Chemical Storage Guidelines

Proper chemical storage is essential in assuring a safe work environment

Segregate Chemicals - Store by Hazard Class

Do Not Store Chemicals Alphabetically, except within a hazard class. Hazard classes that should be stored separately include:

- radioactive materials
- pyrophoric materials
- flammable materials
- oxidizing materials
- water reactive substances
- oxidizing acids
- inorganic acids
- organic acids
- caustics (bases)
- poisons (general laboratory reagents separated into organic and inorganic groups)

Provide physical segregation (sills, curbs, trays) or separation between hazard classes.

Keep flammable materials by themselves in approved storage cans, cabinets, or rooms. Store oxidizers well away from flammable materials.

Store Chemicals To Minimize The Risk From Damaged Containers

- ***Store large bottles and containers*** close to but not on the floor
- **Store acids and caustics below eye level**
- ***Shelves should be securely fastened*** to the wall and have lips or restraining cord to prevent bottles from falling

- ***Secondary containment*** such as polyethylene or stainless steel trays as appropriate should be provided for spill protection

Label Chemical Containers and Storage Areas Properly

- ***Chemical containers*** should have the chemical name, a warning label identifying the major hazards, and information about handling precautions
- ***Storage areas*** should be labeled with hazard class

Chemical Hazard Classes - Examples

Pyrophoric- (many are also water reactive)

- phosphorous (red, white)
- methylmagnesium bromide (and other grignard reagents
- diethylzinc
- triethylaluminum

Oxidizing Materials

- nitrates
- perchlorates
- permanganates
- iodates
- chromium (VI) compounds
- bromine
- nitrates
- iodine

Water Reactive

- alkaline earth metals (sodium, potassium, lithium, calcium)
- calcium carbide
- hydrides
- titanium tetrachloride
- acetic anhydride

Flammable solvents

- sulfur
- sodium metal
- sodium sulfide

Inorganic Acids

- hydrochloric acid
- hydroiodic acid
- phosphoric acid
- hydrobromic acid
- hydrofluoric acid

Inorganic Acids - Oxidizing

- sulfuric acid
- nitric acid
- perchloric acid

Organic Acids

- formic acid
- acetic acid
- propionic acid
- butyric acid

Caustics

- hydroxides of sodium, potassium, calcium, lithium