

The requirements for the storage of hazardous waste is strictly regulated by the Federal Resource Conservation and Recovery Act (RCRA). These regulations are enforced by the Kentucky Department for Environmental Protection and US EPA. **ALL hazardous wastes generated in this laboratory, clinic, research facility, or department accumulated for disposal MUST be managed as follows:**

- ❑ **Hazardous waste generated in your area MUST stay in your area during the waste accumulation period.** The waste must stay in control of the operator; this means you cannot pass through a doorway to get to your waste collection container.
- ❑ **NOTE:** Placing chemical or hazardous waste outside in the hallway is not permitted. **Disposal of hazardous waste via sink disposal or regular trash is prohibited.**
- ❑ Chemical and hazardous waste containers **MUST** be in good condition (non-leaking, no rust, cracks, etc.)
- ❑ Chemical and hazardous waste containers **MUST** be compatible with the waste and approved to hold chemicals (i.e. no food or beverage containers).
- ❑ When combining, chemical and hazardous waste mixtures **MUST** be compatible.
- ❑ **Waste containers MUST be marked with the words "Hazardous Waste" or "Chemical Waste" followed by the chemical name(s)**
- ❑ **NOTE:** All waste markings must be in English; chemical name(s) should be written out, no chemical formulas. If acronyms are used, all lab personnel must be able to identify.
- ❑ **Chemical and Hazardous waste containers MUST ALWAYS be closed, except when adding waste into the container.**
- ❑ **Accumulation of characteristic (i.e. ignitable, corrosive, moderately toxic) hazardous waste in any laboratory or work area SHALL NOT EXCEED 50 gals (189 L) or 200 lbs (90 kg) at any time.**
- ❑ Accumulation of **acutely hazardous waste (EPA "P-Listed")** or reactive (i.e. air, water, potentially explosive) in any laboratory or work area **SHALL NOT EXCEED one (1) qt (1 L) or 2 lbs (1 kg) at any time.\***

\* Detailed information on University policies and procedures for identifying, handling, and disposing of hazardous wastes are contained in U of L's Waste Disposal Guide on the web at DEHS <http://louisville.edu/dehs/waste-program> . Each container of chemical waste must be labeled with a DEHS uniquely numbered waste container number. Submit your chemical & hazardous waste pick up request via on-line form at <http://louisville.edu/dehs/waste-program> .

Contact the DEHS Hazardous Waste Coordinator @ 502-852-2956 or 502-852-6670 if you have any questions or concerns about chemical and hazardous waste management.

***Emergency Reporting: Imminent danger to life and health call 911!  
Chemical spills should be reported to Public Safety at 502-852- 6111.***

## HAZARDOUS WASTE DETERMINATION CRITERIA

This document is intended to provide a generator with a general overview of how to determine if the waste they generate is hazardous based on current EPA regulations. **This listed criteria should not be considered as inclusive.** (40 CFR 261). For further assistance, please contact the DEHS Hazardous Waste Coordinator at 502.852.2956.

**D-List Characteristics** - The EPA has defined four characteristics for hazardous waste: ignitability (D001), corrosivity (D002), reactivity (D003), toxicity (D004-D043). Numerous chemicals and pharmaceutical products meet the definition of one or more of these criteria and, therefore, should be classified as hazardous waste. These characteristics are defined as followed:

***Ignitability:*** Solid waste that is ignitable include aqueous solutions containing 24% or more alcohol and having a flash point of less than 140°F; non-aqueous solutions having a flash point of less than 140°F; ignitable compressed gases; and oxidizers. Hundreds of chemical formulations contain more than 24% alcohol, due to its excellent solvent properties. Non-halogenated organic solvents, such as ethanol, xylene, toluene, acetone, and acetonitrile, fits the definition, as do aerosol products with flammable propellants and oxidizers such as silver nitrate, potassium dichromate, and hydrogen peroxide solutions  $\geq 8\%$  .

***Corrosivity:*** Solid waste that is aqueous and has a pH less than 2 or with a pH greater than 12.5. Chemicals which commonly exhibit this characteristic include strong acids (i.e. sulfuric acid, hydrochloric acid, acetic acid, etc) and strong bases (i.e. potassium hydroxide, ammonium hydroxide, imidazole, etc).

***Reactivity:*** Reactivity applies to highly explosive and water-reactive chemical compounds. It also includes cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5 can generate toxic gases, vapors, or fumes. Examples of reactive wastes include most metals in dust form, calcium carbide, and sodium sulfide, chemicals stored under inert gas (i.e. butyl lithium compounds, etc.)

***Toxicity characteristic:*** Toxicity is the broadest characteristic and difficult to define. The EPA has determined that a solid waste exhibits the characteristic of toxicity if, using a specified laboratory test method (TCLP) the extract from a sample of the waste contains any of the contaminants listed in Table I of 40 CFR 261 at or above the concentration level specified. For brevity, if you have a waste containing any of the following substances you must manage it as a hazardous waste (EPA RCRA code D-list below):

Arsenic	o-Cresol	Lead	Toxaphene
Barium	2,4-D	Lindane	Trichloroethylene
Cadmium	1,4-Dichlorobenzene	Mercury	2,4,5-Trichlorophenol
Carbon tetrachloride	1,2-Dichloroethane	Methoxychlor	2,4,6-Trichlorophenol
Chlordane	1,1-Dichloroethylene	Methyl ethyl ketone	2,4,5-TP (Silvex)
Chlorobenzene	2,4,-Dinitrotoluene	Nitrobenzene	Vinyl Chloride
Chloroform	Endrin	Pentachlorophenol	Cresol
Chromium	Heptachlor (& its epoxide)	Pyridine	Hexachloroethane
m-Cresol	Hexachlorobenzene	Selenium	Tetrachloroethylene
p-Cresol	Hexachlorobutadiene	Silver	

**EPA RCRA F-Listed Waste Solvents as follows:** Used solvents in cleaning and research activities are also regulated. You must collect the waste if it contains any of the following chemicals: Dichloromethane, 1,1-Trichloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 2-Ethoxyethanol, 2-Nitropropane, Acetone, Benzene, Carbon disulfide, Chlorobenzene, Cresols, Cresylic acid, Cyclohexanone, Dichlorobenzene ortho (o), Ethyl ether, Ethyl acetate, Ethyl benzene, Isobutanol, Methanol, Methyl ethyl ketone, Methyl isobutyl ketone, Methylene chloride, N-Butyl alcohol, Nitrobenzene, Pyridine, Tetrachloroethylene, Toluene, Trichloroethylene, Trichlorofluoromethane, and Xylene.

**GHS – Hazard Pictograms and correlated exemplary Hazard Classes**



**NOTE:**

If product label contains one or more of these GHS-OSHA pictograms, it is most likely that the waste generated will be collected and managed as an EPA regulated hazardous waste or as a chemical waste.