EHS Laboratory Safety Unit Newsletter

June 2022

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Environmental Health and Safety

Seasonal Reminder: Laboratory Attire

With summer here, it is a good time to remember appropriate laboratory attire. Covered feet and ankles are **always** required in laboratories. If you would like to wear sandals or flip-flops outside during the summer, remember to keep a pair of acceptable shoes in the laboratory for when you get to work. Additionally, shorts, crop-tops, and other clothing items that expose skin are not allowed while working in the lab. Keep an extra pair of pants in your desk to wear when you get to work, and always remember to wear a lab coat when working in the lab.

Additionally, dehydration is a risk during extreme heat waves. Make sure you are drinking enough water, and take a break from working if you feel overly hot, tired, or light-headed!

Laboratory Safety Unit

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Chemical Inventory Update

The LSU inventory team is now inventorying laboratories on the 6th floor of the S&GG Wing of the Medical School (building 107, near the yellow elevators).

Our team is expected to be on this floor for a few months. This is a good opportunity for all labs in the S&GG Wing of the Medical Center to go through their chemical inventories and dispose of anything that is expired or no longer in use. Our teams work in groups of two or three on Monday, Tuesday, and Thursday afternoons from 1-4 pm. We go through every chemical in the lab and inventory those that are hazardous. Following the initial inventory, labs are responsible for maintaining their inventories by adding and removing chemicals from Chematix. Annual reconciliation of all chemicals in the lab is required and is verified during regularly scheduled safety inspections. Information regarding chemical inventories can be found here: https://www.safety.rochester.edu/labsafety/chematix/inventory_module.html

Laser Safety Curtain PSA

Not all black curtains are rated laser safety curtains. Similar to laser safety goggles, **laser safety curtains should be certified with an ANSI Z136 label, and should include the power/area and damage threshold test duration (commonly 100 seconds).**

Recently, a lab installed a curtain from Drapery with the following label:

The curtain material was, "#L10KUP/DUP 10 oz vinyl coated polyester, inherently flame retardant". This material is no longer available, and Drapery indicates that it was not intended for areas where lasers are being used. The product Drapery recommends is laser-rated at 250W/cm for 100 seconds and is certified in accordance with ANSI Z136.1-2007, Z136.7-2008, and NFPA-701. Even though the curtain looks like a laser safety curtain, it is not actually rated for safe use with lasers.

Kentek is an example of a reputable vendor for laser safety supplies if you want to find out more about laser safety curtains: https://www.kenteklaserstore.com/products

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Biosafety Updates

Biological safety cabinet certifier update: B&V has been acquired by Steris/CECS. For updated contact and Workday information, see the certifier list at http://www.safety.rochester.edu/ibc/CabsHoodsResource.html.

Policy/procedure updates for your lab's biosafety manual:

EHS #	Title	Updates and where to find it
BS010	Requirements for Biological Safety Cabinets Used in Laboratories for Biohazard Containment	Updated videos, pictures, and web links www.safety.rochester.edu/ibc/CabsHoodsResource.html
BS013	Viral Vector Requirements for Laboratories	Updated references www.safety.rochester.edu/ibc/VectorResource.html
BS017	Emergency Procedures for Biological Spills in BSL1, BSL2 and BSL2+ Labs	Coming Soon: Updated videos and web links www.safety.rochester.edu/labbiosafe/emergencyprocedures-biohazards.html

Laboratory Incident Review

An incident recently occurred in which two students' eyes were exposed to UV radiation from an unfiltered mercury lamp. The exposure resulted in both students receiving medical attention for photo keratitis, a condition that is often described like a "sunburn to the eye." While the condition is temporary, it can cause mild to severe pain, and can be avoided by using eye protection. This incident is a good learning opportunity to discuss the "Hierarchy of Controls" in hazard management, and how all of them have a role to play in the successful (or unsuccessful) mitigation of hazards.

Based on the Hierarchy of Controls, the most effective mitigation strategy is 'Elimination,' or removing the hazard altogether. Elimination is not always possible, so the next best option is to substitute the existing hazard with something that is less hazardous. In the event that there is no viable substitution for the hazard, the next mitigation strategy is to implement engineering controls. These are physical alterations to the work space or equipment that reduce hazards to the user. In this case, engineering controls were chosen in the form of a new lamp with a UV light filter.

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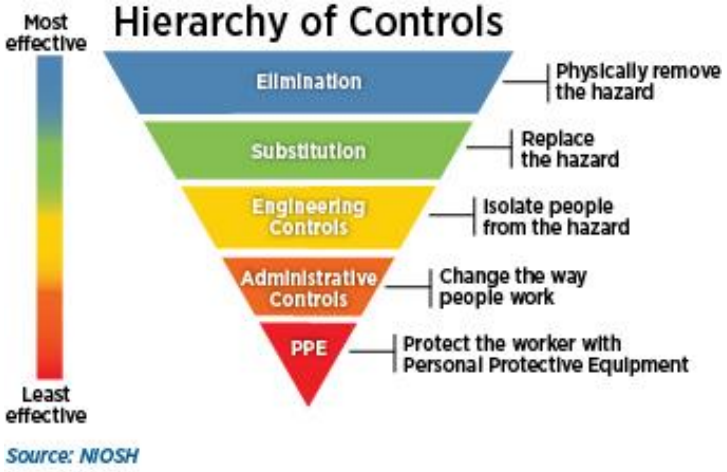

After the first three physical mitigation strategies have been addressed, the last two options in the Hierarchy of Controls are administrative controls and personal protective equipment. Administrative controls are meant to prevent accidents by influencing how people work. Finally, personal protective equipment is treated as the last line of defense when all other hierarchies have been implemented.

The key issue for this incident involved a mistake while implementing engineering control strategies. The intent was to use a mercury lamp with a UV filter instead of requiring students to wear protective eyewear. This would be a more effective mitigation approach, based on the hierarchy of controls, as substitution and engineering controls are more effective strategies than PPE. However, for an unknown reason, the old lamp without a filter was not removed when the new lamp was obtained. Instead, two lamps were placed in the lab, one with engineering controls for UV light protection, and one without. Presumably, administrative controls were not in place to verify that the old lamp was removed when the new filtered lamp was installed. Therefore, even though the attempt was to use more effective mitigation strategies, the lack of follow-up on substituting the lamps led to students being given incorrect information about the present hazards. When the students began their experiments, they did not wear protective eyewear because they were given ambiguous directions, which resulted in their exposure.

Whenever a hazard assessment is completed and mitigation strategies are chosen, it is important to have a documented Standard Operating Procedure (SOP) that ensures the hazards have been completely addressed before using the new procedure or set-up. Guidance for writing SOPs is available on the EH&S website: https://www.safety.rochester.edu/labsafety/standardops/genericprocess.html/ For this incident, having someone follow-up on the substitution of the lamps would have completed the original purpose of replacing the lamp in the first place. Alternatively, developing a procedure in which senior students or staff checked all lamps (while wearing PPE) before allowing students to use them could also have prevented this incident from occurring.

For more information on the Hierarchy of Controls: https://www.osha.gov/safety-management/hazard-prevention

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PPE Highlights

- Best Practices for Gloves:
  - Disposable nitrile and latex gloves are intended for single-use. **Do not wash or re-use disposable gloves**, as this can:
    - potentially spread hazardous materials to the user (when handling or re-donning gloves) or the water system (while washing)
    - reduce the physical integrity of the gloves, potentially causing tears or punctures
    - lead to a false sense of safety, because some chemicals permeate latex and nitrile gloves over extended periods of time, exposing the user to the very substances they are trying to avoid
    - **When you are finished using a pair of gloves, immediately dispose of them in the proper waste container. Do not leave used gloves on the benchtop, floor, desk, etc.**

  - Before working with any hazardous material, be sure to check the glove recommendations for that particular substance (this information should be available from Section 8 of the SDS). Glove selection charts are also widely available for reference on the internet.
    - For example, the SDS recommendation for dermal splash protection from phenol is "Splash contact Material: Viton®, Minimum layer thickness: 0.7 mm, Breakthrough time: 480 min." According to the Ansell Chemical Resistance Guide, disposable nitrile gloves are not recommended for extended use with phenol.
    - **PPE should be selected for specific tasks and chemicals. Gloves are not universally protective, and both material and breakthrough time of the glove should be considered when selecting PPE for a new procedure.**
    - The Ansell Chemical Resistance Guide for gloves can be found here.

  - **<u>One Glove Rule:</u> Whenever leaving the lab, be sure to remove one glove so that you can open and close doors with your clean hand and carry your materials in your gloved hand. Even if you have not touched anything hazardous with your gloves yet, the perception is that you are spreading hazardous materials on every surface you touch!**

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Need Chematix Help?

Environmental Health and Safety's Laboratory Safety Unit will be hosting "office-hours" through Zoom every other Wednesday to answer any and all questions you may have about reconciliation, hazardous waste, and chemical inventories.

Can't wait?
Contact **Abby Davis** at
abby.davis@Rochester.edu
(585) 208-3014

Join us every
Wednesday at 3 PM
on Zoom

Zoom ID: **958 2224 1501**

https://rochester.zoom.us/j/95822241501

All labs are legally required to maintain an accurate and up-to-date chemical inventory. This will be checked during annual inspections. All lab members are required to complete annual lab safety training. For training requirements and to check compliance visit the EH&S webpage at: safety.rochester.edu

LSU Webpage Reminder!

Our webpages offer important program information, guidance, and compliance documentation provide. Highlights include sections for New Principal Investigators, a material request form, and a streamlined Chematix section. Also included is a clear listing of the EH&S Departmental Safety Specialists informing PI's and lab members of who to contact for inspections and general safety questions. A good place to start is our Homepage or our Safety Central page.

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