



UMBC

## Chemical Segregation Procedure

Identification of chemical hazards relies on the user to recognize and understand the labeling system used by manufacturers. All chemicals must be classified for the appropriate hazards, and stored away from any incompatible chemicals. Alphabetizing chemicals is not permitted as the sole means of chemical storage.

Each group of chemicals must be stored within secondary containment capable of holding the full contents of the largest container, or at least 10% of the total volume of all containers in it (whichever is larger). Clean equipment and surfaces regularly to prevent reactions from cross-contamination.

### **Hazard Classification:**

Chemical reagent bottles should be labeled from the manufacturer. Older or smaller bottles may not have hazards clearly marked. Consult the Material Safety Data Sheet (MSDS) for each chemical to determine the appropriate hazard(s).

Begin by separating out inorganic chemicals from organic chemicals. Next, separate the solids from liquids for each group. The following instructions will address the most commonly used chemicals found in a University lab. Some chemicals possess two or more hazards. Refer to the appropriate MSDS or contact the Department of Environmental Health and Safety (EHS) with specific questions.

#### A) Solids, Inorganic or Organic

- 1 – Separate Water-reactive chemicals, Flammable Solids, and Oxidizers into groups.
- 2 – Identify Corrosive chemicals, separating Acids from Bases.
- 3 – Separate Toxic and Irritant chemicals from the remaining non-hazardous chemicals.

#### B) Liquids, Inorganic or Organic

- 1 – Identify Corrosive chemicals, separating Acids from Bases.
  - 1a. Within the Inorganic Acids, segregate the corrosive Oxidizers
  - 1b. Within the Organic Acids and Organic Bases, segregate the Flammable chemicals
- 2 – Separate Oxidizers and Organic Peroxides from the remaining chemicals.
- 3 – Separate Flammable reagents from the remaining solvents and solutions.
- 4 – Separate Toxic and Irritant liquids from the remaining non-hazardous chemicals.

#### Notes:

**Air-reactive chemicals** should be stored under mineral oil, or in a nitrogen environment.

**Water-reactive chemicals** should be stored away from sinks and liquid chemicals, or in a desiccator.

**Peroxide-forming chemicals** must be dated upon receipt and opening, and must be discarded through EHS within a year of receipt, or six months from opening

**Irritants** are usually denoted by a black "X" on the bottle.

**Toxics** are labeled with a skull and crossbones symbol. Toxic chemicals should be stored away from sink and sanitary areas.

**Oxidizers** and **Corrosives** should be stored below eye-level, in secondary containment. Some Oxidizers can be stored in explosion-proof refrigerators to prevent peroxide formation.

If you have more than 10 gallons of **Flammable Liquids** in your lab, they must be stored in a flammable storage cabinet. Many fume hoods have flammable and/or acid cabinets built into the lower half of the unit.