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Safe Storage of Acids

When handled or stored improperly, acids can cause significant harm to both people and property. The following are important considerations for storing acids:

Store acids in [safety cabinets](#) that are designed for that purpose—not file cabinets or closets. [Acid storage cabinets](#) include special features such as double-wall construction, vents, ground-wire connections, leak proof sills, liners, and paint that is chemical resistant to help contain any leaking acid within the cabinet, prevent fires and explosions, and prevent build up of hazardous gas within the cabinet.

When purchasing a [safety storage cabinet](#), match the material to your application. For example, wood laminate and polyethylene cabinets are more suitable for highly corrosive materials like nitric and sulfuric acid than are untreated metal cabinets.

Anchor your [acid storage cabinet](#) to the wall—especially in earthquake-prone areas.

Be sure that extraneous items (like rags) are not stored in your acids cabinet.

Ensure that containers inside the storage cabinet are securely closed when they are placed into the cabinet. With the exception of mixtures that may produce gases that may pressurize a container, containers should have tight-fitting caps, not loose-fitting lids or glass stoppers which won't contain a spill if the container is accidentally knocked over.

Have an [ABC fire extinguisher](#) located near the acid storage cabinet in case of fire.

Where appropriate personal protective equipment (PPE) when handling acids (consult the material safety data sheet (MSDS) for the acid if you are unsure what PPE is required).

Acid storage areas should have an [eyewash](#) and, depending on the amount and use of materials, a [drench shower](#) located nearby (check the MSDSs for the acids you handle to see determine if a drench shower is needed).

Locate cabinets in areas that are cool and dry and located away from extremes in temperature and humidity.

Ensure that containers within the cabinet are properly labeled, including expiration dates—remove and properly dispose of acids that have exceeded their expiration dates.

Store acids separately from bases. When combined, something that can occur if there is a leak or a spill, acids and bases can react violently.

While nitric acid and hydrochloric acid can be stored in the same corrosive storage cabinet, they must have separate drip trays because, if they combine, they will form chlorine and nitrosyl chloride gases—both of which are toxic.

Use secondary containment for liquids inside your acid storage cabinet. Do not store aqueous sodium and potassium hydroxide solutions in aluminum drip trays. These will corrode aluminum and compromise its integrity. Also, a glass drip tray should be utilized with perchloric acid.

Don't store incompatible materials together. For example, store oxidizing acids separately from organic acids and flammable and combustible materials—these can combine to cause a fire or explosion. Store acids separately from reactive metals such as sodium, potassium, and magnesium. Segregate acids from chemicals that could generate toxic or flammable gases upon contact, such as sodium cyanide, iron sulfide, and calcium carbide. If you're unsure about an acid's compatibility, check its MSDS. Below is a table of some commonly used acids and chemicals they are incompatible with.

Acid	Incompatible and Should Not Be Stored With:
Acetic Acid	Chromic acid, nitric acid, hydroxyl compounds, ethylene glycol, perchloric acid, peroxides, permanganates
Chromic acid	Acetic acid, naphthalene, camphor, glycerol, alcohol, flammable liquids in general
Hydrocyanic acid	Nitric acid, alkali
Hydrofluoric acid (anhydrous)	Ammonia (aqueous or anhydrous)
Nitric acid (concentrated)	Acetic acid, aniline, chromic acid, hydrocyanic acid, hydrogen sulfide, flammable liquids, flammable gases, copper, brass, any heavy metals
Sulfuric acid	Potassium chlorate, potassium perchlorate, potassium permanganate (similar compounds of light metals, such as sodium, lithium)

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