



Chemical Incompatibility and Lab Storage Rules

Chemicals	Incompatibility	Storage
Acetic Acid	Chromic Acid, nitric acid, hydroxyl compounds, ethylene glycol, perchloric acid, peroxides, permanganates	Spark free, well-vented area, avoid freezing, containers should be grounded for transfer to avoid static spark. Diluted acetic acid (5%) not regulated
Acetylene	Chlorine, bromine, copper, fluorine, silver, mercury.	Cylinders must be separated by min 20ft from oxidizers, away from ignition.
Alkali and alkaline earth metals	Water, carbon, tetrachloride or other chlorinated hydrocarbons, carbon dioxide, halogens	Away from H ₂ O, humid air, acids, oxidizers, heat, ignition
Acetone	Concentrated nitric and sulfuric acid mixtures	Flammable liquid cabinet, away from ignition
Ammonia	Mercury (in manometers) chlorine, calcium hypochlorite, iodine, bromine, HF (anhydrous)	In cool, dry place (not below 77F), lead tightly closed
Ammonium nitrate (strong oxidizer)	Acids, powdered metals, flammable liquids, chlorites, nitrates, sulfur, finely divided combustible materials	Cool, dry, well vented area, DO NOT STORE ON WOOD, away from heat, ignition, shock sensitive,
Aniline (combustible, may explode)	Nitric acid, hydrogen peroxide	Away from air, light, ignition, keep in light-resistant containers
Arsenical materials (poison)	Any reducing agent	Cool, dry, well vented area, poison room locked
Azides (highly flammable)	Acids	Cool, dry, tightly closed, well vented, separate locker from toxic or infectious materials
Bromine (toxic)	See chlorine	Cool, dry, well vented, lead tight
Calcium Oxide	Water	Cool, well vented, not above 75.2F,
Carbon tetrachloride (health hazard, slightly flammable)	Sodium	Cool, dry, well vented, avoid ignition, heat.
Chlorates (oxidizers)	Ammonium salts, acids, powdered materials, sulfur, finely divided organic or combustible	Cool, dry, well vented, DO NOT STORE ON WOOD,



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	materials.	
Chromic acid and chromium trioxide (carcinogen, mutagen)	Acetic acid, naphthalene, camphor, glycerol, alcohol, flammable liquids	Cool, dry well vented, tightly closed, in designated carcinogen area
Chlorine (health hazard, corrosive)	Ammonia, acetylene, butadiene, butane, methane, propane (or other petroleum gases) hydrogen, sodium carbide, benzene, finely divided metals, turpentine	Cylinders should be stored in dry, cool, well vented area
Chlorine dioxide (irritant, reproductive toxin, mutagen, oxidant, corrosive)	Ammonia, methane, phosphine, hydrogen sulfide	Cool, dry, away from light, UV,
Cumene hydroperoxide (toxic, oxidizer)	Acids (organic & inorganic)	Cool, dry, well vented, open containers must be resealed, stored up right to prevent leakage, away from reducing agents)
Cyanides (toxic, corrosive, slightly flammable, may combust at high T)	Acids	Tightly closed container, cool, dry, well vented, away from oxidizers, moisture, do not store above 75.2F
Flammable liquids	Ammonium nitrate, chromic acid, hydrogen peroxide, nitric acid, sodium peroxide, halogens	Flammable cabinets
Hydrocarbons (such as butane, propane, benzene) (Flammable, toxic,	Fluorine, chlorine, bromine, chromic acid, sodium peroxide	Away from heat, ignition, oxidizers, in well vented area, regulated under flammables
Hydrocyanic acid (toxic, flammable, may polymerize)	Nitric acid, alkali	Closed storage, can be stored with flammables, most have shelve life 90 days
Hydrofluoric acid (anhydrous) (corrosive, reactive)	Ammonia	Cool, dry, tightly closed, will etch glass, so store in secondary polyethylene containers,
Hydrogen peroxide (corrosive, oxidizer, burn skin and respiratory)	Copper, chromium, iron, most metals or their salts, alcohols, acetone, organic materials, alinine, nitrometane, combustible materials	Cool (less 35C), well vented, dark area, DO NOT STORE ON WOOD, away from heat,
Hydrogen sulfide, compressed	Fuming nitric acid, oxidizing	Equipment used must be ground



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gas cylinders, (flammable, health hazards)	gases	and spark/explosion proof, dry, well vented area,
Hypochlorites (corrosive, oxidizer)	Acids, activated carbon	Cool, dry, vented,
Iodine (corrosive)	Acetylene, ammonia, hydrogen	Tightly closed, cool, dry
Mercury (irritant, corrosive, severe health hazard)	Acetylene, fulminic acid, ammonia	Tightly closed, well vented
Nitrates (oxidizers, reactive)	Sulfuric acid	Tightly closed, cool, dry, well vented
		Keep away from combustible and flammable materials.
		Keep away from reducing agents such as zinc, alkali metals, and formic acid.
Nitroparaffins (Nitromethane, Nitroethane, 1-Nitropropane)	Inorganic bases, amines	Tightly closed, cool, well-ventilate. Keep them away from heat, sparks, and flame Use only with adequate ventilation Store in a segregated and approved area.
Oxalic acid	Silver, mercury	Store in a cool, well ventilated, tightly closed and dry. Keep away from direct sunlight or strong incandescent light.
Oxygen	Oils, grease, hydrogen; flammable liquids, solids, or gases	Liquid O ₂ : Store and use with adequate ventilation. Close valve when not in use and when empty. O ₂ : Do not expose cylinder to temperatures higher than 50°C (122 °F) Store separately from cylinders containing flammables by a minimum distance of 20' or by a barrier of noncombustible material at least 5' high having a fire resistant rating of at least 30minutes. Sources of ignition should be



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		removed from storage area. Store cylinder in a well ventilated area. Store in accordance with local fire code and/or building code or any pertaining regulations.
Perchloric acid	Acetic anhydride, bismuth and its alloys, alcohol, paper, wood, grease, and oils	Tightly closed, cool, well-ventilate. Separate from acids, alkalis, reducing agents and combustibles.
Peroxides, organic	Acids (organic or mineral), avoid friction, store cold	Store in a cool (< 35C), well-ventilated dark area separated from combustible substances, reducing agents, strong bases, organics. Do not store on wooden shelves or floors.
Phosphorus (white)	Air, oxygen, alkalis, reducing agents	Keep in a tightly closed container. Store in a cool, dry, area away from moisture and incompatible materials.
Potassium	Carbon tetrachloride, carbon dioxide, water	Keep container tightly closed in a dry and well-ventilated place.
Potassium chlorate and perchlorate	Sulfuric and other acids	Store in a cool place away from heated areas, sparks, and flame. Store in a well ventilated area.
Potassium permanganate	Glycerin, ethylene glycol, benzaldehyde, sulfuric acid	Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage and moisture . Isolate from any source of heat or ignition . Avoid storage on wood floors . Containers of this material may be hazardous when empty