

LAB SAFETY AWARENESS WEEK

Chemical Storage

Best Practices for Chemical Storage are critical to ensure the safety of the research community.

Maintain the safe and responsible use of chemicals in an academic research setting. Properly dispose of chemical wastes according to University guidelines.

- Always consult the safety data sheet (SDS) from the specific chemical vendor for storage and segregation requirements for chemicals and chemical wastes.
- Review the chemical SDS of all new chemicals to ensure researchers are utilizing the necessary engineering controls (ex. chemical fume hood) and have the proper personal protective equipment (PPE).
- Store chemicals in compatible groups. Do not store your chemicals in alphabetical order, except within each compatible class of chemicals. Consult the University Guideline on *Compatible Chemical Storage Groups* (EH&S Guideline # 04-025).
- Store your flammable chemicals in UL/FM approved flammable cabinets that are specifically designed for that storage purpose. Store flammables separate from acids, bases & oxidizers.
- Label ALL chemicals with the common chemical name. All chemical waste containers must have a completed 'Waste Chemical' label affixed to the container upon initial collection of waste.



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University of Pittsburgh Safety Manual	EH&S Guideline Number: 04-025	
Subject: COMPATIBLE CHEMICAL STORAGE GROUPS	Effective Date: 4/4/11 Updated: 1/29/24	Page 1 of 1

COMPATIBLE CHEMICAL STORAGE GROUPS

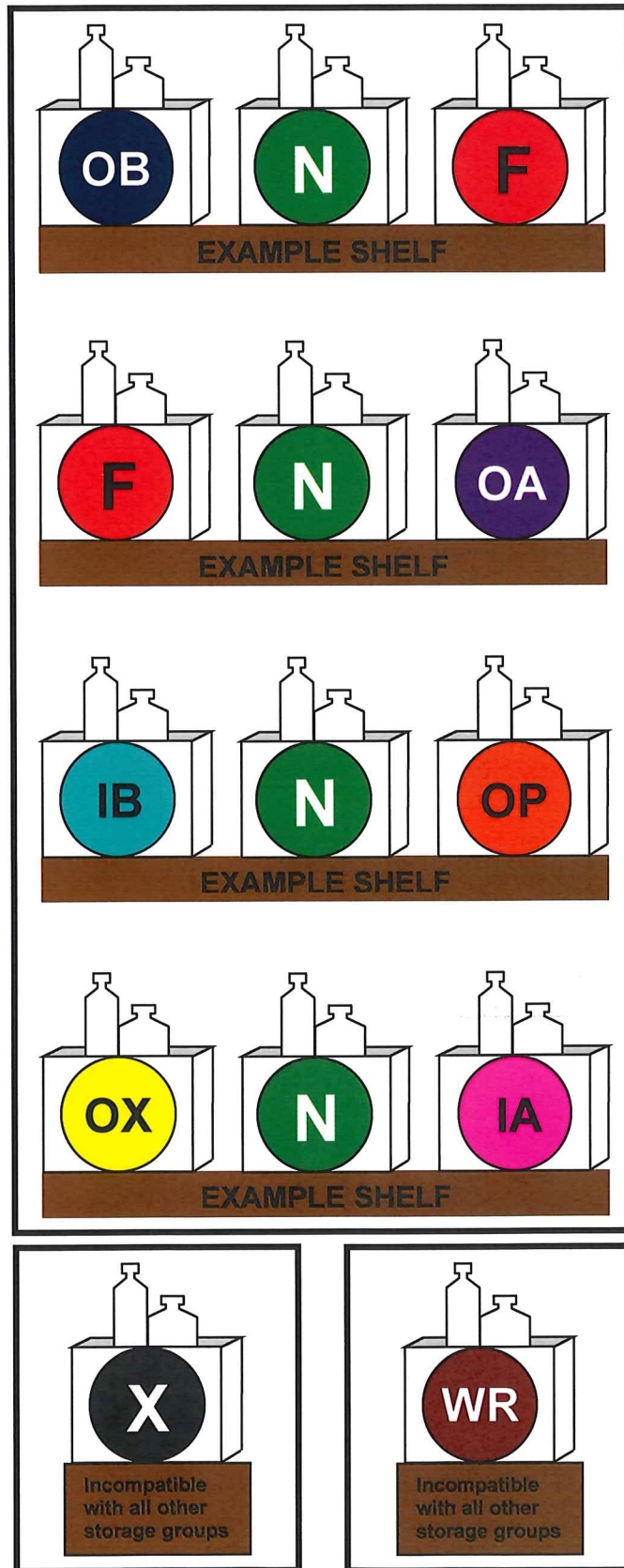
Laboratory chemicals should be stored in groups that prevent potential co-mingling of incompatible materials. Incompatible chemicals should ideally be stored in separate cabinets. Chemicals may be stored in the same cabinet only if placed in compatible storage groups. The use of secondary containment bins as shown is required to minimize the possibility for incompatible materials to mix when being stored in the same cabinet.

Specific storage recommendations and compatibility information on each chemical can be found on the manufacturer's label and/or SDS (Safety Data Sheet). These information sources should be consulted in conjunction with the use of this storage system.

Compatible Chemical Groupings

- F. Non-Reactive Flammables and Combustibles
(including solvents)
(Alcohols, Xylene, Acetone)
- HR. Highly Reactive/Unstable Materials
(Picric Acid, Azobisisobutyronitrile)
- IA. Inorganic Acids
(Sulfuric Acid, Nitric Acid)
- IB. Inorganic Bases
(Sodium Hydroxide, Ammonium Hydroxide)
- N. Not Intrinsicly Reactive, Flammable, or
Combustible
(Sodium Chloride, Buffer Solutions)
- OA. Organic Acids
(Acetic Acid, Formic Acid)
- OB. Organic Bases
(Triethylamine, Diethanolamine)
- OP. Organic Peroxides
(Benzoyl Peroxide, Chloroperoxybenzoic Acid)
- OX. Compatible Oxidizers and Peroxides
(Nitrates, Permanganates, Inorganic Peroxides)
- TG. Toxic Compressed Gases
(Carbon Monoxide, Hydrogen Sulfide)
- WR. Water-Reactive/Pyrophoric Materials
(Sodium Metal, Potassium Metal, Zinc Dust)
- X. Incompatible with ALL other storage groups

For storage groups HR, TG, and X, contact EH&S at 412-624-9505 for additional safety measures and recommendations.



LAB SAFETY AWARENESS WEEK

Personal Protective Equipment and General Lab Attire

Personal protective equipment (PPE) helps to minimize exposure to hazards that cause serious workplace injuries and illnesses.

These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards.

- Basic protection for most laboratories includes safety glasses, shoes and proper shirts/pants.
- Closed-toed shoes are essential in a laboratory to protect yourself from chemical splashes or broken glass.
- Chemical splash goggles or face shields should be worn when there is a risk of splashing hazardous materials or flying particles.
- If respirators are to be used for protection against airborne contaminants, equipment listed and approved by the National Institute for Occupational Safety and Health (NIOSH) may be used if properly selected and fit-tested as part of a complete respiratory protection program. Contact EH&S with questions about respirators.
- Any laboratory operation that exposes lab personnel to a significant noise source of 85 decibels or greater for an 8-hour average duration should utilize hearing protection in the form of ear plugs or muffs.



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Lab Housekeeping

Good lab housekeeping reduces the number of accidents, minimize risks & consequences of slips, trips, falls, unplanned reactions and fire.

Space is always at a premium. Don't be a hoarder!

- Good housekeeping provides more space for research materials, making it safer to move around the lab without tripping or potentially being exposed to chemical/biological materials.
- Limiting or reducing flammable solvents and combustible materials like paper or cardboard reduces the risk of fire.
- Never block emergency exits, fire extinguishers, safety showers, eyewashes, or electrical panels.
- Consider scheduling frequent lab clean-out days (at least quarterly). Inspections help keep the lab space clean. Establishing an internal inspections program improves the lab safety culture.
- Periodically thaw freezers to minimize ice build-up.
- Make arrangements to service and maintain lab equipment; do not use damaged or broken equipment.



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LAB SAFETY AWARENESS WEEK

Safety Equipment in the Lab

Lab safety starts with a safe attitude.

Training with and keeping safety equipment in good working condition is critical in protecting the safety and health of individuals.

- Emergency showers, eyewash units, fire extinguishers, spill kits and other safety equipment keep the community safe and ready for emergency response.
- Regularly check if appropriate safety equipment and supplies are present and in good condition. Replenish immediately if used.
- Having a regular training and maintenance program for safety equipment is imperative. Do not use broken or damaged equipment – notify and schedule repair service immediately.
- Know the location of the nearest emergency eyewash and safety shower before starting any work in the laboratory.
- Access to the eyewash, safety shower, fire extinguishers, and spill kits must be unobstructed.



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LAB SAFETY AWARENESS WEEK

Hazard Identification & Risk Assessment

Risk assessments are crucial for conducting research projects safely.

The process of identifying hazards, determining the severity of potential risks and establishing that suitable/proper control measures are in place is a key component to keep the academic community safe.

- Risk assessments of planned research should be undertaken **before** proceeding with research activities. Consult your research advisor **prior** to any scale-up operations to review potentially hazardous conditions.
- Reviewing Safety Data Sheets (SDS), scheduling consultation with the EHS staff and discussing the work projects are important steps in determining the risks and how to address and control them.
- Risk assessments (RAs) should be revised periodically. Review RAs with any changes to the research experiment, like introducing new chemicals, adding steps to the process, using new equipment, or changes in the concentration of already assessed chemicals.
- To minimize risks, the hierarchy of controls is used, done by elimination, substitution, engineering controls, administrative controls and personal protective equipment (PPE).



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We're All in this Together!

Safety is everyone's responsibility.

When each person in the lab does their part, the lab is a safer place to work.

- Avoid working alone in the lab. Notify others if solitary work cannot be avoided and follow established procedures for working alone in a lab.
- Review standard operating procedures and follow them carefully.
- Review chemical Safety Data Sheets (SDS) and be knowledgeable about the hazards of the chemical being handled and proper method of waste disposal.
- Frequently check hazardous waste accumulation storage areas and arrange for disposal as needed. Avoid accumulating large amounts of hazardous waste.
- A clean lab is a safe lab! Keep areas tidy and organized.
- Include safety topics in your lab, school, and departmental meetings.
- EHS is here to support the academic community in safely achieving their research goals.



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