

Disposal Guidance for Empty Chemical Containers at most UPENN locations

(locations connected to a public sewer system)

Follow the guidance as summarized in the provided flowchart to determine whether your empty chemical container(s) should be requested for Chemical Waste Pickup or processed by lab staff.

Empty chemical containers for EHR Chemical Waste Pickup (40CFR SS261.7):
Empty chemical containers with any of the 4 criteria listed below must be requested for Chemical Waste Pickup. Deposit these at your Satellite Accumulation Area with a completed Yellow Waste Tag and submit an online [Chemical Waste Pickup](#).

4 Criteria:

1. EPA P-listed (acutely toxic) chemical according to 40CFR SS261.33
 - [Fact Sheet: P-Listed Hazardous Waste](#)
 - The chemical must exactly match the CAS number referenced as the P-listed chemical.
 - Examples: True cyanides, Warfarin, Sodium azide, Phenylthiourea, Methyl hydrazine, etc...
 - Not examples: Hydrazine, Acetaldehyde, Phenol, or similar chemical structures that are simply a component of the larger chemical compound.
2. Reactive chemicals
 - Entirely empty or otherwise quenched reactives/pyrophorics that have been opened to ambient air should be disposed of as an empty chemical container
 - [Disposal of Highly Reactive Reagents](#)
 - Examples: Alkali metals, reactive hydrides/sulfides, pyrophoric, etc.
3. Odorous chemicals
 - Disposing of this chemical rinsate in a lab sink can lead to lingering odor issues and concerns of gas leaks as these are the types of chemicals used to odorize natural gas.
 - Examples: Mercaptans and thiols
4. Hazardous and immiscible chemicals
 - These are chemicals that are hazardous (flammable, corrosive, toxic, etc...) and are entirely immiscible (insoluble) with water. And which also cannot be rinsed by use of a commonly available appropriate solvent, such as: ethanol, isopropanol, acetone, etc.... Solvent rinsate must be collected as chemical waste.
 - Containers that have been successfully rinsed by an appropriate solvent are to be processed by lab staff as noted below.
 - Example: Sigmacote – insoluble and flammable
 - Not an example: Mineral oil – non-hazardous

Empty chemical containers for lab personnel to process:

Empty chemical containers at most UPENN locations that do not fall into the 4 categories noted above must be processed by lab staff as follows:

- Chemicals miscible or able to be physically removed by use of tap water (soapy water may also be used)

STEPS for water rinse:

1. Triple rinse in a lab sink with copious amounts of water.
 2. Deface label so content and/or hazard information is removed or clearly understood to have been addressed and no longer relevant to the state of the container.
 3. Allow to dry completely.
 4. Dispose in accordance with building protocol:
 - a. Recycling
 - b. Trash
 - c. Broken glass / plasticware box
- Hazardous and impervious chemicals requiring a solvent rinse (select the lowest hazard solvent to complete this task).

STEPS for solvent rinse:

1. Identify a compatible and recommended solvent based on literature, the Safety Data Sheet (SDS), or lab protocol.
2. In a chemical fume hood, add solvent to around 5-10% of the total volume of the container being washed. Or as small a quantity of solvent as possible to the desired effect.
3. Cap the bottle and mix the solvent around the entire interior.
4. Empty expended solvent into a chemical waste container.
5. Repeat steps 2 through 4 twice or as much as needed to remove the contents.
6. Allow to dry completely.

Additional Comments:

EHRM recommends volatile organic solvent containers should be air dried in a chemical fume hood and then rinsed.

20L solvent drums are non-recyclable and may not be subsequently used for the collection of chemical waste.

The Chemistry Department requires all empty bottles processed by the labs and removed by housekeeping to have "triple rinse tape" affixed to the containers.