

IN THIS ISSUE

Safety Spotlight: Fume Hoods aren't Storage Cabinets

New Air Velocity Meters

Know Your Responsibilities

Summer Lab Attire

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SAFETY SPOTLIGHT: Fume Hoods aren't Storage Cabinets

By Jesse Millen-Johnson

When storage space or time is at a premium, it's all too easy to place items in fume hoods and forget about them. Unfortunately, this interferes with the main purpose of a fume hood and can put user safety at risk. During laboratory inspections, it's common to see hoods with large and/or unnecessary objects inside. These include chemical bottles, leftovers from experiments, bulky instruments, and more.

Any object in a fume hood, especially large items placed directly on the working surface, can impact airflow and hood performance. Dead air space and eddies are created where fumes can linger or escape toward the user. Narrow channels between objects cause excessive flow rates and lead to vortices that can impede ventilation and also push hazardous vapors back into the lab.

Containers of laboratory chemicals should be tightly capped at all times. If fully closed, most containers do not create hazardous levels of vapors and don't need to be stored in fume hoods. If flammable, they can be stored in a proper flammables cabinet, for example.

The Ten Most Common Laboratory Safety Issues by Richard Palluzi appeared in the January 2022 issue of the American Chemical Society's ACS Chemical Health & Safety. During his nearly 50-year inspection career, two of the top three violations Palluzi noted involved fume hood storage. Number 2 was "Packing hoods with solid equipment, equipment too large for the hood, [and] too much equipment for the size of the hood, by placing numerous things that do not belong in a hood." Number 3 was "Storing too many chemicals, or incompatible chemicals and in inappropriate locations, particularly in hoods."

It may be tempting to use fume hoods for storage but it's a bad idea. This unsafe practice has the potential to defeat their purpose altogether.

New Air Velocity Meters in Select Fume Hoods

By Jesse Millen-Johnson

New Vaneometer air velocity meters have been installed in multiple fume hoods in Morgane Hall, Pickus Center, and Alford Center for Health Sciences on UNE's Biddeford Campus. Several meters have also been installed at the College of Pharmacy in Portland.

These air velocity meters enhance safety by providing a visual reference for fume hood function. If an electronic flow meter and/or alarm is down or malfunctioning, the new meters can still detect the approximate air velocity and inform the user if the hood is providing ventilation.

The proper flow rate for fume hoods is in the 60-150 ft/min range, measured in multiple locations at the front face of the hood, with the hood raised 18 inches. However, placement of velocity meters affects the displayed flow rate, so just because a velocity meter shows a rate outside 60-150 ft/min does not necessarily mean the hood is functioning improperly.

The new air velocity meters are intended to be an approximate gauge and an additional way to verify the fume hood is operational. If you think a hood may not be functioning correctly (or at all), do not use the hood. Instead, please mark it out of service and contact EHS as soon as possible.



A vane inside the Vaneometer indicates the approximate velocity in ft/min. In this recent photo from a UNE fume hood, the velocity reads 85 ft/min.



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INNOVATION FOR A HEALTHIER PLANET

Know Your Responsibilities

By Ronnie Souza

Occupational Safety and Health Administration (OSHA) regulations hold the employer responsible for workplace health and safety. As an agent of the university, academic faculty, laboratory supervisors, and principal investigators (PIs) may be considered the “employer.” They are responsible for the operation of the laboratory, including the safety of all students and personnel who study or work there. Although certain tasks can be delegated, they cannot delegate away their responsibility.

Academic faculty, laboratory supervisors, and PIs aren't expected to be in the lab at all times or directly control each behavior. However, they are responsible for ensuring an effective laboratory safety program is implemented, safety expectations are communicated, and personnel are trained. The UNE Chemical Hygiene Plan outlines their responsibilities:

- Maintaining and updating a lab-specific Chemical Hygiene Plan (CHP).
- Knowing all applicable health and safety rules and regulations, training and reporting requirements and standard operating procedures associated with laboratory safety.
- Identifying hazardous conditions or operations in the lab, determining safe procedures and controls, and implementing and enforcing standard safety procedures.
- Establishing standard safety operating procedures (general and protocol specific) and performing literature searches relevant to health and safety that is appropriate for the work.
- Providing prior approval for the use of hazardous materials in the laboratory.
- Consulting on use of higher risk materials, such as particularly hazardous chemicals, select agents or radioactive materials or conducting higher risk experimental procedures so that special safety precautions may be taken.
- Maintaining an updated chemical and hazardous material inventory.
- Ensuring laboratory personnel under their supervision have access to and are familiar with the Laboratory Safety Manual(s).
- Training laboratory personnel to work safely with hazardous materials and maintaining written training records in the appropriate Laboratory Safety Manual(s). Training must include informing laboratory personnel of the location and availability of Hazard Information.
- Promptly notifying EHS and/or Facilities Management should workplace engineering controls (e.g., fume hoods) and safety equipment (e.g., emergency showers/eyewashes, fire extinguishers, etc.) become nonoperational.
- Providing and maintaining in functional working order all appropriate personal protective equipment (PPE) (e.g., lab coats, gloves, eye protection, etc.).
- Conducting periodic safety inspections of laboratory and maintaining records of inspections, as required.
- Prompt reporting of laboratory accidents and injuries to Risk Management and EHS. Serious injuries MUST be reported to EHS within 8 hours of the incident.
- Provide funding for medical surveillance and/or medical consultation/examination for laboratory personnel, as required.
- Informing facilities personnel, other non-laboratory personnel and any outside contractors of potential lab-related hazards and minimizing the hazards to help protect these individuals when they enter the lab.



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Summer Lab Attire

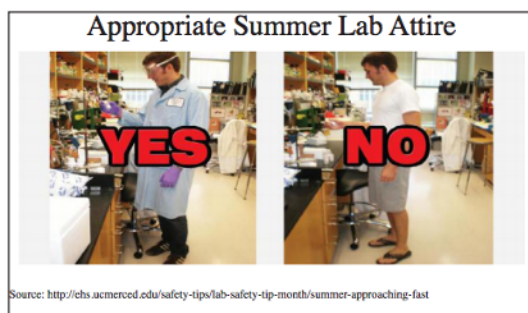
By Peter Nagle

The arrival of summer means a change in wardrobes. Jackets, long pants, shoes and long-sleeve shirts are replaced with the comfort of shorts, t-shirts and sandals in response to warmer weather. Although our daily clothing may change, it's important to remember the laboratory dress code doesn't.

The following excerpts on laboratory dress codes are taken directly from Chapter 17 (Laboratory Safety) of the UNE Safety Manual:

- Always wear appropriate clothing including long pants, closed toed shoes (no skin showing), and personal protective equipment (e.g. safety glasses, lab coats, gloves) in the laboratory (the only exception being the Marine Science Center field labs).
- No sandals or open toed shoes will be allowed in any laboratory. No footwear exposing any skin will be allowed in the laboratory including high heel shoes and "ballet flats" (the only exception being the Marine Science Center labs where there are no chemical or biological hazards involved in operations).

Appropriate clothing must be worn in labs at all times. No skin showing means long pants must be worn. A shirt or blouse must cover the midriff and the shoulders. Short sleeve shirts are permissible as long as you are not working with biohazardous material or hazardous chemicals, especially corrosives or irritants. If you are working with biohazardous material or hazardous chemicals and have short sleeves, you must wear a lab coat to protect your arms.



Footwear is also a concern in the summer, as many opt to wear sandals, flip-flops or Crocs. Open toed shoes are prohibited in UNE labs. They offer no protection in case of a chemical spill, a hot liquid spill or any other accident that could occur in a laboratory environment. Closed toe shoes constructed of a leather or synthetic upper (portion of shoe that covers toes, top, sides of shoe and the back of the heel) must be worn at all times.

Not all labs pose the same hazards as the traditional science lab. In the UNE Safety Manual, there is an exception for Marine Science field labs due to the nature of the work and because chemicals are not used. However, hazards they may encounter in the field must be assessed beforehand and appropriate adjustments made. This includes considering the terrain, insects, wildlife, environment (land or water) and weather conditions. If working in a traditional lab setting in the Marine Science Center the general lab safety guidelines and requirements still apply.

Remember, it's extremely important to be properly dressed while working in a laboratory. In addition to proper PPE, appropriate clothing can help reduce injuries and exposures if an incident occurs.



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