

LABORATORY HAZARDOUS WASTE SATELLITE ACCUMULATION AREA REQUIREMENTS

Note: Biological, Controlled Substances, Radiological & Chemical Waste information can be found at the EH&S web site <http://ehs.fiu.edu>

Setting Up a Hazardous Waste Accumulation Area

- Area must be posted as a “Hazardous Waste Satellite Accumulation Area”.
- Print this document and have it posted near the Satellite Accumulation Area (SAA).
- Print Zero Quantity Sheet and have it near the SAA.
- Print Satellite Accumulation Signage and apply to SAA.
- Set up a perimeter consisting of yellow tape that surrounds the boundaries of the SAA.
- **Blue 15-gallon drums should only consist of organic chemicals; White 15-gallon drums should only consist of inorganic chemicals.**
- Area must be of an adequate size to assure that it can safely store the waste being generated. The waste containers should not:
 - o Protrude into aisle-ways.
 - o Block access to emergency equipment or exits.
- Hazardous Waste Accumulation Areas **MUST** be located near the process that is generating the waste.
- Area must **NOT** be located:
 - o Next to operations which are incompatible with the wastes (ex. ovens & flammable wastes).
 - o Next to areas where incompatible chemicals or wastes are regularly used or stored.
 - o Inside laboratory fume hoods which have drains or do not have adequate secondary spill containment.
 - o Inside laboratory fume hoods that are used for other purposes. (if a fume hood is used for the storage of hazardous wastes, **NO** other equipment or chemicals may be present in the hood).
 - o Next to open floor drains or sinks.
 - o On bench tops of, table, benches, flammable or corrosive storage cabinets, or other precarious locations.
- Please refer to the SAA Step-by-Step Tutorial for in-depth visual instructions on setting up your SAA. It can be found here <http://ehs.fiu.edu/Programs/Environmental-Compliance/Pages/Hazardous-Waste.aspx>.

Supplies

- **Departments are responsible to provide their own chemically compatible waste containers and secondary containment vessels.**
 - o Examples of secondary containment vessels include:
 - Pail, bucket, tub, etc. (able to contain 110% of all the liquid stored **within it**).
 - Spill tray (able to contain 110% of all the liquid stored **within it**).
 - Utility containment tray with grating (able to contain 110% of the largest container’s volume stored **on it**).
- Appropriate chemical spill cleanup kit(s) must be readily available for all chemicals, and chemicals containing equipment, being used or stored in the lab or shop.

Containers

- Primary containers are those received directly from the manufacturer/supplier which still has their original content.
- Secondary containers are not from the manufacturers (do not have the original manufacturers label on or contents in them) and have been cleaned as specified in the section below, titled "Cleaning Chemical Containers for Reuse or Disposal".
- Hazardous waste must be compatible with the secondary container(s) used for its collection and storage.
- Remove or deface all wording on labels of containers to be used for the collection and storage of hazardous waste.
- Waste must be collected in sealable containers with secure closures (ex. screw top) that prevent spillage during transport.
 - o **Non-acceptable containers include:**
 - Open beakers, cans, tubes, tubs, etc.
 - o **Non-acceptable container closures include:**
 - Taping, rubber stoppers, glass stoppers, corks, etc.

Please Note - The adequacy of container and closure will be determined by EH&S at the time of pick-up. If deficiencies are found, it will be the responsibility of the generator to correct any problems before pick-up of the waste can proceed.

Cleaning Empty Containers for Reuse or Disposal

- Under the US-EPA Hazardous Waste regulations, a container is generally considered empty if:
 - o Its contents have been removed by commonly employed practices such as pouring, pumping or aspirating.
 - o No more than one inch (2.54 cm.) or one percent of the residue remains on the bottom of the container (whichever is the smaller amount).
 - o If the container is greater than or equal to 55 gallons (208 liters), no more than 0.3% by weight of the total container capacity.
- No amount of chemical or mixture shall be disposed of down the drain in order to meet the empty chemical designation
- The EPA Classification for the material last stored in the container must be identified (see <http://www.epa.gov/epawaste/hazard/wastetypes/listed.htm>) **if that material or an ingredient in a mixture is listed as an Acute Hazardous Waste (P or U-listed) or if the material is known to have high acute toxicity.** The following procedures would be required to designate the container as empty:
 - o The container must be triple rinsed with a solvent (which might be water) capable of removing the acute hazardous waste.
 - o Each of the three rinse cycles must be performed with an amount of solvent equal to approximately 5% of the volume of the container.
 - o All solvent used for cleaning the container (Rinseate) must be collected and disposed of as hazardous waste.
 - o When the cleaning procedure is finished, the open container must be air dried and placed in a ventilated area to ensure that it is free of liquid or other visible chemical residue before reuse, storage or disposal.
 - o If the container is going to be disposed of in the regular trash, all container labeling must be removed or defaced and closures (caps, lids, etc.) removed.
 - o **To deface a container label:**
 - Use a good, dark colored marker and ensure that all chemical and hazard warning information is no longer visible; in addition, EH&S recommends that "Empty" is clearly written on the container.
 - A label containing the wording "Clean Empty Uncontaminated Glass Container" should be attached to the bottle before the container is disposed of directly into an outside trash dumpster or broken glass container.
 - o If the container is going to be reused or placed in storage for later use, all container labeling must be removed or defaced.
- Hazardous Waste Containers (characteristic, or non P or U-listed waste) can be disposed of as regular trash:

- Once the container is designated as empty, as defined above by the US-EPA.
- The empty container is air dried in a ventilated area (ex. a chemical fume hood) without triple rinsing.
- All container labeling must be removed or completely defaced and closures (caps, lids, etc.) removed.
- A label containing the wording "Clean Empty Uncontaminated Glass Container" should be attached to the bottle before disposal the container is disposed of in the regular trash or broken glass container.

Labeling

- Obtain standardized "HAZARDOUS WASTE" labels from EH&S (at no charge, Call x7-2622). You may also make your own labels containing the required information, as given below.
- Mark all hazardous waste container labels with the words "Hazardous Waste" (non-organic waste, acid waste, etc.).
- Label waste containers accurately, identifying each constituent by printing out the full name in English with their percentages (**NO** Chemical Symbols).
- The quantity of all the constituents identified on the "HAZARDOUS WASTE" label must add up to 100%.
- The area on the "HAZARDOUS WASTE" label for the "DATE" **MUST BE LEFT BLANK**. EH&S will enter a date when the material is picked up for transport to a University Hazardous Central Hazardous Waste Storage Facility.
- "HAZARDOUS WASTE" labels are not necessary on unused product as long as the original supplier's label is intact and legible.
- If hazardous waste containers are missing required labeling information, or it is illegible, for any reason, EH&S will **NOT** pick up the waste for disposal. Such containers are problematic at the time of an emergency spill and when picked-up for transport to the offsite Treatment, Storage and Disposal facility. **EH&S will only pick up waste when the aforementioned requirements are fulfilled.**

Filling

- Hazardous waste containers must remain tightly closed, except when it is in immediate use. Before adding material to an existing waste container, make sure it is compatible with material inside.
- A Hazardous Waste Pick-up Disposal Form **MUST IMMEDIATELY** be submitted to EH&S when any size container of hazardous waste is full or its use has ended. It is against federal regulations (US-EPA) to accumulate or store full or unused containers of waste in labs or shops.
- Limit the waste volume to no more than 55 gallons, or 16 ounces of a "P" listed waste, in any lab/shop, or room at any one time. A list of all current EPA "P" listed wastes (acutely hazardous) can be found at <http://www.epa.gov/epawaste/hazard/wastetypes/listed.htm>.
- When a container of hazardous waste is full, the generator must immediately submit a Request for Hazardous Waste Pick-up. **DO NOT** accumulate multiple full containers of hazardous waste in your lab, storage or work area at any time without EH&S approval.
- Limit the amount of liquid waste in 15-gallon waste containers to 12 gallons.
- Do not filter smaller containers to the top, leave adequate headspace for liquid expansion (1 to 2 inches/bottle).
- If additional waste is likely to be generated before EH&S arrives, a second waste container, which meets all storage, labeling and filling requirements, must be started.
- Biohazard, radioactive and chemical hazardous waste **SHALL NOT BE MIXED TOGETHER**.
- Exterior of the waste container must be free of visible chemical contamination due to leaks, spillage or overfilling.
- **Containers showing signs of surface stains or leakage will not be picked-up until:**
 - The leak is stopped and the hazardous materials cleaned up.
 - Spilled material is safely contained and neutralized (if applicable).
 - Original container surface is clean and decontaminated.

- All hazardous waste containers must be placed inside or on secondary containment vessel which:
 - o Is chemically compatible with all hazardous waste materials being stored inside the waste container(s).
- If hazardous waste containers are stored inside the secondary containment vessel (ex. pails, trays, tub, drums, etc.), **it must be able to hold 110% of all the liquid stored within it.**
- If the hazardous waste containers are stored on an elevated grated platform which is part of the secondary containment tray system (ex. utility containment tray with grating, or spill pallet), the secondary container must be able to contain **110% of the volume of the largest container stored on it.**

Training

- To meet EPA requirements, all persons who work in facilities, or oversee operations, which generate hazardous waste, will receive training annually. This includes all applicable PIs, Lab Managers, Visiting Professors and all laboratory employees working in or have desk space designated within labs that generate hazardous waste. To meet this requirement, all of the above mentioned personnel will complete the following courses, either online or at regularly scheduled classroom sessions:

1. Hazardous Waste Awareness and Handling
2. Environmental Awareness Part I & II
3. Small Spills and Leaks

Training and courses information is available at <http://ehs.fiu.edu>, under the "Training" tab.

- All current laboratory related safety training certificates must be readily available for inspection and review by University, county, state and federal officials upon request. Copies of all current training certificates should be kept on file in the lab.
- Failure to meet training requirements will delay pick-up until successful completion is confirmed by EH&S.
- Students and employees (working in the lab) must know the lab's hazardous waste accumulation site requirements.
- Review the labs written emergency spill procedures with lab workers new to the area and at least annually thereafter.
- Train persons working in the lab to know the location of emergency chemical spill kit(s), safety shower, eye-wash, fire extinguisher(s), room exit(s), primary and secondary emergency routes of travel and designated safe area of refuge.

Hazardous Waste Pick-up Procedures

- Submit a Hazardous Waste Pick-Up request form to EH&S, via EH&S Assistant, before you exceed the safe handling volumes specified in the above "Filling" section. For EHS Assistant access information and filling out the request, please reference the section below titled "Filling Out the Request for Hazardous Waste Pick-up Form".
- Individual forms must be completed for each container of waste with different chemical constituents.
- A single form may be submitted for multiple containers if their chemical constituents and concentrations are the same.

Filling Out the Request for Hazardous Waste Pick-up Form

- The form must be completely filled out.
 - o On the <https://ehs.fiu.edu> website, click on the "Programs" tab to show the list of program choices. Next, click on "EH&S assistant". On the next page, you will click on the EHS Assistant logo.
 - o Following the previous step, you will now click the blue link that says "To Make a Chemical Waste Pickup Request. Click Here".
 - o You should now be on a page showing a form. Fill out the required information boxes such as panther ID, name, and email address. Provide names and personal information of laboratory personnel associated with the lab. When finished, click "Enter Pick Up Detail".
 - o On the next page, properly fill out the form regarding the chemical you wish to be picked up.

- Chemicals components must be spelled out (**NO** Chemical Symbols).
 - The percentage (%) of chemical constituents, identified by the requestor, **must add up to 100%**.
 - When dealing with original products or mixtures, the chemical supplier's Materials Safety Data Sheet can be used to assist with the completion of the chemical constituent area of the Hazardous Waste Pick-up Disposal form.
 - When dealing with mixtures created by the waste generator, a lab analysis is required (paid by generator) if the chemical make-up (each constituent and concentration) of the waste can't be accurately determined.
 - All information in the waste characteristics area must be completed. After filling out the waste pick-up form, check off the boxes under the "Requestor's Certification" section to finalize the process.
 - When the "Request for Hazardous Waste Pick-up for Disposal" form is completely filled out and signed, after clicking submit, you will be able to "PRINT FOR YOUR RECORDS". **You MUST print out a copy of the waste report and keep for three years.**
 - EH&S will review the form and notify the requestor of any omissions or deficiencies, which must be corrected by the requestor before scheduling a pick-up date and time. It is the responsibility of the generator (PI, Lab Manager, Area Manager or Director) to correct omissions and deficiencies as soon as possible in order to comply with federal regulations.
 - When the "Request for Hazardous Waste Pick-up for Disposal" form is acknowledged by EH&S as complete and correct, EH&S will proceed with a pick-up.
 - To prevent any delay in pick-up or a risk of spillage during waste transportation, the waste containers must:
 - o Be tightly closed with a chemical compatible, secure, air tight seal or closure (screw top, drum bung, etc.).
 - o Not be filled beyond their handling quantities, as listed in the "Filling" section above.
- Please Note** - If these requirements are not met, it will be the responsibility of the lab or shop generating the waste to properly redistribute the waste in appropriate containers before pick-up.
- The requester must be present when EH&S picks up the waste to:
 - o Answer any further questions that EH&S has concerning the hazardous waste.
 - o Take any further action that EH&S may require before completing the pick-up.
 - o Receive a copy of the signed and dated Request for Hazardous Waste Pick-Up form from EH&S.
 - o All completed and sign forms must be kept on file by the requestor for a minimum of three.
 - o All completed forms must be readily available for review by FIU, Local, State and Federal compliance officials.

Chemical and Broken Glass Containers

- A broken glass container must be available in labs where needed. Appropriate containers are made from puncture-resistant plastic or corrugated cardboard with a 2 mil plastic liner.
- Broken glass containers are only for disposal of:
 - o Clean broken glass (no chemical residual on surface of broken pieces of glass).
 - o Empty, clean, defaced glass containers, which meet the criteria specified in the "Cleaning Empty Containers for Reuse or Disposal" section of this document.
- Broken glass containers are not for:
 - o Contaminated broken glass (has chemical residue on surface of broken pieces of glass).
 - o Containers which have stored EPA P-listed waste or toxic materials.
 - o Paper, plastic, bottle caps/tops, metal cans, food, or general garbage.
 - o Contaminated broken glass or containers must be handled, containerized, labeled and disposed of as hazardous waste through EH&S.
- Before disposal to outside dumpster, clean broken glass boxes must be:
 - o Visually inspected for integrity.
 - o Securely taped shut around the top and bottom to prevent breakthrough or spillage.
- With a permanent marker, write the following information on the side of the box:

- "CLEAN GLASS"
- Building (can be abbreviated)
- Room number
- PI/Lab manager name
- Full broken glass containers and empty clean chemical containers (not intended for reuse) cannot be stored in the lab and must be removed. Never overfill the broken glass boxcontainer.
- When the broken glass containers or empty containers are ready for disposal, it is the generator's responsibility to:
 - Provide the necessary personal protective equipment for the individual(s) assigned to dispose of the containers in an outside trash dumpster. This personal protective equipment shall include:
 - Puncture resistant gloves (ex. leather, Kevlar)
 - Lab coat
 - Eye/face protection (ex. safety glasses, goggles, face shield)

Maintenance and Records Management

- Maintain copies of EH&S Waste Pick-Up forms for the past 3 years and have them readily accessible for review.
- A current copy (renew annually) of the training certificates for the "Hazardous Waste Awareness and Handling", "Environmental Awareness Part I & II", and "Small Spills and Leaks" training courses must be readily available for review.
- Designate an accumulation point of contact manager: Laboratory Manager.