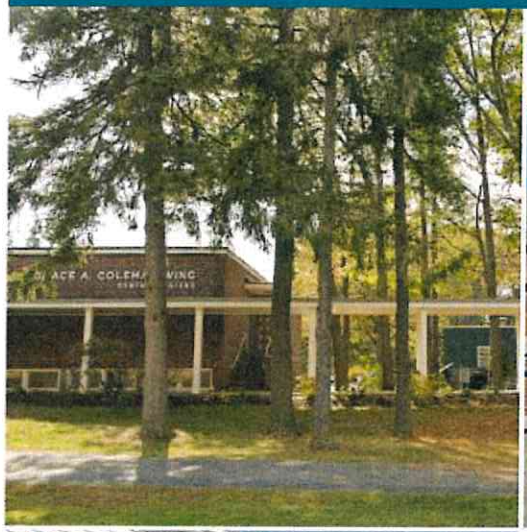
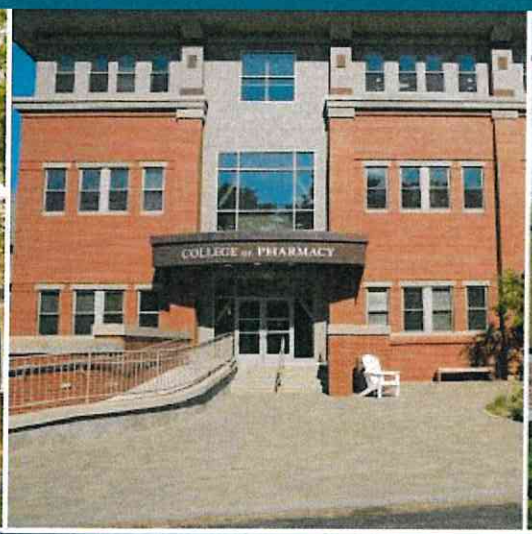
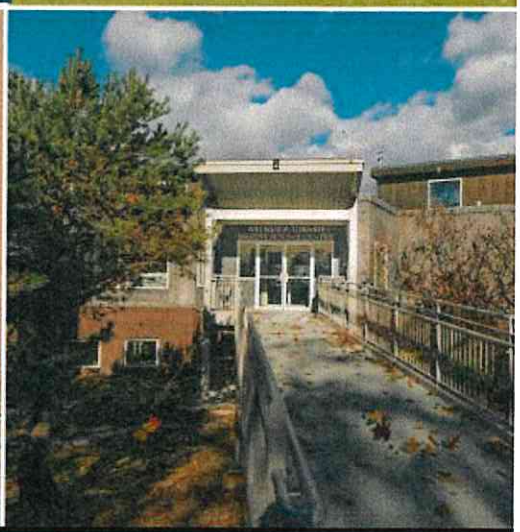
Volume 6, Issue 2 | October 2019

EHS Lab Chatter







UNE UNIVERSITY OF NEW ENGLAND
INNOVATION FOR A HEALTHIER PLANET

EHS ENVIRONMENTAL HEALTH AND SAFETY

Table of Contents:

Contact us:

Ronnie Souza
Director, EHS,
Radiation Safety Officer
Biological Safety Officer
UNE extension 2488
Email: rsouza@une.edu

Peter Nagle
EHS Specialist
UNE extension 2791
Email: pnagle@une.edu

Safety Spotlight

Lab Training Modules on Blackboard Required for All Employees and Volunteers

There are two questions that Human Resources and the EHS Department address every semester and prior to the summer break.

1. What are the training requirements for employees and volunteers working in UNE laboratories?

2. When is a laboratory worker an employee or a volunteer?

Answer(s):

Employees and volunteers working in the UNE labs are required by federal law to complete **Lab Training Modules on Blackboard** in the same way you complete annual training. If you are a PI in charge of a lab or a lab manager, you need to report (to Human Resources) all **new and returning students receiving compensation or volunteering (including federal work study), temporary and part-time employees, adjunct faculty and non-student volunteers working in your lab.**

If you have laboratory employees and/or volunteers in the categories below you are required to register them for Blackboard Training:

- Full and Half Time Salaried
- Full and Half Time Hourly
- Faculty 9, 10, 11, or 12 month
- Adjunct Faculty
- Part Time/Temp Salaried
- Part Time/Temp Hourly
- Student Paid
- Student Unpaid (volunteer)
- Graduate Assistant
- Volunteer (non-student)

Contact Tammy Louko in Human Resources @ extension 4256 to request a training registration form, or go to V:\UNEDocs\HUMAN RESOURCES\Training. Once you have populated the training registration form with all the information requested, forward the form to Tammy Louko in Human Resources and she will set up the individual to gain access to the training on Blackboard.

Defrosting Laboratory Freezers

By: Peter Nagle

Laboratory cold storage and the protection of sensitive samples rely heavily on temperature uniformity. Manual defrost freezers will ultimately provide the best temperature uniformity when maintained properly, but manually defrosting a freezer can be strenuous and time consuming. Whether your laboratory consists of ultra-low temp freezers, deep chest freezers or even standard upright and under counter freezers, the defrosting process is the same.

When should you defrost your freezer?

This question relies on your laboratory's standards or preferences, and what you are storing in your freezer. You must constantly monitor your freezer's frost and internal temperature in order to ensure your samples are safe. When frost builds up in a freezer, it begins to insulate the walls which will eventually warm the internal chamber. **More Frost = Less Temperature Uniformity**.

A good rule of thumb is to not let the frost build up more than ¼ to a ½ inch of ice. If any temperature fluctuations begin to occur and frost build up is visible in your freezer, it's probably a good time to defrost. Defrosting will not only save your samples and your research, but will also extend the life of the freezer, and improve energy efficiency.

Also, waiting too long can cause problems outside the unit. Excessive frost when melted can cause flooding in the lab and ultimately lead to water damage in the building. If you have more than a ½ inch of frost build up, please contact Facilities beforehand so they can devise a strategy to avoid flooding in the lab.

Before you defrost, PLAN AHEAD!

1. **Two-Day Process:** Make sure you plan for at least 48 hours of freezer downtime

2. **Back-up Freezer Available:** Contact Facilities beforehand to make sure there is a freezer available when it is needed. Facilities can provide a back-up freezer to any lab, but will do so in the order requested.

3. **Alert Other Users:** Most likely there are multiple people using your lab, so the freezer you are defrosting will contain samples from more than one lab/PI. Make sure all laboratory personnel know which freezer(s) you will be defrosting and where the samples will be temporarily stored.

Once you have a scheduled time-frame, a backup freezer set up, and alerted all personnel, you are ready to begin the defrosting process.

Defrosting Procedure:

1. **Remove Everything from Freezer**: Remove all contents from the freezer you are about to defrost and place them into the back-up freezer. Make sure this freezer is at optimal temperature for the specific samples you are storing.

2. **Unplug the Freezer**: Unplug your freezer to begin the warm up/melting process. It is best to do this in the morning so you can monitor any water or ice runoff throughout the day.

3. **Let it Melt Away**, NEVER CHIP AWAY: Melting can take a while and it has to be monitored and cleaned up frequently so water doesn't run everywhere in the lab. To speed this up, work from the top down and spray (or sponge) hot water on the coils and wire racks and set up a reservoir system for the water to run into a bucket or pan. NEVER USE SHARP OBJECTS TO CHIP AWAY AT THE ICE! THIS COULD PERMANENTLY DAMAGE THE FREEZER!

4. **Dry it Out**: Once the ice has completely melted, you need to make sure the freezer is completely dried out so ice does not form again once the freezer is plugged back in.

5. **Plug It In**: Place your freezer back in its normal space and plug it in. Allow for optimal time in order for the unit to return to the desired temperature.

6. **Return Contents**: Once your freezer has reached the set temperature, you can return your samples back to the freezer.

Remember, the entire process of defrosting freezers is the individual lab's responsibility, not Facilities. Facilities will only provide help and the equipment needed.

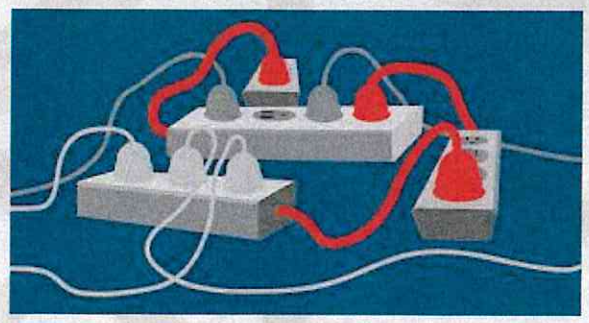
Extension Cords and Power Strips
By: Peter Nagle

Extension cords, power strips, power taps, multi tap or surge protector devices provide an important method of bringing temporary power to electrical devices that need to be used in areas not located near a wall outlet. UL approved and correctly sized extension cords are only allowed in the workplace as temporary wiring, and not to exceed 90 days.

The U.S. Consumer Product Safety Commission (CPSC) estimates that each year about 4,000 injuries associated with electric extension cords are treated in hospital emergency rooms. About half the injuries involve fractures, lacerations, contusions, or sprains from people tripping over extension cords. In addition, CPSC also estimates that about 3,300 residential fires occur each year, killing 50 people and injuring about 270 others. The most frequent causes of electrical fires are short circuits, overloading, damage, and/or misuse of extension cords, power strips, power taps and surge protectors.

The most common cause of fires from extension cord, power strip, power tap or surge protector is primarily due to improper use and overloading, especially when cords have multiple outlets such as power strip and surge protectors. Cords and strips can get hot enough to ignite cloth, paper, carpet etc. and start fires.

Most light-duty extension cords are only rated for a maximum of ten amps or 1200 watts, and most multi-tap (strip cord / power strip and surge protectors) are rated at 15 amps (1875 watts). Overloading can occur when multiple devices are plugged into one cord ,or when cords are "daisy chained" (plugging multiple extension cords together), or when the connected equipment is drawing more amps than the power strip is rated to handle.



Add it up!

If your device, equipment, instrument or tool uses 8 amps (A) at 125 volts (V), then its wattage rating will be 1,000 W (8 A x 125 V = 1,000 W). Additionally, if you are going to use an extension cord or a power strip or surge protector with two or more connected devices, you must add together the total wattage ratings for all equipment plugged into the cord even if the other device is idle or not in full operation (has the potential of turning on to full load). Do not use a cord that has a lower rating than the equipment to be plugged in.

Check All Manufacturer's Labels

Let's look at a typical office equipment power strip, power tap or surge protector rating and see how quickly it adds up, using the example below. Check the manufacturer's label, which will provide both the idle listing and the printing amperage for the printer and include the printing amperage in the calculation. The following is a good use of a power strip:

Computer 2.0 amps 250 watts
LCD Monitor 1.5 amps 190 watts
Speakers 0.12 amps 15 watts
Desk lamp 0.32 amps 40 watts
Scanner 1.2 amps 150 watts
Printer (Printing) 9.4 amps 1,175 watts

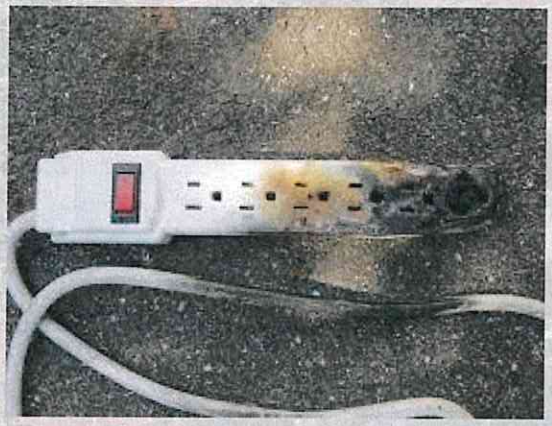
Total 14.54 amps 1,820 watts

NOTE: The total should not exceed the rated capacity of the extension cord, power strip, power tap or surge protector you are using!

Wattage of Common Lab Equipment Found at UNE:

- Microwave 700-1200 Watts
- Refrigerator 350-780 Watts
- Heat gun 600-1740 Watts
- Heat Plate/Stirrer 615 Watts
- Vacuum pump 460 Watts
- Centrifuge 1050 Watts

As you can see, plugging multiple pieces of lab equipment into a power strip can easily overload a circuit, since most power strips are rated at 1875 Watts. It is a safe practice and required that you plug any high draw equipment into a wall outlet directly. At UNE, only computers and computer peripherals are allowed to be plugged into a power strip.



Dos and Don'ts of Extension Cords & Power Strips

- **Don't** use extension cords as substitutes for permanent wiring- temporary use only.
- **Never** use a cord that feels hot or is damaged in any way. Touching even a single exposed strand can give you an electric shock or burn.
- **Replace** cords with cracks, cuts and damaged insulation.
- **Never** nail, staple, or tape power cords to the desk, wall, ceiling, baseboard, or another object.
- **Always** unplug a cord by pulling on the plug, not the cord
- **Always** unplug extension cords when not in use.
- **Don't** run extension cords through walls, doorways, under carpets, ceilings or floors. If cord is covered, heat cannot escape, which may result in a fire hazard.
- **Don't** extend extension cords by plugging into another. Overloading can occur when multiple devices are plugged into one cord or when cords are "daisy chained".
- **Don't** connect equipment to a cord or power strip that draws more Wattage in aggregate than the cord is rated for.

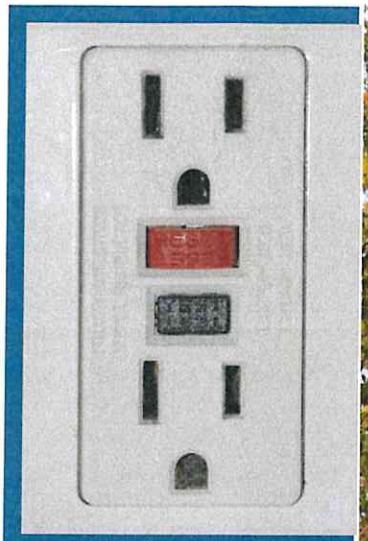
OSHA® QuickFacts

Laboratory Safety
Electrical Hazards

In the laboratory, workers may be exposed to electrical hazards including electric shock, arc blasts, electrocutions, fires and explosions. Potential exposures to electrical hazards can result from faulty electrical equipment/instrumentation or wiring, damaged receptacles and connectors, or unsafe work practices.

To avoid such hazards, follow these best practices:

- Always follow manufacturer's recommendations for using electrical equipment.
- Do not use electrical equipment to perform a task for which it is not designed.
- Most equipment includes either a 3-pronged plug or double insulation. Equipment with neither of these features is less safe but may meet electrical codes. You will not be protected from electric shock if a 3-pronged plug is not inserted into a 3-prong outlet.
- If you plug more than two pieces of low demand equipment into a standard outlet, use a fused power strip that will shut off if too much power is used.
- Make sure that any outlet near a sink or other water source is Ground-Fault Circuit Interrupter (GFCI) protected. If you have a GFCI, periodically test it by plugging something into it and pushing the "test" button. Once the equipment shuts off just turn it back on.
- Above all, do not disable any electrical safety feature.
- Before turning equipment on, check that all power cords are in good condition.
- Do not use extension cords as a substitute for permanent wiring.
- If you see a person being electrocuted, DO NOT TOUCH THEM! The electricity can go through you, too. If possible, turn off the power (pull the plug or trip the circuit breaker), or use an item made of non-conductive material (e.g., wooden broom handle) to pry him or her away from the contact. Call 911 immediately.



If you see a person being electrocuted, DO NOT TOUCH THEM! The electricity can go through you, too.

For assistance, contact us. We can help. It's confidential.

OSHA® **Occupational Safety and Health Administration**
www.osha.gov 1-800-321-6742

OSHA 3409 8/2011
DSG

REMINDER TO ALL LABS:

Please remember to label all of your consumable household Products that are specifically for laboratory use as:

"NOT FOR HUMAN CONSUMPTION" or "LAB USE ONLY".

This includes, but is not limited to:

- **Baking powder, powdered milk, baking soda**
- **Vegetable oil, corn oil, canola oil, etc.**
- **Aspirin, Tums, and other over the counter medications**
- **Soda bottles, water bottles, etc.**
- **Table salt, sugar products, etc.**

These items can be labeled using a label printer or you can write on them with a marker or sharpie as long as the text is legible and easily visible on the product.

****All ice machines in labs should also be labeled "NOT FOR HUMAN CONSUMPTION". Larger labels are available through EHS for the ice machines.****

UNE Chemical Sharing Program

The UNE Chemical Sharing Program is a great way to reduce hazardous waste, reduces costs for your department, and have a positive environmental impact on campus. If you have any commonly used lab chemicals or lab equipment that you are thinking of disposing, please contact EHS so they can be listed in the next issues of EHS Lab Chatter as available for the UNE Chemical Sharing Program.

Available now:

Propionic Acid Salt - Fisher Catalog #20-271