Chemical Storage

The following are general requirements for chemical storage in the laboratory; contact the Chemical Safety Officer at 644-7682 for specific guidance.

Chemicals should be stored based on compatibility with other chemicals in the storage unit; compatible chemicals can be stored alphabetically. Acids, flammable liquids, oxidizers and highly reactive chemicals should all be separated and stored properly to avoid an unwanted chemical reaction. Reference the Chemical Storage Chart for storage ideas.

Acids should be stored in nonmetal corrosives cabinets, separated from flammable and combustible material, bases, active metals (sodium, potassium, magnesium), or chemicals that could generate toxic gases upon contact, such as sodium cyanide, iron sulfide, etc. Incompatible acids may be stored in separate cabinets or by placing in separate secondary containers; information about incompatible acids can be found here. Bottle carriers should be used during transport of acids. Spill control pillows or acid neutralizing kits should be available for large volume storage. These may be purchased from a scientific supply companies.

Bases should be stored in a separate corrosives cabinet from acids, and stored away from metals, explosives, organic peroxides and easily ignitable materials. Inorganic hydroxide solutions should be stored in polyethylene containers. Spill control pillows or caustic neutralizing kit should be available for large volume storage.

Flammable Liquids in volumes of 10 gallons or more should be stored in flammables cabinets. Flammables should be stored away from sources of ignition, and segregated from oxidizing acids and oxidizers. Safety cans and drums containing flammable liquids should be grounded and bonded when being used for transfers of material (information on grounding and bonding can be found here) . Fire-fighting equipment must be available. Standard refrigerators are not suitable for flammables storage because the electrical components may produce a spark. However, flammable chemicals may be stored in refrigerators designed for this storage in accordance with NFPA 45 Refrigeration. Contact the Laboratory Safety Office for information.

Reactive chemicals should be stored appropriately, away from other reactants. Chemicals that react with water should be sealed and kept in a container with absorbent material. Secondary containment should be labeled.

Long term storage of peroxide forming chemicals creates a hazardous situation for lab workers and EH&S staff, and may result in high waste disposal costs for highly unstable chemicals. Always use or dispose of these chemicals on or before the expiration date on the label.

Toxic compounds and carcinogens should be stored according the hazardous nature of the chemical, using appropriate security. Researchers must contact EH&S before purchasing highly toxic gases. Contact the Chemical Safety Office or Laboratory Safety Office for guidance.

Pyrophoric chemicals should be stored in an inert atmosphere in a cool, dry place with an airtight seal. Once opened, researchers must place in an inert atmosphere and securely seal the container before placing in storage. Providing an extra seal with parafilm and storing in a secondary container are recommended. Researchers must contact EH&S before purchasing pyrophoric gases.

Always label chemicals in English with the exact contents (not simply a formula), include date of receipt, and if appropriate, expiration date.

Storage areas should be properly ventilated and should be adequately designed and constructed.

Large containers of reagents should be stored on low shelving, preferably in trays to contain all leaks and spills. Chemicals should not be stored on the floor, on bench tops, and only minimally inside fume hoods if required for some toxic compounds.

The quantity of chemicals that are stored should be reduced to an absolute minimum.