MAFES Dawg Tracks

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MISSISSIPPI STATE UNIVERSITY™
MS AGRICULTURAL AND FORESTRY EXPERIMENT STATION

Chemical Segregation

There are chemicals that do not need to be mixed together because of the bad reaction that can occur. If they do not need to be mixed together, then they also do not need to be stored together. Think about the potential harmful effects from a shelf lined with chemicals falling, or a chemical container getting accidentally broke and spilling onto another chemical, or a manageable fire turning tragic because of exposed containers of flammables. These type chemical accidents can be avoided with proper chemical segregation.

General Chemical Storage Requirements:

- ✓ Solids should be separated from liquids.
- ✓ Chemicals should be stored and segregated based off of chemical classification (not ABC order).
- ✓ Chemicals should not be exposed to direct sunlight or localized heat. (Keep this is mind with gas cylinders stored outside, as well.)
- ✓ Containers of corrosive chemicals (acids & bases) should be stored in trays large enough to contain spillage or leakage (secondary containment).
- ✓ Chemicals should be properly labeled as to contents and dated upon receipt.
- ✓ Hazardous chemicals should not be stored above eye level of the shortest person working in the lab.
- ✓ Store large containers on lower shelves.
- ✓ Shelves should be strong enough to hold chemicals being stored on them. Do not overload shelves.
- ✓ Chemicals should not be stored under sinks or in fume hoods.

The safety data sheet (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 area. Always follow each chemicals SDS storage and segregation requirements.

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Classifications for Chemical Segregation:

1. Flammable & Combustible Liquids

- Store in explosion/fire proof cabinets.
- Only explosion proof or intrinsically safe refrigerators and freezers should be used for storing flammable liquids.
- Keep away from oxidizers.

2. Organic Acids

- Use secondary containment.
- Store with flammable and combustible liquids.
- Keep away from inorganic acids, bases, and oxidizers.

3. Flammable Solids

- May be self-reactive, pyrophoric, and water reactive.
- Follow MSDS storage and segregation requirements.

4. Inorganic (mineral) Acids

- Use secondary containment.
- Keep away from organic acids, bases and oxidizers.

5. Caustics & Bases

- Use secondary containment.
- Keep away from all acids.

6. Oxidizers

- Keep away from flammables, combustibles, and reducing agents.
- Do not store on wooden shelves (or other combustible materials).

7. Potentially Explosive and Peroxide Forming Chemicals

- Do NOT store with other chemicals or on combustibles.
- Keep only what is needed. It is not recommended to store for more than 2 years.
- Shock sensitive and detonable materials are to be stored in secondary containers (i.e., picric and perchloric acids).
- 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.

8. Compressed Gases

- Keep strapped down to stationary object at all times.
- Keep protective cap on when not in use.
- Use appropriate regulators.
- Keep oxidizing gases away from flammable gases.
- Keep NFPA rated 3 -4 flammable and health hazard gases in a ventilated gas cabinet.

Sources:
https://www.ehs.msstate.edu/safety/laboratory/library/msds/