8.0 Hazardous Waste
Hazardous Waste

A. General Definitions*

Hazardous waste is waste that is dangerous or potentially harmful to our health or the environment. Hazardous wastes can be liquids, solids, gases, or sludges. They can be discarded commercial products, like cleaning fluids or pesticides, or the by-products of manufacturing processes.

Waste that has not been specifically listed may still be considered a hazardous waste if it exhibits one of the four characteristics defined in 40 CFR Part 261 Subpart C - ignitability (D001), corrosivity (D002), reactivity (D003), and toxicity (D004 - D043).

1. Ignitability - Ignitable wastes can create fires under certain conditions, are spontaneously combustible, or have a flash point less than 60 °C (140 °F). Examples include waste oils and used solvents. For more details, see 40 CFR §261.21. Test methods that may be used to determine ignitability include the Pensky-Martens Closed-Cup Method for Determining Ignitability (Method 1010A) (PDF) (1 pg, 19K), the Setaflash Closed-Cup Method for Determining Ignitability (Method 1020B) (PDF) (1 pg, 17K), and the Ignitability of Solids (Method 1030) (PDF) (13 pp, 116K).

2. Corrosivity - Corrosive wastes are acids or bases (pH less than or equal to 2, or greater than or equal to 12.5) that are capable of corroding metal containers, such as storage tanks, drums, and barrels. Battery acid is an example. For more details, see 40 CFR §261.22. The test method that may be used to determine corrosivity is the Corrosivity Towards Steel (Method 1110A) (PDF) (6 pp, 37K).

3. Reactivity - Reactive wastes are unstable under "normal" conditions. They can cause explosions, toxic fumes, gases, or vapors when heated, compressed, or mixed with water. Examples include lithium-sulfur batteries and explosives. For more details, see 40 CFR §261.23. There are currently no test methods available.

4. Toxicity - Toxic wastes are harmful or fatal when ingested or absorbed (e.g., containing mercury, lead, etc.). When toxic wastes are land disposed, contaminated liquid may leach from the waste and pollute ground water. Toxicity is defined through a laboratory procedure called the Toxicity Characteristic Leaching Procedure (TCLP) (Method 1311) (PDF) (35 pp, 288K). The TCLP helps identify wastes likely to leach concentrations of contaminants that may be harmful to human health or the environment. For more details, see 40 CFR §261.24.

*Taken directly from U.S. Environmental Protection Agency
B. Hazardous Waste Disposal for Chemistry Laboratories/Stockroom

1. If you are unsure of waste disposal, ask for assistance – Never put anything down the drain if uncertain.

2. Aqueous solutions of household items may be disposed of down the drain. These items include:
   a. Antacids (Rolaids/Tums, etc)
   b. Bleach
   c. Hydrogen Peroxide (3% solution)
   d. Liquid laundry starch
   e. Tincture of iodine (2% solution)
   f. Vegetable Oil
   g. Vinegar
   h. Vitamin C

3. Aqueous solutions of inorganic acids or inorganic bases with a pH of 5.5-9.0 can be disposed of down the drain while running plenty of water to ensure the safety of pipes. These acids and bases include:
   a. Hydrochloric acid
   b. Nitric acid
   c. Phosphoric acid
   d. Sulfuric acid
   e. Ammonium hydroxide
   f. Potassium hydroxide
   g. Sodium hydroxide

4. For small amounts (less than 500 mL) of aqueous solutions of inorganic acids or inorganic bases with a pH<5.5 or pH>8.5 should be diluted with water until the pH is between 5.5 and 9.0. After dilution, the solutions may be disposed of down the drain while running plenty of water to ensure the safety of pipes. These acids and bases include:
   a. Hydrochloric acid
   b. Nitric acid
   c. Phosphoric acid
   d. Sulfuric acid
   e. Ammonium hydroxide
   f. Potassium hydroxide
   g. Sodium hydroxide

5. For large amounts (greater than 500 mL) of aqueous solutions of inorganic acids or inorganic bases with a pH<5.5 or pH>9.0, the solution must be disposed of as hazardous waste. If pH is 3-5.5 or 9.0-12.5, it may be put into the White Disposal Bin provided in each laboratory and/or stockroom. If pH is less than 3.5 or greater than 12.5, the solution should be kept separate for lab packing for disposal.
6. Aqueous solutions of inorganic salts containing the following metals must be disposed of in the White Disposal Bin provided in each laboratory and/or stockroom:
   a. Copper
   b. Chromium (all oxidation states other than chromium VI - chromium VI salts must be disposed of separately and if used, a special container will be provided for wastes)
   c. Iron
   d. Lead
   e. Mercury
   f. Nickel
   g. Silver
   h. Zinc

7. Aqueous solutions of inorganic salts containing the following anions must be disposed of in the White Disposal Bin provided in each laboratory and/or stockroom:
   a. Cyanides
   b. Thiocyanides
   c. Thiosulfates

8. Organic substances or solutions containing primarily organic substances must be disposed of in the Red Disposal Bin provided in each laboratory and/or stockroom.