

Waste Management Policy

Waste Management

A waste management plan should be in place before work begins on any laboratory activity. The plan should utilize the following hierarchy of practices:

- Reduce waste sources. The best approach to minimize waste generation is by reducing the scale of operations, reducing its formation during operations, and, if possible, substituting less hazardous chemicals for a particular operation.
- Reuse surplus materials. Only the amount of material necessary for an experiment should be purchased, and, if possible, materials should be reused.
- Recycle waste. If waste cannot be prevented or minimized, consider recycling chemicals that can be safely recovered or used as fuel.
- Dispose of waste. Sink disposal is **NEVER** appropriate. Proper waste disposal methods should be implemented. Environmental health and safety (EH&S) office should be consulted in determining which methods are appropriate for different types of waste.

According to the EPA: *“Hazardous waste is waste that is dangerous or potentially harmful to our health or the environment. Hazardous wastes can be liquids, solids, gases, or sludge.* [EPA-Hazardous Waste Definition](#)

Types of hazardous waste:

1. Listed Wastes
2. Characteristic Wastes
3. Universal Waste
4. Mixed Waste

Listed Wastes

By definition, EPA determined that some specific wastes are hazardous. These wastes are incorporated into lists published by the Agency. These lists are organized into three categories:

1. **The F-list** (non-specific source wastes). This list identifies wastes from common manufacturing and industrial processes, such as solvents that have been used in cleaning or degreasing operations. Because the processes producing these wastes can occur in different sectors of industry, the F-listed wastes are known as wastes from non-specific sources. Wastes included on the F-list can be found in the regulations at [40 CFR §261.31](#)
2. **The K-list** (source-specific wastes). This list includes certain wastes from specific industries, such as petroleum refining or pesticide manufacturing. Certain sludges and wastewaters from treatment and production processes in these industries are examples of source-specific wastes. Wastes included on the K-list can be found in the regulations at [40 CFR §261.32](#)
3. **The P-list and the U-list** (discarded commercial chemical products). These lists include specific commercial chemical products in an unused form. Some pesticides and some pharmaceutical products become hazardous waste when discarded. Wastes included on the P- and U-lists can be found in the regulations at [40 CFR §261.33](#)

Characteristic Wastes: [40 CFR Part 261 Subpart C](#)

Characteristic wastes are not listed specifically by their chemical name but they are regulated as hazardous wastes because they exhibit one or more hazardous characteristics; Ignitability, Corrosivity, Reactivity, and Toxicity.

Ignitability characteristic applies to wastes that are: [40 CFR §261.21](#)

- Liquids with a flash point less than 140°F
- Solids capable of spontaneous combustion under normal temperature and pressure
- Oxidizing materials
- Ignitable compressed gases
- Examples include ethanol, sodium nitrate, hydrogen gas, xylene and acetone

Corrosivity characteristic applies to wastes that are: [40 CFR §261.22](#)

- Aqueous solutions with a pH less than or equal to 2 or greater than or equal to 12.5
- This does not apply to solid or non-aqueous materials
- Examples include hydrochloric acid, nitric acid, and sodium hydroxide

Reactivity characteristic applies to the following: [40 CFR §261.23](#)

- Materials that react violently or generate toxic fumes when mixed with water
- Cyanide or sulfide bearing wastes which evolve toxic fumes when mixed with acids or bases
- Materials that are normally unstable or explosive
- Examples include sodium metal, reactive sulfides, potassium cyanide and picric acid

Toxicity characteristics applies to the following: [40 CFR §261.24](#)

- Waste that have potential to contaminate groundwater if improperly disposed.
- Waste that have the potential to leach out specific toxic substances in a landfill.

Universal Waste: [40 CFR part 273](#)

Waste that are federally designated as "universal wastes," include:

- batteries
- pesticides
- mercury-containing equipment (e.g., thermostats)
- lamps (e.g., fluorescent bulbs)

Mixed Waste: [Mixed Waste Rule](#)

Mixed waste contains both radioactive and hazardous waste components. As a result, both treatment and regulation are complex. Contact EH&S before generating mixed waste.

Collection and Storage of Waste:

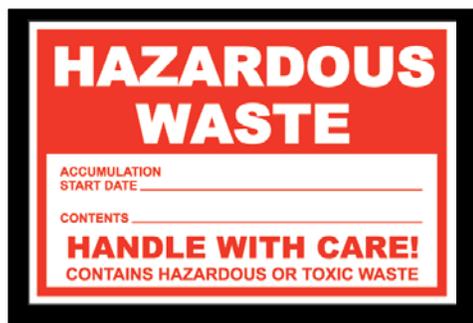
- Chemical waste should be accumulated at or near the point of generation, under the control of laboratory workers.

- Each waste type should be stored in a compatible container pending transfer or disposal.
- Incompatible waste types should be kept separate to ensure that heat generation, gas evolution, or another reaction does not occur.
- Waste containers should be segregated by how they will be managed. Waste containers should be stored in a designated location that does not interfere with normal laboratory operations. Ventilated storage and secondary containment may be appropriate for certain waste types.
- Waste containers should be clearly labeled and kept sealed when not in use. Labels should include the content, accumulation start date and hazard warnings as appropriate.

Labeling:

In order to comply with state and federal regulations and University policy, the following information must appear on each container of hazardous waste.

- "Hazardous Waste": State and federal regulations require that each container must be clearly marked with the words, "Hazardous Waste".
- Chemical Constituents: Write all constituents, whether hazardous or non-hazardous, on the waste label. Formulas, trade names, abbreviations, and general names and nomenclature are not acceptable. The proper chemical name must be written out in its entirety. Provide percentage of constituents, if known. Estimates are acceptable.
- An accumulation start date.



Hazardous waste label



Unlabeled hazardous waste container



Properly labeled hazardous waste container

Hazardous Waste Pickup Information

Hazardous waste disposal is done on a semi-annual bases. Contact EHS Services for all hazardous waste disposal.

Information required:

- A written inventory of all hazardous waste containing;
 - Waste type
 - Quantity
 - Container size
 - Location(s) and Contact person
- Email inventory to EHS @ ehs@mtsu.edu

For additional information on hazardous waste disposal visit:

<http://www.mtsu.edu/chemistry/docs/Disposal%20of%20Hazardous%20Waste.pdf>