SUGGESTED CHEMICAL SEGREGATION GUIDELINES

'Improper storage of chemicals accounts for nearly 25% of all chemical accidents.'
(Hazard Investigation: Improving Reactive Hazard Management. U.S. Chemical Safety and Hazard Investigation Board. Report No. 2001-01-H, NTIS No. PB2002- 108795. 2002.)

General Chemical Storage Requirements:

1. Solids should be separated from liquids.
2. Chemicals should be stored and segregated based off of chemical classification.
3. Chemicals should not be exposed to direct sunlight or localized heat.
4. Containers of corrosive chemicals (acids &bases) should be stored in trays large enough to contain spillage or leakage (secondary containment).
5. Chemicals should be properly labeled, dated upon receipt, and dated upon opening of the container.
6. All containers must be labeled as to contents. Liquids must be labeled by name and percent of each constituent.
7. Hazardous chemicals should not be stored above eye level of the shortest person working in the lab.
8. Shelves should be strong enough to hold chemicals being stored on them. Do not overload shelves.
9. Chemicals should not be stored under sinks or in fume hoods.

Classifications for Chemical Segregation:

1. **Flammable & Combustible Liquids**
    a. Store in explosion/fire proof cabinets.
    b. Only explosion-proof or intrinsically safe refrigerators and freezers should be used for storing flammable liquids.
    c. Keep away from oxidizers.
2. **Organic Acids**
    a. Use secondary containment trays/containers large enough to contain a spill.
    b. Store with flammable and combustible liquids.
    c. Keep away from inorganic acids, bases, and oxidizers.
    d. Store large containers on lower shelves.
3. **Flammable Solids**
    a. These may be self reactive, pyrophoric, and water reactive chemicals.
    b. Follow MSDS storage and segregation requirements.

4. **Inorganic (mineral) Acids**
    a. Use secondary containment trays/containers large enough to contain a spill.
    b. Keep away from organic acids, bases and oxidizers.
    c. Store large containers on lower shelves.
5. **Caustics & Bases**
    a. Use secondary containment trays/containers large enough to contain a spill.
    b. Keep away from all acids.
    c. Store large containers on lower shelves.
6. **Oxidizers**
    a. Keep away from flammables, combustibles, and reducing agents.
    b. Do not store on wooden shelves (or other combustible materials).
7. **Potentially Explosive and Peroxide Forming Chemicals**
    a. Do NOT store with other chemicals or on combustibles.
    b. Keep only what is needed. It is not recommended to store for more than 2 years.
    c. Follow MSDS storage and segregation requirements.
    d. Shock sensitive and detonable materials are to be stored in secondary containers large enough to hold the container contents in case of breakage; i.e., picric and perchloric acids.
    e. Picric, if dry, must remain dry; if wet, must remain wet. Crystal formation on caps, etc., poses an imminent danger. Containers should be routinely inspected for peroxide formation. Chemicals should be labeled with date received, date opened, and disposal/expiration date.
8. **Compressed Gases**
    a. Keep strapped down to stationary object at all times.
    b. Keep protective cap on when not in use.
    c. Use appropriate regulators.
    d. Keep oxidizing gases away from flammable gases.
    e. Keep NFPA rated 3-4 flammable and health hazard gases in a ventilated gas cabinet.

Note: The SDS for each chemical will help identify the chemical classification, properties and other vital information to assist in determining the best storage location for your laboratory.

For further assistance with chemical storage and segregation, contact EH&S.