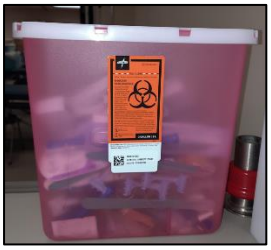
Biohazardous Waste Guide: Segregation, Collection and Disposal

Biohazardous waste includes research or teaching-related wastes that are contaminated with recombinant or synthetic nucleic acids, agents infectious to humans, animals or plants, or fluids that may contain these contaminants. It also includes any human or animal tissues used in research or teaching environments. This waste needs to be collected, stored, treated and disposed of using practices that minimize spill and exposure risk for lab members, operational support workers and the general public. To support this principle, all biohazardous wastes need to be stored inside the lab or a secured unit while awaiting pickup.

Biohazardous Waste Types and Management Basics

Main types of biohazardous waste include:

1. Pathological and tissue waste
2. Biohazardous sharps
3. Solid, non-sharp biohazardous waste
4. Liquid biohazardous waste

Regardless of the type, biohazardous waste must be:

1. collected in a biohazard-labeled container designed to prevent contact with and accidental release of the waste; and
2. rendered nonhazardous prior to disposal by a method suitable for the waste type.

It's important to note that the process and parties involved in pickup for treatment and disposal of **biohazardous sharps** and **solid, non-sharps biohazardous waste** varies depending on your lab's location. Please see the table below for key information about these processes.

Vanderbilt University (VU) Buildings	Vanderbilt University Medical Center (VUMC) Buildings
Includes: Engineering Science Building (ESB), Olin Hall, Free Electron Laser (FEL), Featheringill/Jacobs, Stevenson Center (SC), Medical Research Building III (MRB III), Learned Lab	Includes: Medical Center North (MCN), Medical Research Building IV (MRB IV), Light Hall, Preston Research Building (PRB), Robinson Research Building (RRB)
• Waste is collected and packed in regulated medical waste (RMW) shipping containers and picked up from labs on an established schedule. • Waste packing and shipping sign-off is performed by lab members currently trained for RMW shipping. • Properly closed sharps containers (less than 18 gallons) MAY be placed in shipping container; must be placed upright in container. • No free liquids, pathogenic cultures, tissue or carcass waste. • **Point of contact for questions:** Matthew Buckley (VU Facilities) or VU EHS Biosafety.	• Securely closed waste bags should be placed in the Sani-Pak container designated for your area. • Use a tray or cart with raised sides when transporting bags to the Sani-Pak. • No loose waste, carcass or tissue waste, sharps or sharps containers are permitted in these containers. • **Point of contact for questions:** School of Medicine Environmental Services (615) 322-6107.

If you generate biohazardous waste but do not have a research lab or waste generation is intermittent, contact VUBiosafety@vanderbilt.edu for assistance with your needs.

Pathological and Tissue Waste

All tissues or anatomical parts used in a teaching or research lab must be disposed of as biohazardous waste regardless of origin or chemical fixation status. These cannot go in the regular trash. These must be collected and stored separately from other solid biohazardous wastes because they require waste treatment methods beyond those used for other biohazardous waste types.

Animal tissues or carcasses resulting from Vanderbilt animal protocol	• Store waste in biohazard bags in a tray or secondary container inside a secure cold storage unit labeled as biohazard until these are returned to the animal holding facility of origin. • Use a leak-proof, solid-walled secondary container with a secure lid (and labeled as biohazard) for transport. • If tissues are chemically fixed, consult the Translation Pathology Shared Resource (TPSR) or VU Biosafety for assistance with disposal.
Human tissues or animal tissues and carcasses used in teaching or research activities (other than those on Vanderbilt animal protocol)	• If not chemically fixed, store waste in biohazard bags in a tray or secondary container inside a secure cold storage unit labeled as biohazard to prevent putrefaction. • If chemically fixed, separation of solids from preservative may be required prior to disposal. Consult VU Biosafety for guidance. • Contact VU Biosafety to request disposal. Please allow up to 5 business days for pickup.
Research insect waste	Follow Attachment 1: Insects Used in Research disposal guide. Contact VU Biosafety for specific guidance if needed.

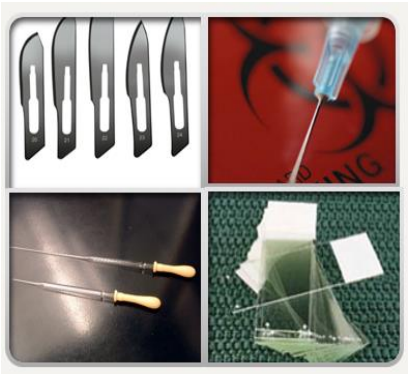
Important biosafety note regarding tissues: Brain and neural tissues from several mammalian species (i.e., sheep, goats, cattle, elk, deer, mink, cats) can harbor prions which may be an exposure risk for those handling such materials. If your research or teaching plans involve these tissues, consult VU Biosafety for guidance on identifying suppliers of screened materials.

Biohazardous Sharps Waste

Any device that is sharp enough to puncture the skin, and used in conjunction with biomaterials is a biohazardous sharp. A puncture, cut or scratch injury sustained from a device that may be contaminated with biomaterials can lead to a lab-acquired infection.

Examples (when contaminated with biomaterials):

- Needles and syringe/needle sets (including those used for in vivo administration of drugs/exogenous substances)
- Scalpels, blades, lancets
- Biopsy punches
- Dissection pins
- Glass Pasteur pipettes, slides & capillary tubes
- Broken glass



Anyone who works in environments where biohazardous sharps are used is at risk for injury when these are left out in that environment or are placed in the wrong container for disposal!

Note: Microscope slides contaminated with chemically-fixed, heat-fixed, stained or viable/unfixed biological materials should be collected in biohazardous sharps containers!

Biohazardous Sharps Collection

A biohazardous sharps container provides a way to contain the sharp hazard. When used properly, the container protects ALL who handle the waste throughout the entire collection and disposal process. Refer to Attachment 2: Pointers for Using Biohazardous Sharps Containers Safely and Effectively for a comprehensive list of practices intended to support safe and effective use of these receptacles.

Selection Reminder:
Large Floor Model Sharps Containers

These sometimes become a "catch-all" for items that don't belong in them including hazardous chemical containers, broken thermometers, and personal protective equipment. They also foster hazardous practices such as:

- walking across a space with an exposed sharp in hand,
- needle recapping
- leaving devices exposed on benches
- reaching into "blind spot" to dispose of a sharp device
- sharp devices being dropped on the floor.

Unless the lab generates a substantial amount of biohazard sharps waste (that doesn't include glass slides), large floor model biohazardous sharps containers are not recommended.

Example of "catch-all" use. Please note that large biohazardous sharps containers should also not be used for collection of glass slides.

Whenever possible, containers should be stationed on the bench within arm's reach of where the sharp device is used to support safe and reliable disposal practices.

Disposal of Biohazardous Sharps Containers

A biohazardous sharps container should be permanently closed and submitted for disposal when it is ¾ full or when items do not freely drop in the container, whichever condition comes first. Once the container is permanently closed (listen for the "clicks"), inspect it for visible contamination. Carefully surface disinfect any visibly contaminated surfaces before submitting for disposal.

- Labs in VU buildings with RMW pickup: Place permanently closed sharps containers upright in a lined RMW shipping container. If the container is 18 gallons in capacity or greater, or if the container is too tall to fit in the RMW shipping container, submit a request through Vanderbilt Maintenance and Operation's ReADY system or contact Matt Buckley or VU Biosafety for assistance with pickup.
- Labs in VUMC buildings: Place permanently closed sharps containers in a secondary container (i.e., tray) labeled as "biohazard sharps for pickup" next to the lab's trash can inside the lab. Do not place sharps containers in the Sani-Pak receptacles or in public corridors for pickup. Contact the party who routinely services your lab to ensure that the container gets picked up.
- Other VU researchers/educators: Contact VU Biosafety to request acceptance of containers. Please allow at least 5 business days to coordinate.

Please note: Do not submit containers that are damaged (cracked or broken lid) or structurally degraded (brittle or crumbling) to either SOM Environmental Services or Biowaste LLC. Take these containers out of service and contact VU Biosafety to request disposal.

Sharps containers Used for Radioactive or Chemical Hazards

Biohazardous-marked sharps containers are sometimes used for collection of devices contaminated with radioactive materials or hazardous chemicals. In these instances, such containers should be clearly labeled for those hazards and not used for biohazard-only contaminated sharps. Dispose of these containers in accordance with procedures outlined by Radiation Safety or Chemical Safety as applicable.

Solid, Non-sharps Biohazardous Waste

This type of waste includes lab consumables that have come in contact with viable biological materials that contain recombinant or synthetic nucleic acids, clinical specimens in a lab setting, and any lab materials that are regarded as potentially infectious.

Examples include (when used for handling biomaterials):

- Disposable gloves and body coverings,
- serological pipettes, pipette tips
- agar plates*
- non-breakable primary containers (i.e., flasks, tubes) with residual liquids only
- bench paper and wipes used for disinfection
- waste items contaminated with blood in a manner that would present a personnel exposure risk (i.e., more than incidentally contaminated).

*If you work with pathogens, concentrated cultures will likely need to be inactivated (usually via autoclave) before being placed in the biohazardous waste stream that will be handled by School of Medicine (SOM) Environmental Services or Biowaste LLC Representatives. Please contact VU Biosafety before discarding any concentrated cultures (on plates or in tubes) to determine actions to safeguard all involved in the handling process.

Collecting Waste at the Benchtop or in a Biosafety Cabinet (BSC)

This waste must be collected in a leakproof, non-breakable receptacle that is:

- lined with a biohazard bag (red recommended),
- Equipped with a lid or means of closure that is closed when not in use, and is
- labeled as a biohazard.

Benchtop waste liners should be closed and replaced before they are too full to safely handle. When used in a BSC, liners should be discarded at the end of procedures during BSC disinfection steps.

Benchtop Collection Configuration Examples

A wire frame with a biohazard liner can be placed in a tray and equipped with a lid if the bag isn't removed or closed at the end of the day.

Plastic jars with lids can be lined with a biohazard bag and bio-labeled to meet the standard.

Ziploc-style biohazard bags can be stored in biohazard-labeled plastic beakers.

Remember: Glass beakers are breakable and will create a biohazardous sharps exposure hazard if they are used as a biohazardous waste collection vessel. Please do not use glass beakers for this purpose!

Segregating Serological Pipettes to Prevent Biohazard Liner Punctures

Biohazard liners are easily punctured and therefore care must be taken to minimize liquids and object with sharp edges when collecting waste. Serological pipettes are a common cause of bag puncture, but this can be addressed by collecting these items separately, and in a way that orients all pipettes in the same direction. Examples of methods to minimize bag puncture risk from pipettes are shown below.

Pipettes can be collected in their own bag, then the bag rolled and the ends folded over and taped to remove the puncture potential.

In this example, pipettes are collected in a dedicated waste receptacle (bottom right) that has dimensions that only permit pipettes to be deposited in the same orientation which minimizes puncture potential.

Selection Pointers for Biohazardous Waste Receptacles in the Lab

Larger, floor model containers should meet the same criteria as outlined for the benchtop configurations. They need to be constructed of cleanable, solid-walled, non-breakable materials and equipped with a means of closure. However, these containers don't need to be specifically manufactured for biohazardous waste collection. In fact, waste containers that you might purchase at a "big box store" for use in the bathroom or kitchen may be the best fit for your needs. A "lid-within-a-lid" design (like the one shown to the right) will allow for the bag to fully line the container and minimize the possibility of bag slippage. VU Biosafety can provide biohazard labels upon request.

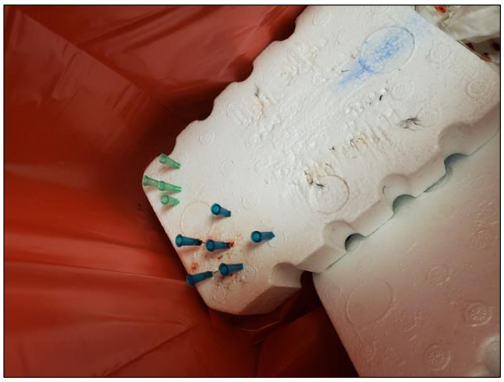
How to Use Biohazard Liners (Bags) Effectively

- Collect and contain waste at the point of generation. Don't "drop or dump" unbagged wastes directly into a floor model waste container. This action creates aerosols and contamination can spread further each time the container is opened. Instead, bag the waste at the bench or in the BSC and deposit the closed bag in the larger container.
- Minimize puncture potential. Identify items with sharp edges (i.e., pipette tips, cotton swabs) that will be discarded as biowaste; deposit these in small boxes or sleeves inside the bag to reduce puncture potential. Segregate items like serological pipettes and collect them in one orientation to remove puncture risk.
- Don't overfill the bag. Remember, your bag must be securely closed before submitting it for pickup and final treatment. Use zip-ties or a single-handed knot to close outer bags or biohazard shipping liners.
- Always keep waste bags contained. Waste bags must be contained throughout the waste disposal process to prevent the possibility of a release. Ensure that the waste bag is placed inside a non-breakable leak-proof container and is closed (or the bag discarded) when not in use.

Misuse of Biohazard Bags

Using a biowaste bag for collection of wastes that are not biohazardous creates confusion and risk for those who handle and finally dispose of this waste.

Don't use biohazard bags for chemical waste. If you have mixed waste, consult your hazardous waste pro for guidance.



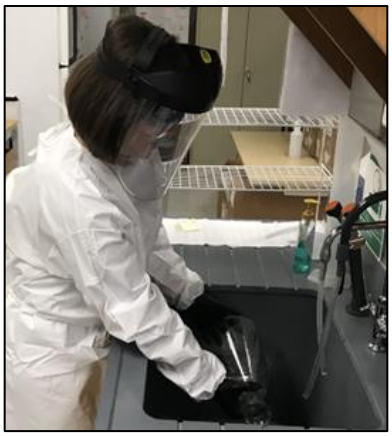
This bag is in a biohazardous waste container BUT needles stuck in styrofoam were placed inside. Needles (regardless of shielding) are biohazardous sharps and must be placed in a biohazardous sharps container.

A biohazard bag must NOT be used to line a broken glass box. Biohazardous broken glass MUST be collected in a biohazardous sharps container.

Liquid Biohazardous Waste

Culture media, analytical equipment waste and pooled clinical specimen liquids are common examples of this waste type. These bulk liquids may be disposed of via the lab sink if they do not contain chemicals restricted from sewer disposal (see the Hazardous Waste Guide). Liquid wastes treated with disinfectants should not be treated by autoclave unless first reviewed by VU Biosafety. The following additional practices apply:

- Vacuum flasks, waste reservoirs and "pour-off" containers should be charged with disinfectant prior to use to help prevent growth of contamination and to "pre-treat" the waste prior to discharge to the sewer via the lab sink. Vessels or secondary containers should be labeled to identify both the biological and chemical contents. (As an example, for a media collection system charged with bleach, a biohazard label should be placed on the vessel or containment tray, and the vessel marked as "bleach-treated liquids- corrosive".)
- Aspiration systems need both an overflow flask and an in-line filter to effectively protect the vacuum line. See Attachment 3 for more information.
- To best prevent spills, collection vessels should be:
  - ✓ constructed of non-breakable materials whenever possible
  - ✓ emptied when half-full or at least weekly regardless of fullness level
  - ✓ stored in secondary containers
  - ✓ closed for transport to the disposal sink
  - ✓ transported on a cart with raised sides if moved through a public area while containing liquids



Personal Protective Equipment and Safety Practices for Liquid Waste Handling

- ✓ Use a full-length face shield and safety glasses or goggles to protect eyes and face from hazardous splashes.
- ✓ Use a fluid-resistant body covering with a cuff that will cover forearms and prevent splashes from reaching clothing.
- ✓ Use fluid-resistant disposable gloves (extended cuff recommended) to protect hands and forearm against contact with hazardous liquids.
- ✓ Lower flask into sink and pour slowly to limit “free fall” and “splashback” of liquids.
- ✓ After pouring waste, slowly turn on water tap and then thoroughly rinse the sink and drain to remove corrosive residues.

Spill Preparedness and Exposure Response

The practices outlined in this document are intended to minimize the potential for spills and injuries or exposures that could occur as the result of handling biohazardous wastes. However, all labs should be prepared to respond appropriately if a spill or exposure occurs.

Spill Preparedness

- All labs should have a spill response procedure posted in the lab appropriate for the nature of spills that could occur.
- All lab members should know first steps to take to isolate the spill and seek assistance with cleanup as outlined in the institutional policy entitled “Responding to Exposure Incidents & Spills Involving Biological Materials”.
- Labs that generate bulk biological liquid wastes should have a spill kit prepared with supplies needed to clean up the largest anticipated spill. Lab members should be trained on spill cleanup (preferably through hands-on exercise) if they are expected to clean up such spills.

Exposure Incident Response

A ***“biomaterials exposure incident”*** occurs when biological materials enter the body through:

- a puncture, cut or abrasion of the skin involving a biologically-contaminated object (including animal bites/scratches);
- contact of biological contamination with compromised skin;
- contact of biological contamination with mucous membranes of eyes, nose or mouth.

If a ***biomaterials exposure incident*** occurs, the exposed person should take the following actions immediately:

1. Proceed to the closest sink/eyewash. Remove impacted PPE and flush the exposure site.
2. If the exposure involved broken or compromised skin, use soap and water to thoroughly cleanse the wound. (Do not use bleach or other harsh chemicals that can degrade tissues.)
3. Flush/cleanse the exposure site for 15 minutes.
4. Cover the wound with a bandage (if applicable).
5. Notify your supervisor if they are available.
6. Report to the Occupational Health Clinic (or Adult Emergency if outside routine business hours) for medical evaluation/follow-up.

- Occupational Health Clinic hours are 7:00 am – 4:30 pm, Monday – Friday; 640 Medical Arts Building; 615-936-0955;
- Take any information about the source material that you have readily available along with you to help medical staff evaluate your exposure risk.

7. Notify your supervisor (if you've not already done so) and report the exposure incident through your institution's risk management portal.

Please note that your institution's Biosafety Officer (BSO) should also be notified of the event by your PI or your supervisor as soon as possible to determine if external agency reporting applies and to initiate a follow-up assessment.

End Notes

The practices outlined here are based on the requirements of the following standards:

- NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules
- CDC/NIH Biosafety in Microbiological and Biomedical Laboratories, 6th edition
- OSHA Bloodborne Pathogens Standard (29 CFR 1910.1030)
- USDOT Hazardous Materials Regulations (49 CFR 171-180)
- TDEC Solid Waste Processing and Disposal (Chapter 0400-11-01)

This guidance document was developed to provide the Vanderbilt University community with general information regarding the collection, treatment and disposal practices for the most common forms of biohazardous waste that are generated in life science-related research and teaching activities. However, it is not intended to be exhaustive in nature. If the information you need is not included in this document, please contact VU Biosafety at VUBiosafety@vanderbilt.edu or call (615) 343-8918 for assistance.

Attachment 1

Insects Used in Research: Biohazardous Waste Collection, Termination & Disposal Guide for Vanderbilt Researchers

This guidance applies to all insects used in research at Vanderbilt University (VU) including, but not limited to fruit flies, mosquitos, wasps and beetles. Institutionally, VU is charged with assuring that all research biological materials (including research insects) are inactivated prior to final disposal to protect the environment beyond the research lab. The procedures below will accomplish this goal and are the preferred methods of collection, termination and disposal for all research insects, transgenic and wild-type.

Collection, Termination and Disposal of Live Insects and Used Insect Media

1. All bottles and vials containing live insects, or that once contained live insects, should be disposed of in sealed primary containers to prevent the escape of the insects (i.e., plastic tubes of flies sealed with a cotton plug). These containers should be disposed of in a solid-walled, leak-proof biohazardous waste receptacle lined with a biohazard bag and equipped with a lid or means of closure. The receptacle should be marked with a biohazard symbol and closed when not in active use.
2. All flies need to be terminated before final disposal. The preferred method is to place the insects in a -20 °C freezer until no longer viable. The insects can be frozen in their primary containers and then placed in the biohazardous waste receptacle or the biohazard bag containing the insects can be removed from the biohazard waste receptacle, sealed, and placed in the freezer. The biohazard bag must be stored in a secondary container (i.e., tray or bucket) during transport and the freezing process.
3. The bagged and cold-treated insect waste can then be disposed of in the same manner as other solid, non-sharps biohazardous waste.
   - ✓ In Medical Center buildings, place cold-treated bags in a Sani-Pak container for pick up by Environmental Services.
   - ✓ In University buildings, pack cold-treated bags in the regulated medical waste shipping containers provided to your lab.

NOTE: Bagged live insects and containers with insect media that once contained live insects should be placed in cold storage for termination at the end of the workday at the latest. It is not acceptable for biohazardous waste containers in the lab to contain live insects for long term storage.

Collection and Disposal of Insects Terminated in Alcohol

Insects collected in alcohol should not be placed in biohazardous waste for final disposal as flammable substances should not be autoclaved. The container holding the alcohol and insect debris should be leak-proof, wide mouthed, sealable, made of plastic rated to hold the alcohol used, and labeled as “insect waste” with the alcohol solution present (70% ethanol). When ready for disposal, seal the container and attach a completed pink chemical waste tag as you would for disposal of the alcohol. Submit a chemical hazardous waste pickup request for disposal.

IMPORTANT NOTES:

1. The procedures above are the preferred methods for collection, termination, and disposal of experimental insects at Vanderbilt. If the options presented are not technically feasible for your research study design, contact VU EHS Biosafety to discuss approval for alternate disposal methods.
2. All lab members must follow the PI approved procedures for rearing and feeding of experimental insects. Do not deviate from those procedures without approval from your PI.
3. All creation or research use of transgenic insects is subject to the NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules and therefore requires review and approval by the VU Institutional Biosafety Committee.

Attachment 2

Pointers for Using Biohazardous Sharps Containers Safely and Effectively

CONTAINER SELECTION

VU EHS Biosafety has partnered with the Vanderbilt Chemical Storeroom to offer a range of containers that should cover most needs. **NOTE: The black containers are for devices used exclusively with hazardous chemicals.**

NOTE: CLEAN YOUR CONTAINERS TO PROTECT THOSE WHO HANDLE THEM FOR TREATMENT & DISPOSAL!

CONTAINER DISPOSAL

Labs in VU buildings: Place permanently closed container upright in a lined RMW shipping container. No containers over 18-gallon capacity.

Labs in VUMC buildings: Place permanently closed containers in a secondary container labeled as "biohazard sharps for pickup" next to the lab's trash can (as shown to left).

Follow these pointers to get the best safety performance from your biohazardous sharps container:

1. Select a container manufactured for sharps collection that is the appropriate size and configuration for the biohazardous sharps used in your lab. Choose lids that will allow for restriction of the opening when not in use (i.e., "passive closure" or "sliding window" design). NOTE: Do not select containers over 18 gallons in capacity if your lab is in a University building (MRB III/LL, Stevenson Center, ESB, Olin, FEL, Featheringill).
2. Before assembling a sharps container, verify that all components are free of damage and functioning properly. When assembling sharps containers, make sure that the lid fastens and "clicks" on all contact points on the container body.
3. Place the assembled sharps container on its bottom on a stable surface before use. Select a location that will allow you to dispose of the sharp without having to walk to the container or reach awkwardly to get to it.
4. Do NOT store items on top of the container or store it on a surface where it could be easily knocked over.
5. When a sharps container is not in use or when it is being moved, restrict the opening. When moving or picking up the container, grasp it by the container body and not the lid.
6. Do NOT deposit non-sharps items (like gloves, wrappers, batteries, etc.) or items containing free liquids in a biohazardous sharps container. These can obstruct the opening and prevent sharps from freely falling into the container.
7. Do NOT force an item into a sharps container or shake a sharps container to make more room in it.
8. When a sharps container is ¾ full (or items no longer freely fall in, whichever comes first), permanently close it (listen for the "click") and replace it with a new container. Remove any visible contamination from the outside of the closed container before submitting for disposal. NOTE: If you do not hear a "click" or cannot verify that the lid is permanently closed, use packing or duct tape to secure the lid.
9. If a sharps container is found to be overfilled (i.e., items protruding out of the opening), report this to your supervisor. Use hand tools (forceps, tweezers, pliers, etc.) to remove items. Do not retrieve items by hand.

10. If you discover stray sharps, bring the sharps container to the sharp so that it can be dropped directly into the container. Only retrieve the sharp if forceps are available and can be safely used, or if a non-sharp surface is available to grasp.
11. If you discover a sharps container that is no longer suitable for use (i.e., the lid is missing or cracked, the plastic is brittle or faded), take the container out of service and mark it as “do not use”. Do NOT submit the container for disposal through SOM Environmental Services or Biowaste LLC. Instead, contact VU Biosafety (VUBiosafety@vanderbilt.edu) for assistance with disposal.


What happened here?

These containers are all the same brand and model, just different sizes. They all started out as red as the catalog picture on the right with a snap-on lid attached with a plastic string. Heat sources and exposure to ultraviolet light likely contributed to the outcomes seen here. The degraded containers are a hazard to handle because they no longer have a means to be closed and the plastic is brittle. Containers degraded to this extent need to be removed from labs whenever discovered. Contact VU Biosafety as stated above for overpacking and removal.

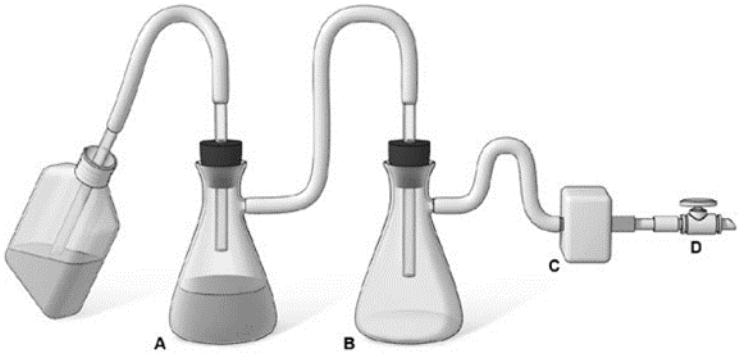
Questions about biohazardous sharps or sharps containers?
Contact us at VUBiosafety@vanderbilt.edu

Attachment 3

BIOLOGICAL LIQUID WASTE CONTAINMENT

The current edition of *Biosafety in Microbiological and Biomedical Laboratories* (BMBL) from the CDC/NIH has updated the requirements for handling and disposal of liquid waste via vacuum at biosafety level 2 (BSL-2) containment to read:

"Vacuum lines in use are protected with liquid disinfectant traps and in-line HEPA filters or their equivalent."



In the above figure, **Flask A** would have disinfectant (e.g., bleach), **Flask B** would be empty and for overflow only, and **Filter C** would be clean and changed as needed to protect **Vacuum Source D**.

To satisfy this requirement, VU EHS Biosafety recommends the VacTrap system with HEPA-Vent filters and plastic aspirating pipets. These achieve the necessary components of having a primary collection flask, overflow flask, in-line filter, and secondary containment. Alternative setups may be used if they include all these parts. Non-breakable flasks constructed of materials compatible with disinfectants (i.e., HDPE) are recommended.

Vac-Trap System
Fisher #: 50-148-9323

Flasks and/or secondary containers must be affixed with biohazard sticker and labeled with name of disinfectant (e.g., bleach).

Mark primary flask with a fill line and empty weekly to prevent overflow and growth of contaminants.

HEPA-Vent Filters
Fisher #: 09-744-79

These filters can be used in alternative setups and to replace contaminated filters in the Vac-Trap System.

With the Vac-Trap system with containment tray, liquid waste containment may be safely stored under biosafety cabinets (BSC) or on laboratory benchtops. If stored within a BSC, the recessed working surface will provide spill containment and therefore no containment tray is needed.

When working with biosafety level 1 (BSL-1) liquid waste, an overflow flask is not required; however, all remaining components must be present.

For more information, contact VU EHS Biosafety at vubiosafety@vanderbilt.edu.