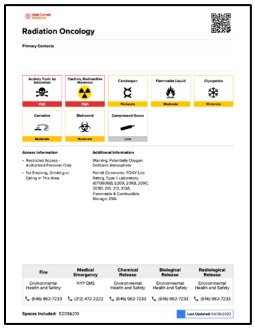
Fire Safety in the Laboratory: FDNY Laboratory Requirements and Common Violations

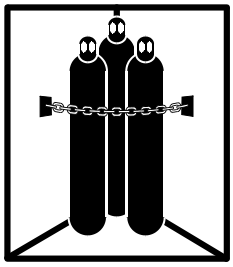
The following are the Fire Department of New York City (FDNY) requirements for laboratory safety and the most common causes of violations issued by the FDNY during annual laboratory inspections.
Please review these regulations, and be proactive in preventing violations by training staff and making changes as necessary.

Chemical Storage in Laboratories



1. **Store all flammable liquids (e.g., TEMED, Sigmacote, and ethanol) to be chilled in flammable-proof or explosion-proof refrigerators/freezers/cold rooms only.** Flammable liquids release vapors that can build up, ignite, and burn when stored improperly. Standard refrigeration systems have unprotected mechanical or electric components that can act as an ignition source for these vapors, causing fires and explosions.
2. **Ensure that flammable liquids stored in the lab do not exceed the maximum limits.** Refer to the FDNY lab rating on the room's Health and Safety Door Sign, then verify the applicable limits as detailed on the EHS Update on Flammable Liquid Storage Limits and Permit Requirements.
3. **Label all peroxide-forming chemical containers and contact EHS for disposal.** Chemicals with peroxide crystals may violently detonate when subjected to thermal or mechanical shock. All peroxide formers (e.g., diethyl ether and tetrahydrofuran) must be logged in the Salute inventory, labeled with the "Date Received," "Date Opened", and "Expiration Date." All expired peroxide-former chemicals must be disposed of by EHS. For more information, please consult the EHS Update on Peroxide-Forming Chemicals.
4. **Store all Chemicals in the Lab according to their compatibility.** Inadequate segregation and storage of chemicals have caused fires and explosions when they leak and mix accidentally. Storing strong oxidizer acids (e.g., nitric acid) with organic compounds (e.g., acetic acid and ethanol) is a common mistake. For additional information, see the Chemical Storage and Segregation Update.
5. **Keep all bottles of chemicals or waste off the floor and in the upright position.**
6. **Label all chemical containers with the name of their contents.**

Compressed Gas Cylinder Safety



1. **Secure all compressed gas cylinders,** whether in-use, in-storage, full or empty, with chains or straps to prevent them from falling or being knocked over.
2. **Follow these precautions for all compressed gas cylinders:**
   - Limit the number of oxygen and flammable gas cylinders in the lab.
   - Return old, unused cylinders to the distributor.
   - Segregate incompatible gases, as well as full cylinders from empty ones.
   - Ensure that all cylinders are properly marked with contents.

Means of Egress: Fire Hazards, Obstructions, Exit, and Exit Access

1. **Keep combustible materials away from fire/emergency exits.**
2. **Do not store chemicals in corridors.** All egress routes and corridors must be free of chemical storage and obstruction.

Other FDNY Requirements:

1. **Verify that a C-14 Certificate holder is present at all times when the lab is in operation.** Labs may need multiple C-14 holders to ensure coverage. For additional information, use the EHS C-14 Application Overview & Checklist.
2. **Install oxygen monitor(s) where required.** The FDNY requires that oxygen monitors are mounted in any area dispensing and /or storing cryogenic liquids over 60 gallons.
3. **Confirm that black-out curtains or drapes** used in the laboratory are inherently flame-retardant and certified by an approved vendor. For assistance obtaining this certification, please contact EHS.
4. **Store all materials at least 18 inches away from sprinkler heads and ceilings.** Supplies can be stored up to the sprinklered ceiling along the perimeter of the room, as long as the front edge of the material has *at least 18-inch clearance* in all directions from the sprinkler head.
5. **Do not use electrical extension cords.** The FDNY requires that all the stationary laboratory equipment (e.g., freezers and centrifuges) be plugged directly into the power outlet.

Please contact EHS with any questions or concerns.

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