

Table 1

Chemical Storage and Compatibility

If incompatible chemicals are inadvertently mixed a fire, explosion, or toxic release can easily occur. Take steps now to prevent damage to your school, or harm to people. Below are some basic guidelines for chemical storage. Note however, that chemicals can often fall into more than one hazard category and therefore the chemical label and/or Material Data Safety Sheet should be reviewed for specific storage requirements.

Separate chemicals by adequate distance, or preferably by using physical barriers (e.g. storage cabinets). Avoid using the fume hood for chemical storage - this practice may interfere with the proper air flow of the hood. For especially dangerous materials, use a secondary container (e.g. plastic tub) large enough to contain a spill of the largest container.

With the wide variety of chemicals used in laboratories, the list below is prioritized for materials that are COMMONLY used in a research laboratory. This chart indicates the most obvious chemical incompatibilities, and provides a segregation plan. For more specific chemical incompatibility information, please consult the manufacturer's [MSDS](#).

ACIDS

Acetic Acid, *Chromic Acid, Hydrochloric Acid, Hydrofluoric Acid, *Nitric Acid, Phosphoric Acid, Sulfuric Acid

**Indicates strong oxidizing acids, store per oxidizers section*

Storage Precautions:

- Store bottles on low shelf areas, or in acid cabinets.
- Segregate oxidizing acids from organic acids, AND flammable materials.
- Segregate acids from bases, AND from active metals such as sodium, potassium, etc.
- Segregate acids from chemicals which could generate toxic gases such as sodium cyanide, iron sulfide, etc.

BASES

Ammonium Hydroxide, Potassium Hydroxide, Sodium Hydroxide

Storage Precautions:

- Separate bases from acids.
 - Store bottles on low shelf areas, or in acid cabinets.
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FLAMMABLES

Acetone, Benzene, Cyclohexane, Ethanol, Ethyl Acetate, Ethyl Ether, Gasoline, Hexane,,
Isopropyl Alcohol, Methanol, Propanol, Tetrahydrofuran, Toluene, Xylene
Fuels are reducing agents

Storage Precautions:

- Store in approved flammable storage cabinet(s) (required if > 10 gallons in the lab).
- Separate from oxidizing acids and oxidizers.
- Keep away from any source of ignition (flames, localized heat or sparks).
- Use only "flammable storage" (desparked) refrigerators or freezers.

PEROXIDE-FORMING CHEMICALS

Ethers and acetals with alpha-hydrogen (e.g. ethyl ether, tetrahydrofuran)
Alkenes with allylic hydrogen (e.g. cyclohexene)
Peroxides can be explosively shock-sensitive

Storage Precautions:

- Dispose before expected date of initial peroxide formation.
- Label containers with receiving, opening, and disposal dates.
- Store in airtight containers in a dark, cool, and dry place.

OXIDIZERS

Solids: Calcium Hypochlorite, Ferric Chloride, Iodine, Nitrates -Salts of, Peroxides -Salts of,
Potassium Ferricyanide, Sodium Nitrite
Liquids: Bromine, Hydrogen Peroxide, Nitric Acid, Perchloric Acid, Chromic Acid
React violently with organics

Storage Precautions:

- Keep away from flammables, organic solvents, and other combustible materials (i.e. paper, wood, etc.).
 - Keep away from chemical reducing agents.
 - Store in a cool, dry place.
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