



ANDERSON COUNTY CHEMICAL STORAGE WHITE PAPER

Safe chemical handling requires routine inspections of chemical storage areas and maintenance of stringent inventory control. The inherent hazards of chemicals can be reduced by minimizing the quantity of chemicals on hand. However, when chemicals must be used, proper storage and handling can reduce or eliminate associated risks. All chemical storage areas and cabinets should be inspected at least annually and any unwanted or expired chemicals should be removed.

Typical storage considerations may include temperature, ignition control, ventilation, segregation and identification. Proper segregation is necessary to prevent incompatible materials from inadvertently coming into contact. A physical barrier and/or distance is effective for proper segregation.

Keys for safe chemical storage:

- Ensure all containers of hazardous chemicals are properly labeled with the identity of the hazardous chemical(s) and appropriate hazard warnings.
- Segregate all incompatible chemicals for proper storage of chemicals by hazard class. In other words, store like chemicals together and away from other groups of chemicals that might cause reactions if mixed.
- Flammable materials should be stored in an approved, dedicated flammable materials storage cabinet or storage room if the volume exceeds ten gallons. Keep cabinet doors closed.
- Chemicals should be stored no higher than eye level and never on the top shelf of a storage unit. Do not overcrowd shelves. Each shelf should have an anti-roll lip.
- Avoid storing chemicals on the floor (even temporarily) or extending into traffic aisles.
- Liquids should be stored in unbreakable or double-contained packaging, or the storage cabinet should have the capacity to hold the contents if the container breaks.
- Store acids in a dedicated acid cabinet. Nitric acid may be stored there also but only if it is kept isolated from all other acids.
- Store highly toxic or controlled materials in a locked, dedicated poison cabinet.
- Volatile or highly odorous chemical shall be stored in a ventilated cabinet. Chemical fume hoods shall not be used for storage as containers block proper air flow in the hood and reduce available work space.
- All chemicals should be labeled and dated upon receipt in the lab and on opening. This is especially important for peroxide-forming chemicals such as ethers, dioxane, isopropanol, and tetrahydrofuran. Solutions should be labeled and dated when prepared.
- First aid supplies, emergency phone numbers, eyewash and emergency shower equipment, fire extinguishers, spill cleanup supplies and personal protective equipment should be readily available and personnel trained in their use.
- Only approved containers and portable tanks shall be used for storage and handling of flammable and combustible liquids (such as gasoline). Approved safety cans or

Department of Transportation approved containers shall be used for the handling and use of flammable liquids in quantities of 5 gallons or less.

- An approved closed container, of not more than 5 gallons capacity, having a flash arresting screen, spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure.
- Chemicals stored in explosion-proof refrigerators or cold rooms shall be sealed and labeled with the name of the person who stored the material in addition to all other required hazard warnings.
- Only compressed gas cylinders that are in use and secured in place shall be kept in the laboratory. All others, including empties, shall be sent to the compressed gas cylinder storage area for the particular facility.
- Keep all stored chemicals, especially flammable liquids, away from heat and direct sunlight.

Look for unusual conditions in chemical storage areas, such as:

- Improper storage of chemicals
- Leaking or deteriorating containers
- Spilled chemicals
- Temperature extremes (too hot or cold in storage area)
- Lack of or low lighting levels
- Blocked exits or aisles
- Doors blocked open, lack of security
- Trash accumulation
- Open lights or matches
- Fire equipment blocked, broken or missing
- Lack of information or warning signs (“Flammable liquids”, “Acids”, “Corrosives”, “Poisons”, etc.)

<http://www.ehso.com/ChemicalStorageGuidelines.htm>

<https://www.safetyinfo.com/safe-chemical-storage-osharequirements-free-index/#:~:text=Maximum%20Storage%20Quantities%20For%20Cabinets&text=%20Not%20more%20than%2060%20gallons,NFPA%2030%20Section%204%2D3.1.>

<https://www.osha.gov/laws-regs/standardinterpretations/2004-01-29-1>