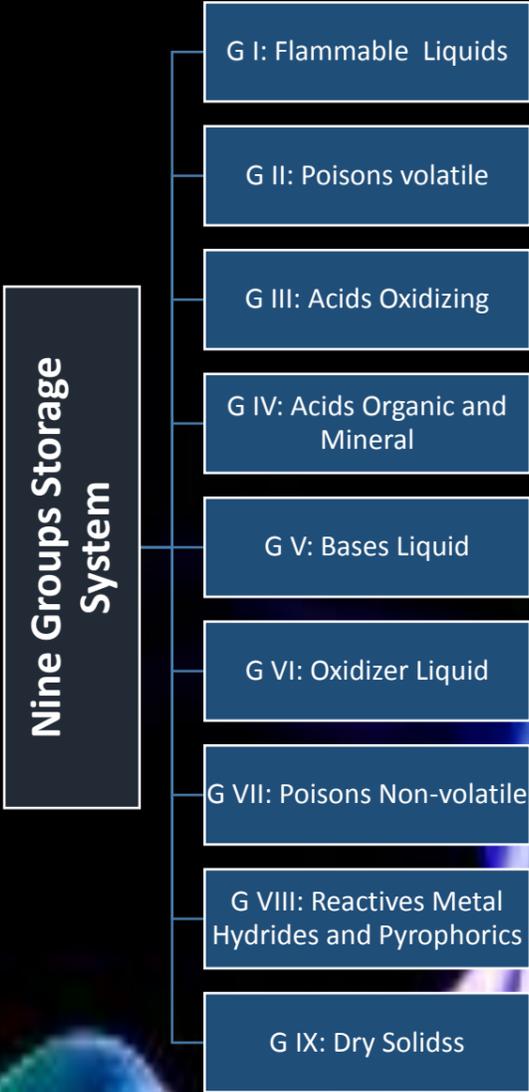
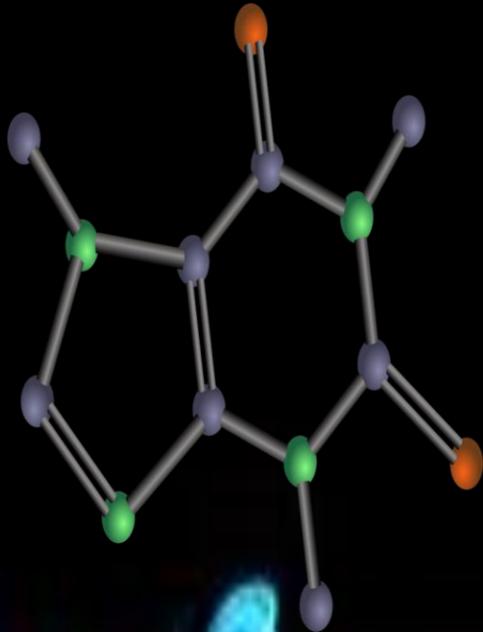


CHEMICAL STORAGE GUIDLINE

| Main Purpose of Competible Storage Group | | |
|--|---|-------------------------|
| Protect flammables, explosion & ignition | Protect exposure to poisons / cause adverse health effect | Avoid accidental mixing |



| <i>Principles Of Safe Chemical Storage</i> | 1 | Returned to location after each use |
|--|---|--|
| | 2 | Do not placed on bench tops |
| | 3 | Not in the fume hood |
| | 4 | Not arrange in alphabetical order |
| | 5 | Away from sun and heat |
| | 6 | Not store under the sink |
| | 7 | Label chemicals properly |
| | 8 | Carcinogens must be labeled |
| | 9 | Storage of liquid chemicals is more hazardous than storage of solids |



| How To Store Chemicals | | | |
|--|--|--|--|
| Group Definition | Primary Storage Concern | Recommended Facilities | Example |
| G I: Flammable Liquids <ul style="list-style-type: none"> Includes liquids with flashpoints < 21 C | To protect from ignition | <ul style="list-style-type: none"> 1. Flammable Cabinet (G I) 2. Refrigerator: for containers less than 1 liter. | All alcohols, acetone, acetonitrile, benzene, ether, ethyl acetate, hexane, methyl butane, propanol, all silanes, toluene. |
| G II: Volatile Poisons <ul style="list-style-type: none"> Includes poisons toxics and suspected carcinogens with strong odor or evaporation rate. | To prevent inhalation exposures. | <ol style="list-style-type: none"> 1. Flammable cabinet (G II -Toxic) 2. Refrigerator: for containers less than 1 liter. | Chloroform, dimethyl sulfate, formaldehyde, methylene chloride, phenol. |
| G III: Oxidizing Acids <ul style="list-style-type: none"> All oxidizing acids are highly reactive with most substances and each other. | Preventing reaction with each others and corrosive action on surfaces. | Chemical Safety Storage Cabinet (Each oxidizing acid must be double contained/secondary box) | Nitric, sulfuric, perchloric, phosphoric acids, and chromic acids. |
| G IV: Organic and Mineral Acids. | To prevent reaction with bases and oxidizing acids and corrosive action on surfaces. | Chemical Safety Storage cabinet | Acetic, butyric, formic, glacial acetic, hydrochloric, isobutyric, trifluoroacetic acids. |
| G V: Liquid Bases | Preventing contact and reaction with acids. | Chemical storage cabinet (bases) | Sodium hydroxide, ammonium hydroxide, calcium hydroxide, glutaraldehyde. |
| G VI: Oxidizer – Liquid <ul style="list-style-type: none"> Oxidizing liquids react with everything causing explosions/corrosion of surfaces. | To isolate from other materials. | <ol style="list-style-type: none"> 1. Chemical storage cabinet / Flammable cabinet (Oxi) 2. Smaller quantities must be in secondary container if kept near other chemicals | Ammonium persulfate, hydrogen peroxide (if greater than or equal to 30%) |
| G VII: Poisons Non-Volatile <ul style="list-style-type: none"> Includes highly toxic (LD50 oral rat < 50 mg/kg) and toxic chemicals (LD50 oral rat < 500 mg/kg), known carcinogens, suspected carcinogens and mutagens | To prevent contact and reaction with other substances. | <ol style="list-style-type: none"> 1. Toxic Steel Cabinet, Chemical Storage Cabinet (i.e., must be enclosed) 2. Do not store on open shelves in the lab or cold room | Acrylamide solutions; diethylpyrocarbonate; diisopropyl fluorophosphate; uncured epoxy resins; ethidium bromide; triethanolamine |
| G VIII: Reactives Metal Hydrides and Pyrophorics <ul style="list-style-type: none"> Most metal hydrides react violently with water, some ignite spontaneously in air (pyrophoric). | To prevent contact and reaction with liquids and, in some cases, air. | <ol style="list-style-type: none"> 1. Water proof double containment according to label instructions. 2. Isolation from other storage groups. 3. Under paraffin oil (metal) | Sodium borohydride, calcium hydride, lithium aluminum hydride |
| G IX: Dry Solids <ul style="list-style-type: none"> Includes all powders, hazardous and non hazardous. | To prevent contact and potential reaction with liquids. | Open shelves are acceptable | Benzidine, cyanogen bromide, ethylmaleimide, oxalic acid, potassium cyanide, sodium cyanide |

