Rules for chemical storage

Based on https://www.labmanager.com/lab-health-and-safety/2017/07/handling-and-storing-chemicals#.Xd6GsXmP7X4 with the changes for TAU.

Safely storing chemicals in a laboratory requires diligence and careful consideration. Correct use of containers and common lab equipment is critical. To store chemicals safely, DO the following;

- Label all chemical containers fully. We recommend including the owner's or user's name along with the date received.
- Provide a specific storage space for each chemical, and ensure return after each use.
- Store volatile toxics and odoriferous chemicals in ventilated cabinets.
- Store flammable liquids in approved flammable liquid storage cabinets. Small amounts of flammable liquids may be stored in the open room. TAU allows storage of 5 liters of flammable materials per 10 sq/ m lab area.
- Separate all chemicals, especially liquids, according to compatible groups. Follow all precautions regarding storage of incompatible materials.
- Use appropriate resistant secondary containers for liquids. This protects the cabinets and will catch any leaks or spills due to breakage.
- Seal containers tightly to prevent the escape of vapors.
- Use designated refrigerators for storing chemicals. Label these refrigerators CHEMICAL STORAGE ONLY—NO FOOD. Never store flammable liquids in a refrigerator unless it is specifically designed and approved for such storage. Use only explosion-proof (spark-free) refrigerators for storing flammables.

And AVOID doing the following:

- Storing large, heavy containers or liquids on high shelves or in high cabinets. Instead store these at shoulder level or below.
- Storing bottles on the floor unless they are in some type of secondary containment.
- Storing chemicals near heat sources or in direct sunlight.
- Storing chemicals in fume hoods. Excessive containers interfere with air flow and hood performance. Only chemicals in actual use should be in the hood.
- Storing anything on top of cabinets. Ensure at least 18 inches of clearance around all sprinkler heads to avoid interference with the fire suppression system.

- Using bench tops for storage. These work spaces should contain only chemicals currently in use.

- Storing chemicals indefinitely. Humidity causes powders to cake or harden. Liquid chemicals evaporate. We strongly recommend all containers be dated when they arrive in the lab. Ensure all manufacturers' expiration dates are strictly followed. Pay special attention to reactive or dangerous compounds. Dispose of all outdated, hardened, evaporated, or degraded materials promptly.

Also see this link for Safe storage of liquids commonly used in TAU labs and also this link for Requirements for Flammable Liquid Storage at TAU.

References:

1. *OSHA Hazard Communication Standard* - http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10099

2. *Standard System for the Identification of the Hazards of Materials for Emergency Response*, National Fire Protection Association, Publication 704. http://www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=704

Additional resources

NIOSH Pocket Guide to Chemical Hazards. National Institute of Occupational Safety and Health. Publication 2005-149. http://www.cdc.gov/niosh/npg/

The Merck Index: An Encyclopedia of Chemicals, Drugs and Biologicals. 14th edition. Merck & Company, Inc. Rahway, N.J. Latest edition.

Prudent Practices in the Laboratory: Handling and Disposal of Chemicals. National Research Council. National Academy Press. Washington, D.C. Latest edition.

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