



CHEMICAL STORAGE

GUIDELINES



The following hazard class hierarchy (based on DOT) is provided as a guide for prioritizing which hazard classes pose the greatest risks, (e.g., flammability is usually a more important consideration than toxicity).

Inhalation Hazards - Explosives - Pyrophorics & Water Reactives - Flammable or Combustible Liquids, Solids, Gases - Corrosive Acids & Bases - Oxidizers - Toxics

- ✦ Inhalation Hazards – e.g. Bromine, Phosgene etc.
Should be stored in a ventilated cabinet or a fume hood with only other compatible materials.
- ✦ Unstable Explosives – e.g. Dry Picric Acid, Mercury Fulminate, Trinitrobenzene (<30% water by mass) etc.
Should not be stored in the lab. Contact EH&S (www.ehs.wustl.edu or 314-362-6816) to dispose of. Stabilized materials such as Wetted Picric Acid should be stored appropriately (see MSDS or container label).
- ✦ (Reactive) Pyrophoric or Water-Reactive – e.g. Phosphorus (white), Activated Zinc, Iron Pentacarbonyl, Aluminum Powder / Aluminum Carbide, Aluminum Hydride, Sodium Borohydride etc.
Should be stored together sealed against moisture or air, away from aqueous solutions, water, and alcohols.
- ✦ Flammable & Combustible Liquids, Solids, and Gases – e.g. Ethyl Acetate, Acetone, Ethyl Alcohol, Toluene / Paraformaldehyde, Naphthalene / Acetylene, Aerosols etc. (CAUTION, Be careful many Flammable Solids are also Reactives)
All should be stored in the flammable cabinet when not in use.
- ✦ Peroxide-Forming Materials – e.g. Ethers (e.g., Ethyl, Methyl, Isopropyl), Dioxane, Tetrahydrofuran etc.
Peroxide-Forming Materials should be dated when opened and disposed of through EH&S within one year from the date of opening or by the manufacturer's expiration date whichever occurs first.
They can be stored in the flammable cabinet with the other flammables & combustibles.
- ✦ Corrosive / Inorganic Acids – Hydrochloric, Perchloric, Sulfuric, Phosphoric, Nitric, Hydrofluoric.
Inorganic Acids should be stored in a designated corrosives cabinet, Perchloric, Sulfuric, & Nitric should be stored each in its own secondary containment.
- ✦ Corrosive / Organic Acids – e.g. Acetic, Formic, Propionic etc.
Should be stored in the corrosives cabinet segregated from oxidizing (Perchloric, Sulfuric, Nitric) acids by secondary containment.
- ✦ Corrosive / Bases (Liquids & Solids) – e.g. Sodium Hydroxide, Potassium Hydroxide, Ammonium Hydroxide etc.
Bases should be stored in a designated corrosives cabinet, Bases may be stored with the Acids, however they must be separated from the Acids by utilizing secondary containment.
- ✦ Oxidizers – e.g. Permanganates, Perchlorates, Chlorates, Chlorites, Nitrates, Nitrites etc.
Should be stored separate from all Flammable, Combustible, and Organic Compounds.
- ✦ Organic Peroxides – e.g. Benzoyl Peroxide etc.
Should be stored away from flammables and combustibles. (Be aware that some Organic Peroxides are temperature sensitive)
- ✦ Highly Toxic / Toxic (Solids) – e.g. Teratogens, Carcinogens, Reproductive Hazards etc.
Can be stored in general chemical storage, segregated from incompatibles. Ideally they would be stored separately from other chemicals and easily identifiable within the lab.
- ✦ Highly Toxic / Toxic (Liquids) – e.g. Formaldehyde, Chloroform, Cyanide & other Inorganic Solutions & Compounds etc.
The organic solvents and solutions (Formaldehyde, Chloroform) should be stored in a flammable cabinet. Inorganic solutions & compounds should be stored in general storage in secondary containment.
- ✦ Low Toxicity Materials / Irritants – e.g. Agars, Sodium Chloride, Amino Acids etc.
Should be stored in general chemical storage.

TO DETERMINE A CHEMICAL'S HAZARD(S) CONSULT THE CONTAINER LABEL OR THE MATERIAL SAFETY DATA SHEET OF THE CHEMICAL