

Chemical Storage - Quick Notes

Here are a few quick tips on proper chemical storage by hazard class. Additionally, it's important to take security of your chemical inventory into account when storing these materials. Particular attention should be paid to the security of quantities of flammable solvents and reactive materials.

FLAMMABLES

Examples: alcohols, acetone, ethers

Instructions:

1. Store all except small working quantities in an approved flammable liquid storage cabinet with self-closing doors.
2. If flammable liquids require storage at reduced temperature, store in a Flammable Materials Refrigerator or freezer, engineered and labeled for the storage of flammable liquids. Never store in a standard refrigerator or freezer.
3. Keep away from ignition sources, heat, combustible materials and oxidizing chemicals.

CORROSIVES

Examples: hydrochloric acid, nitric acid, potassium hydroxide, ammonium hydroxide, phenol

Instructions:

1. All corrosives must be stored in plastic (polypropylene or polyethylene) secondary containers.
2. Segregate acids from bases, solid corrosives from liquids.
3. Store below eye level at all times.

OXIDIZERS

Examples: persulfates, perchlorates, permanganates, halogens, peroxides, nitrates

Instructions:

1. Keep away from organics, flammables and combustible materials.
2. Very strong oxidizers (chromic acid) should be stored in glass or inert containers. Do not use corks or rubber stoppers.

LOW REACTIVITY CHEMICALS

Examples: buffers, most weak acids/bases and salts

Instructions:

1. Lips or seismic restraints on storage shelves should be in place to prevent bottles from falling off.
2. Do not stack chemicals or store liquids above eye level.
3. Avoid storing chemicals on the floor or on benchtops. If these areas must be used, always use secondary containment.

REACTIVE AND POTENTIALLY EXPLOSIVE CHEMICALS

Examples: hydrides and borohydrides (water reactive), alkyl lithium reagents (air reactive), azides, nitrates and perchlorates (potentially explosive).

Instructions:

1. These hazard classes present extreme physical hazards and anyone using reactive or potentially explosive chemicals must be thoroughly trained in safe handling and storage procedures. Standard operating procedures must be reviewed and chemical-specific procedures implemented.
2. Water reactive chemicals must be stored away from water sources such as sinks, and aqueous solutions. They must be segregated, contained and labeled as "water reactive" and stored in a dry environment such as a desiccator filled with an inert gas (nitrogen or argon) or glove box.
3. Pyrophoric (Air reactive) chemicals must be segregated, contained and labeled as "air reactive," and stored in a dry environment such as a desiccator filled with an inert gas (nitrogen or argon) or glove box.
4. Potentially explosive chemicals must be labeled as "explosion risk" and stored in a cool, dry, area away from heat and ignition sources such as open flames, hot surfaces, spark sources and direct sunlight.