

Satellite Accumulation Container Management

This fact sheet is designed to give guidance on waste stream separation, waste segregation, compatibilities, packaging requirements, empty container management, and waste minimization tips. Following the information below will help reduce costs for hazardous waste removal from Lincoln University while ensuring safer management of these materials in the satellite accumulation areas. If you have any questions or concerns please contact Robert Clay, Hazardous Materials Officer at 681-5497 or clayr2@lincolnu.edu.

Hazardous waste contractors come to Lincoln University to perform lab packs to remove waste. The lab packing process consists of waste removal by separating compatible wastes and placing them into five, thirty, and fifty-five gallon drums. After lab packing, these drums are typically sent to a hazardous waste treatment facility for incineration. Lab pack cost are based on the type of waste disposed in each drum, number of drums in the load, any testing necessary for on-site waste determination, any extra equipment necessary to manage the waste properly.

Items that drive up costs significantly are:

Managing Unknown Chemicals

(Before a contractor can remove the waste a proper waste determination must be made In order to do this the contractor must test the compounds before they can be manage properly we have to pay for testing equipment and PPE (personal protective equipment) to be brought on-site.)

Mixing of Different Waste Streams

(This increases the volume and treatment processes must also be utilized before the waste can be disposed as well as increases the container size.)

Managing Wastes Containing Metals

(Incinerators may have to make some adjustments to ensure that the metals are collected and disposed of appropriately since they cannot be destroyed by incineration like the organic constituents.)

Managing Wastes that are Reactive or Explosive

(This requires special management to prevent any reaction during transport and any other measures or equipment to ensure the safety of all those involve in managing this material.)

WASTE STREAM SEPARTATION

Do not mix different types of waste. Segregate waste streams by storing them in separate waste containers with the following classes and subclasses below:

Acids

Organic Acids

Mineral Acids

Bases

Organic Bases

Mineral Bases

Halogenated Organic Compounds

Non-halogenated Organic Compounds

Poisons

Mercury & Mercury Containing Compounds

Aqueous Heavy Metal Solutions

Any other D-Listed Toxic compounds

Reactive Compounds

Oxidizers Peroxides or Peroxide forming chemicals

Air Reactive Materials

Water Reactive Materials

****Never mix non-hazardous waste with hazardous waste.***

(i.e. a mixture of water, sodium bicarbonate, and acetic acid, placed in an organic solvent container.)

****Never mix different waste streams together. If you have a waste that inherently contains multiple hazards, please distinguish them by noting the primary hazard first for classification purposes but don't forget to note the secondary hazard also***

WASTE SEGREGATION & COMPATIBILITY

1. Corrosives

(Mineral & Organic acids and bases should also be stored separately to prevent heat or gas reaction)

2. Flammable Liquids

3. Toxic Compounds

4. Reactive

[\(click here for "What is a Hazardous Waste" Fact Sheet\)](#)

Do not mix any of the classes 1-4. Example 2 & 4 (flammable & reactive waste)

If stored in the same general area these classes of materials must be separated by some means of secondary containment such as a Rubbermaid container (if it is compatible with the chemicals in question. **[\(click here for Chemical Compatibility Sheet\)](#)**)

CONTAINER COMPATIBILITY

It is vital that chemical waste be compatible with its container. If the waste is placed in an inappropriate container, the container might disintegrate or rupture. The following chemical wastes must be placed in glass containers. These chemicals cannot be placed in the plastic HDPE containers.

amyl chloride	cresol	trichloroethene
aniline	cyclohexane	trichloroethylene
benzyl alcohol	o-dichlorobenzene	vinylidene chloride
bromine	p-dichlorobenzene	brominated & fluorinated solvent
bromobenzene	diethyl benzene	cinnamon oil
bromoform	diethyl ether	thionyl chloride
butadiene	ethyl chloride, liquid	concentrated acids
butyric acid	nitrobenzene	nitric acid
carbon disulfide	perchloroethylene	

Other Compatibility Issues

Ethers should be stored in dark bottles (to reduce photolytic oxidation), refrigerated, with the date of purchase on the label. Hydroflouric Acid will eat through glass.

PACKAGING REQUIREMENTS

1. The outside of the containers must be clean and free of chemical contamination.
2. Use appropriate containers. All glass containers must be securely packaged to prevent breakage during transport.
3. All containers of liquids must have screw lids and must not leak when inverted. Corks, cotton plugs, tape, or parafilm are not acceptable lids for containers of hazardous materials.
4. Multiple containers of small vial of compatible material should be place in 3 or 5 gallon pails, if available.
5. If possible, use the same container for disposal of used material that held the new material originally.
6. Loose solid materials such as soil must be placed in a sealed container or double bagged with polyethylene bags (if a cardboard box is available place the bags inside).
7. Containers storing hazardous materials must be kept closed, except when adding or removing contents.

MANAGEMENT OF EMPTY CONTAINERS

Containers from which all chemical product has been removed are considered empty and can be safely disposed of in the trash if:

1. All waste has been removed that can be removed using the practices commonly employed to remove materials from that type of container (e.g. pouring, pumping), *and*
2. No more than one inch of residue remains on the bottom of the container *or*
3. No more than 3% by weight of the total capacity of the container remains in the container
4. No more than 0.3% by weight of the total capacity of the container remains in the container if the container is greater than 110 gallons.
5. Original chemical labels are defaced and/or marked with the word “Empty”
6. Any metals or plastic container that previous held hazardous waste should be punctured before disposal.
7. Any empty container that held a p-listed compound must be triple rinsed with the appropriate solvent to decontaminate the container or the container must be disposed of as a hazardous waste. If triple rinsing is performed, the solvent must be collected and disposed of as a hazardous waste. ([click here for a list of P-listed waste](#))

WASTE MINIMIZATION TIPS

1. Weak acidic or basic solutions without organic chemicals or any other toxic compounds or metals should be neutralized whenever possible. These materials can be managed down the drain if $5.5 < \text{pH} < 10.5$
([click here for “What Material Can I Put In the Trash or Down the Drain” fact sheet](#))
2. Corrosive solutions with organic solvents
(If neutralization is possible, discuss with Hazardous Materials Compliance Officer to make less hazardous)
3. Dispose of all non-hazardous materials in drain or trash where appropriate never dispose of hazardous waste down the drain.