



# Safety Instruction

## Chemical Storage Guidelines

Proper chemical storage is essential in assuring a safe work environment

### Segregate Chemicals - Store By Hazard Class

**Do Not Store Chemicals Alphabetically**, except within a hazard class. Hazard classes that should be stored separately include:

- radioactive materials
- pyrophoric materials
- flammable materials
- oxidizing materials
- water reactive substances
- oxidizing acids
- inorganic acids
- organic acids
- caustics (bases)
- poisons (general laboratory reagents separated into organic and inorganic groups)

**Provide physical segregation** (sills, curbs, trays) or separation between hazard classes.

**Keep flammable materials by themselves** in approved storage cans, cabinets, or rooms. Store oxidizers well away from flammable materials.

### Store Chemicals To Minimize The Risk From Damaged Containers

- **Store large bottles and containers** close to but not on the floor
- **Store acids and caustics below eye level**
- **Shelves should be securely fastened** to the wall and have lips or restraining cord to prevent bottles from falling
- **Secondary containment** such as polyethylene or stainless steel trays as appropriate should be provided for spill protection

### Label Chemical Containers And Storage Areas Properly

- **Chemical containers** should have the chemical name, a warning label identifying the major hazards, and information about handling precautions
- **Storage areas** should be labeled with hazard class

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## Chemical Hazard Classes - Examples

### Pyrophoric - (many are also water reactive)

- phosphorous (red, white)
- methylmagnesium bromide (and other grignard reagents)
- diethylzinc
- triethylaluminum

### Oxidizing Materials

- nitrates
- perchlorates
- permanganates
- iodates
- chromium (VI) compounds
- bromine
- nitrates
- iodine

### Water Reactive

- alkaline earth metals (sodium, potassium, lithium, calcium)
- calcium carbide
- hydrides
- titanium tetrachloride
- acetic anhydride

### Flammable

- solvents
- sodium metal
- sodium sulfide
- sulfur

### Inorganic Acids

- hydrochloric acid
- hydroiodic acid
- phosphoric acid
- hydrobromic acid
- hydrofluoric acid

### Inorganic Acids - Oxidizing

- sulfuric acid
- nitric acid
- perchloric acid

### Organic Acids

- formic acid
- acetic acid
- propionic acid
- butyric acid

### Caustics

- hydroxides of sodium, potassium, calcium, lithium