

Chemical Storage Compatibility Categories

1. **Metals.** All metals except mercury (see item 8). Phosphorus (red only; white or yellow phosphorus not recommended for school usage) should also be stored here. Flammable solids should be stored in the flammables cabinet. *Location:* Keep separate from oxidizers (including ammonium nitrate), halogens, organic compounds, and moisture.
 2. **Oxidizers.** All except ammonium nitrate. Includes nitrates, nitrites, permanganates, chlorates, perchlorates, peroxides, and hydrogen peroxide 30 percent or greater. *Location:* Keep separate from metals, acids, organic materials, and ammonium nitrate. Preferably, isolate oxidizers from the flammable liquids storage cabinet by a minimum of eight meters (25 feet) or by a one-hour fire wall.
 3. **Ammonium nitrate.** Store in isolation from all other chemicals, especially acids, powdered metals, flammable liquids, chlorates, nitrites, sulfur, and finely divided organic combustible materials.
 4. **Bases.** Strong bases—sodium hydroxide, potassium hydroxide, and other regulated bases—and ammonium hydroxide. Store in a dedicated corrosive chemicals storage cabinet that has an interior constructed entirely of corrosion-resistant materials.
 5. **Acids.** Inorganic (except nitric acid) and regulated organic acids. Store in a dedicated corrosive chemicals storage cabinet that has an interior constructed entirely of corrosion-resistant materials.
 6. **Nitric acid.** Must be stored separately from acetic acid. Store either in an isolated compartment in the acids cabinet or in special Styrofoam containers available for that purpose from vendors of chemicals. Fuming nitric acid should never be used.
 7. **Flammables.** Store in a dedicated flammables storage cabinet painted with heat/flame-resistant paint. Preferably, isolate flammables from all oxidizers by a minimum of eight meters (25 feet) or by a one-hour fire wall.
 8. **Poisons.** Cyanides (no longer recommended for school programs), mercury and mercury compounds, nicotine, and other poisons. *Location:* Use a lockable drawer remote from the acids storage cabinet.
 9. **Compressed gases.** Cylinders must be chained or strapped to the wall, with caps on tight. *Location:* (a) Keep oxidizing gases remote from flammable liquids, metals, and flammable gases; (b) keep flammable gases remote from oxidizers and oxidizing gases by a distance of eight meters (25 feet) or by a one-hour fire wall.
 10. **Low-hazard chemicals.** Many of the salts not otherwise specified (of course, *not* the nitrates), weak bases, oxides, carbonates, sulfides, dyes, indicators, stains, noncorrosive organic acids, amino acids, sugars, and so forth. Store on open shelves that have earthquake barriers.
9. Bottled gas cylinders should be secured to a wall or counter to prevent upsetting the cylinders. The rupture or unintentional opening of the release valve may cause serious personal injury and destruction of laboratory facilities, especially if the cylinder is not secured and becomes a projectile.
10. Larger gas cylinders must be kept in the cart provided for their transport. Valves should be in perfect working order. When not in use, each cylinder must be secured against movement; that is, each must be held by a sturdy chain or strap connected to ring bolts that will not pull free. The cylinders must be located within an approved storage area. Move large gas cylinders only when regulator valves have been removed and safety covers have been installed.
- A relatively safe and practical pattern for storage of chemicals is one that has separate storage provisions for different categories of chemicals (see diagram on page 44).

F

Labeling of Chemical Reagents

Whenever feasible, store chemicals in the containers in which they were received and retain the vendors' labels. Labels on prepared chemical reagent bottles or