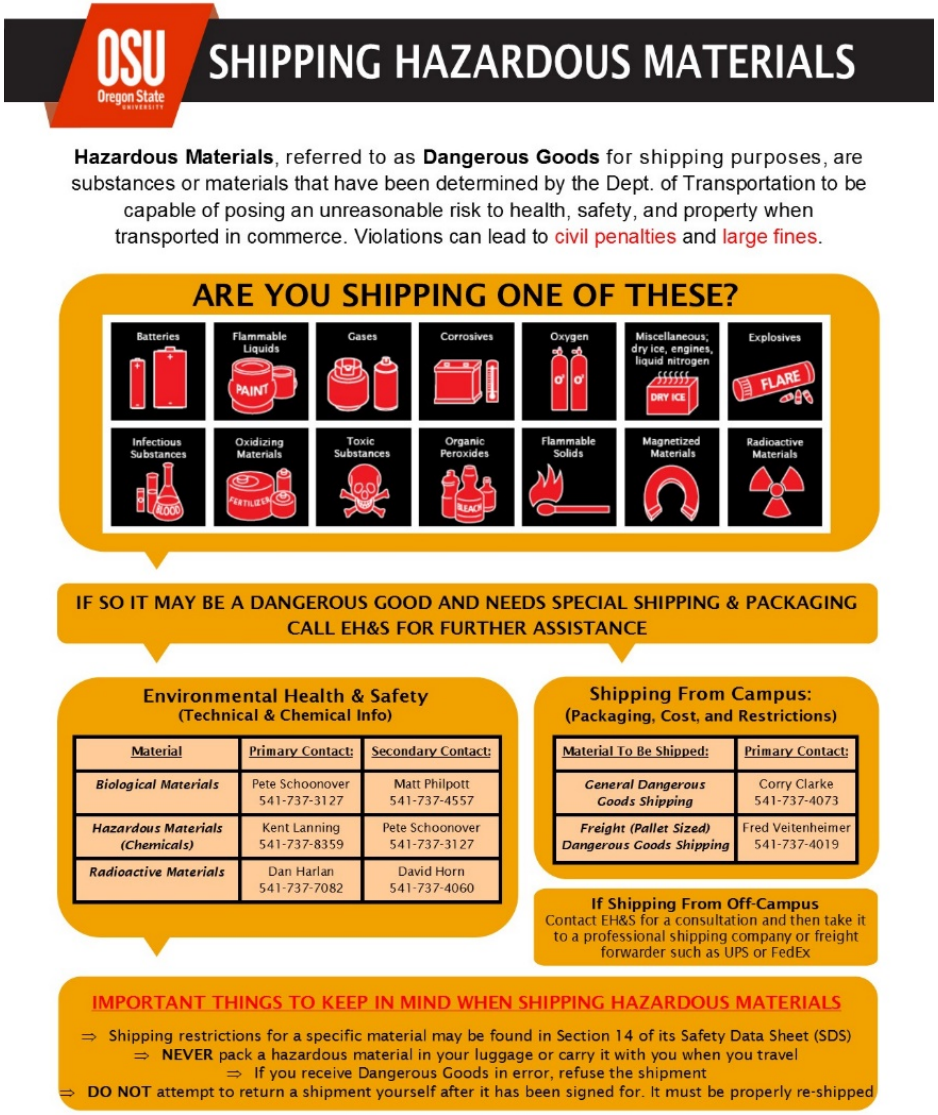
Other Types of Sharp Waste – Proper Handling and Labeling

- Clean broken glass and labware can be boxed up, taped and labeled as "clean broken glass" and placed into dumpsters. This is not considered hazardous waste. 'Broken Glass' box kits with liners are available from Chemical Stores.
- Pasteur pipettes or other glass pipettes which have not been used for work with cultures or other hazardous liquids may be disposed of in lined boxes or other hard-sided disposal containers, closed, then placed into dumpsters.
- Sharps exposed to radioactive materials can be containerized into a hard sided, leak-proof container and labeled with radioactive tape.
- All other sharps must be discarded into an approved sharps container; these come with hazard warnings and should not need additional labeling.

Call Environmental Health & Safety (541-737-2273) for further information.

SHARPS WASTE

Shipping Hazardous Materials Poster



Call Environmental Health & Safety (541-737-2273) for further information.

SHIPPING HAZARDOUS MATERIALS POSTER

How Should My Laboratory Handle Empty Chemical Containers?

- Empty chemical containers may be considered a hazardous waste unless managed properly.
- Every container must be completely empty before the container itself is no longer considered a hazardous waste.
- Exception to the above rule: If the container held a material classified as “acutely hazardous” or “extremely hazardous” (list of acutely hazardous materials can be found at on the EHS website), the container must be processed as a hazardous waste even if empty.

Managing Containers

- A container is considered “empty” when nothing can be poured or drained out; or when no material is encrusted on or adhered to the inside.
- The laboratory’s Principal Investigator is responsible for ensuring their containers are managed properly.

To Reuse Containers:

- Empty the container.
- Before reusing container, make sure container type and prior chemical are compatible with intended reuse.
- Deface original label and re-label container with the new content information.

To Recycle or Discard Containers:

- 1: Empty the container.
- 2: If prior material was volatile, let any residual vapors dissipate within a fume hood.

- 3: Leave cap off.
- 4: Deface label (sharpie, spray paint, tape, etc..)
- 5: For plastic/glass containers, bag or box up and place into a trash dumpster.
- 6: For metal solvent cans follow the above steps through step 4 then submit an online pickup request form (http://recycle.oregonstate.edu) to Campus Recycling to schedule a metal recycling pickup.

Call Environmental Health & Safety (541-737-2273) for further information.

Empty chemical containers that did not contain an acutely toxic material are not considered hazardous waste and do not need to be picked up by EH&S. Follow the instructions above for disposal.

EMPTY CONTAINER MANAGEMENT

What Can Go Down the Drain?

With approximately 28,000 students and 5,000 faculty/staff members on the campus, OSU generates over 1.1 million gallons of wastewater each day.

- Most interior drains on campus lead to the City of Corvallis Waste Water Treatment Plant, while most exterior drains lead directly to Oak Creek or the Willamette River without pre-treatment.
- Interior and exterior drain disposal at OSU is regulated by the Federal Clean Water Act and the City of Corvallis Municipal Code. Civil and Criminal penalties can be incurred from improper drain disposal!

Interior Drains: Only wastes with the following criteria can go into interior drains:

- Liquids less than 150° F.
- Non-flammable liquids or gases; flash-point must be > 140° F.
- Must not be viscous or solid which may clog plumbing.
- pH of all discharged liquids to be 6.0 – 9.5
- Toxic, malodorous, or radioactive substances may NOT be drain disposed.
- No petroleum oils, dyes, or organic solvents.

Exterior Drains: Only wastes with the following criteria can go into exterior drains:

- Clean rain runoff.
- De-chlorinated, potable water.

Call Environmental Health & Safety (541-737-2273) for further information.

DRAIN DISPOSAL (LOCAL LIMITS)

How Does My Laboratory Obtain a Lab Hazard Sign?

- Federal and State Law require all areas that store or use hazardous substances to be posted with suitable warning signs that inform occupants, facilities personnel and first responders with basic information.
- To obtain a Lab Hazard Sign for your laboratory follow these steps:
    1. Principal Investigator completes the Lab Hazard Sign Information Form on the EHS website.
    2. Principal Investigator submits completed checklist to EH&S, 100 Oak Creek Building, OSU Campus.
    3. EH&S reviews checklist and creates your sign.
    4. Sign is either posted by EH&S outside laboratory door, or sent to the Principal Investigator.

For additional information, visit our website and click on the Lab Hazard Sign safety instruction.

Call Environmental Health & Safety (541-737-2273) for further information.

LAB HAZARD SIGN SYSTEM

What are the Requirements for Laboratory Safety Training?

- Oregon-OSHA requires initial and refresher safety training based on an employee's job duties. "Refresher training" is not specifically defined but typically must occur yearly or as job conditions change.
- All safety training must be documented and kept on file. The Principal Investigator must document the topics covered, the date, the instructor, and attendees.

Training Resources

- Training can be obtained from a variety of sources: EH&S, your supervisor, vendors, on-line materials, etc.
- Training for certain topics can be obtained directly from EH&S. For EH&S presentations, see the Training Calendar on the EHS website. For on-line written materials, visit our website and click on the Safety Instructions tab.

Laboratory Training Required

- At minimum, all employees that work in laboratories or laboratory-like spaces must take the three following courses: 1) *Laboratory Safety Training,* 2) *Safety Data Sheets Training,* and 3) *Hazardous Waste Training.* The courses can be found at the EH&S Training website.

  NOTE: Additional training is required when laboratory personnel operate under research registrations for Biohazards/Recombinant DNA, Carcinogens, Lasers, or Radioisotopes/Radiation producing machines.
- Principal Investigators are also responsible for safety training specific to their laboratory space(s). This training must cover 1) Safety Data Sheets, 2) chemicals listed in your chemical inventory, 3) your chemical hygiene plan, 4) use of special equipment, 5) use of emergency equipment, and 6) reporting of spills.

  1) For a description of the SDS requirement, see the "SDS" tab in this manual.
  2) Your chemical inventory must be complete and posted using the EHS Chemical Inventory Program on the EHS website.
  3) A Chemical Hygiene Plan template is provided for your use on our website, as well.

4) “Special equipment” can include autoclaves, centrifuges, incubators, etc.
5) “Emergency equipment” can include eyewash/shower stations, fire extinguishers, fire alarms, etc.
6) See OSU’s Emergency Poster for spill reporting procedures.

Call Environmental Health & Safety (541-737-2273) for further information.

LABORATORY SAFETY TRAINING

What Protective Clothing Should Be Worn in a Laboratory?

- Protective clothing is intended to minimize exposure or injury to laboratory employees, visitors, and students.
- Oregon-OSHA and OSU Policy require employees to use protective clothing when there is a reasonable probability that injury or illness can be prevented by such equipment.

Eye and Face Protection

- Safety glasses that provide side protection must be worn when working with biological, chemical, or radioactive materials.
- For processes where splashing may occur, the user should use a safety goggle or a face shield in combination with safety glasses.
- Special considerations for UV light and laser users: Consult with EH&S on the appropriate protective eyewear.
- Certain chemicals should not be used when wearing contact lenses. If you need medical advice about wearing contact lenses in areas where chemicals are stored or used, contact Occupational Health (Plageman Hall) at 737-7566 or your personal physician.

Foot-wear

- Absorption-resistant closed-toed shoes (i.e. leather, rubber) are considered appropriate foot-wear; sandals and other open-toed footwear provide no protection, are more readily contaminated, and should not be worn during laboratory work.

Gloves

- Wear the appropriate glove material for the chemicals you are working with. Consult the SDS or call EH&S for advice if in doubt.

- Remove one or both gloves when opening doors, using the phone, etc. to avoid cross-contamination. Good lab practice dictates removing your glove even though you think the glove is "clean".

Lab Coat

- Lab coats should be worn when using hazardous materials; consult OSU Policy SAF 308 for guidance.
- Many types of street-clothes are made of materials that are highly combustible and are not safe for lab use.
- Lab coats of a polyester/cotton blend provide greater fire retardant properties than most street clothes.
- Lab coats for OSU employees can be provided FREE of charge by contacting EH&S.

Call Environmental Health & Safety (541-737-2273) for further information.

PROTECTIVE LABORATORY CLOTHING

What are the Requirements for Eyewash & Safety Shower Equipment?

- Eyewash and safety shower equipment is mandated by Oregon-OSHA to be provided in areas where hazards to a worker's eyes or skin exist.
- Laboratories, chemical stock rooms, mixing areas, etc. are environments where this equipment is required.
- The equipment must be properly maintained and tested so that it is ready to be used in an emergency.
- Showers are only needed where substantial areas of the worker's body may be exposed to large quantities of materials that are highly corrosive and/or highly toxic by skin absorption.
- Drench hoses may be a better alternative than showers for most applications (check with EH&S for advice on purchasing a compliant drench hose).

Laboratory Personnel Responsibilities:

- Keep eyewash and safety shower equipment accessible and free of obstructions.
- All employees must know the equipment's location and how to use and test the equipment.
- Departments are responsible for monthly testing of eyewash units within their laboratories.
- EH&S is responsible for annual flow testing of safety shower units within/outside laboratories.

For additional information, visit our website and click on the Eyewash and Safety Shower safety instruction.

Report any equipment maintenance problems to the Facilities Services Work Coordination Center at 737-2969.

Call Environmental Health & Safety (541-737-2273) for further information.

EYEWASH AND SAFETY SHOWER EQUIPMENT

What are the Requirements for Safety Data Sheets (SDS)?

- SDS information must be made available for employee use for all hazardous materials present in your laboratory.
- OSU contracts with an outside vendor to provide a current electronic database of SDS's. This is now the primary method of SDS availability on campus and is available to anyone with an ONID login at http://oregonstate.edu/ehs/sds.
- Hard copies and locally stored electronic versions are acceptable. However, they are no longer required so long as laboratory employees know about and have accces to the electronic database.
- All employees must know and understand the chemicals they are working with and where the SDS's are located.
- Additional chemical information can be obtained on-line or by contacting the chemical manufacturer and/or vendor directly.
- See also the Right-to-Know Safety Document at the EHS website.

Call Environmental Health & Safety (541-737-2273) for further information.

SAFETY DATA SHEETS (SDS)

What Special Registrations Are Needed For My Laboratory?

Biohazards and Recombinant DNA

- Registration with the Institutional Biosafety Committee (IBC) is required for work with recombinant or synthetic nucleic acids, some transgenic animals, pathogens, or biological origin toxins.
- A "pathogen" is defined as any microorganism known to or suspected of causing infection or disease in humans, animals or plants; A "toxin" is any biological molecule which is highly toxic to humans or other vertebrate animals.
- To start the registration process, refer to the Institutional Biosafety Committee web page.
- After you submit the Registration form, EH&S will contact you to complete the process.

Carcinogens

- Registration with EH&S is required for carcinogens classified as either "Extreme" or "High" hazard classes.
- Carcinogens and their classification listing can be found in the Chemical Carcinogen List - Appendix 2 in the carcinogen safety manual.
- Complete the Application/Registration for Use of Chemical Carcinogens - Appendix 1 in the carcinogen safety manual.
- After you submit the application, EH&S will contact you to complete the registration process.

Lasers

- Registration with EH&S is required for Laser classes 3B, 3R and 4.
- Complete the Laser Registration form at the EHS website.
- After you submit the survey, EH&S will contact you to complete the registration process.

Radioisotopes and Radiation Emitting Machines

- Authorization is required for the possession or use of any radioisotope or radiation-emitting machine.
- There are no exceptions for small quantities or low emission rates; however, there are exceptions for certain uses.
- To register, complete the Authorization to use Radioisotopes or X-ray Machines at the EHS website.
- The EH&S Radiation Safety Officer will review the application and contact you to complete the process.

Call Environmental Health & Safety (541-737-2273) for further information.

RESEARCH REGISTRATIONS

How Does My Laboratory Respond to a Mercury Spill?

Evaluate the Mercury Spill

- For **Large Spills** such as from broken manometers: Call Public Safety Dispatch (541-737-7000).
- For **Small Spills** such as from broken thermometers or switches: Must be cleaned up immediately by lab personnel or call Public Safety Dispatch (541-737-7000) for assistance; they will contact EH&S.

Small Spill Cleanup

- Use a lab coat, disposable gloves, and shoe covers to prevent skin absorption or contamination of clothing.
- Collect mercury using an index card, rubber squeegee or disposable pipette and place into a zip-lock bag.
- Do not use a broom or vacuum cleaner.
- Label bag with a hazardous waste label, place into a chemical fume hood, and make a Waste Pickup Request.
- After all visible mercury has been collected, the area should be washed and allowed to dry before reuse.

Special Conditions:

- If spillage has occurred underneath lab benches or other immovable equipment, or if spillage has occurred within a sink, the sink trap will have to be removed; call Public Safety Dispatch (541-737-7000) for assistance; they will contact EH&S.

NOTE: EH&S offers free exchange of non-mercury containing thermometers.

Call Environmental Health & Safety (541-737-2273) for further information.

MERCURY SPILLS