

Environmental Health & Safety

Safety BEACON

www.udel.edu/ehs
302-831-8475

Lessons Learned

Bunsen Burner Fires

The University has had three fires recently involving the use of Bunsen burners in labs. These fires have occurred when the hose cracked and escaping gas caught fire, or the flame caught vaporized alcohol and burned it. Fortunately, they've been relatively small and caused minimal damage, but the potential for damage is great. The use of a flame in a biosafety cabinet is even more hazardous because of the combustible filters located just above the work surface. In light of this, EHS strongly discourages the use of Bunsen burners and instead recommends other alternatives.

There are a number of safer alternatives to the use of Bunsen burners. Use pre-sterilized disposable loops and needles. Use a microincinerator, which has an electric source rather than a flame. The microincinerators can also contain the spatter of infectious materials when heating the loop or needle. Another alternative is the bead sterilizer, which can be used to sterilize larger items which might not fit in the microincinerator.

If you must flame items using a burner, the burner must have a hose which is rated to deliver gas. Typical Tygon tubing is not sufficient for this purpose. EHS can provide information regarding the type of hose to use. In place of a traditional Bunsen burner we also recommend a touch-plate microburner, which has a pilot light rather than a constant flame. One example of this is the Touch-O-Matic burner. This has a pilot light until you place your hand on the platform, when a flame is raised to perform your work. It drops back to a pilot light when you remove your hand. In order to use any flame you must follow the Bunsen burner SOP, which is available at [www.udel.edu/ehs/research/downloads/Bunsen Burners SOP.pdf](http://www.udel.edu/ehs/research/downloads/Bunsen_Burners_SOP.pdf).

Many people falsely believe a flame will keep a work area sterile. This can, in fact, create eddies or turbulence in the airflow surrounding the burner, which can actually draw more contaminants into the work area. If you need a "sterile" or contaminant-free work area, the process should be performed in a biosafety cabinet. Good aseptic techniques are your best protection against contamination!

Help us to minimize the potential for fires in our labs. If you have questions regarding sterile techniques or bunsen burner use on campus please contact Environmental Health and Safety at 302-831-8475 or dehsafety@udel.edu

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Lessons Learned cont.



Bacti-Cinerator



Touch-O-Matic Burner



Bead Sterilizer

Fire Safety

Be cautious when using an outdoor grill!



Summer time can be full of fun and excitement. Many individuals take advantage of the warmer weather by firing up their grills and having a BBQ. Outdoor grilling is one of the most popular ways to cook food. But, grilling can pose some serious fire hazards if not done safely. July is the peak month for grill fires across the U.S. All grills, no matter if they are propane or charcoal, should be used outdoors only. It is important to keep your grill away from combustibles.

Ensure that you are a safe distance away from your home, shed, deck railings, overhangs and tree branches. Prior to lighting your grill each time ensure that you clean any grease buildup from the tray located below the grates. Grease accumulations can quickly ignite below the cooking surface and be difficult to extinguish. If using a gas grill for the first time since last summer thoroughly check the tank and gas lines for leaks. This can be easily done by applying soapy water to your gas lines and fittings. If there is a leak present you will see bubbles forming around the area of the leak. Once it's time to ignite the grill ensure that you have the lid fully open. Having the lid closed can cause a buildup of gases that have the potential to create a fireball once ignited. When it's time to begin cooking it is important to never leave the grill unattended. Children and pets could be easily burned if not kept a safe distance away.

Many people choose the convenience of propane and use traditional charcoal grills. There are a couple options when choosing how to ignite your charcoal grill. There are charcoal chimneys on the market that allow you to start the fire with newspaper. You could also use igniter fluid. When using ignitor fluid never spray the fluid on the fire. Fluid should only be used prior to igniting the charcoal. Lastly, ensure that your coals are wet down or completely cooled prior to disposing. Always dispose of your coals in a metal container. Following these tips will ensure you have an enjoyable and safe summer.

Attention UD Community Members

How can you improve the water quality in our local streams?



Look for this medallion on the University of Delaware's storm drains which is a reminder for "no dumping"

- **Reduce, re-use and only then recycle....better yet, don't buy it to begin with.** This will minimize the amount of trash on campus.
- **Place trash in the trash can and place recycle materials in the recycle bin.** Litter gets carried away in stormwater runoff and causes pollution to our local waterways. Unlike the sewer system, stormwater runoff does not get treated and cleaned up before being discharged into the White Clay Creek or Christina River which are the creeks within the UD campus watersheds.
- **Keep dumpster lids closed.** Rainwater entering dumpsters can leak out and carry pollutants to the nearest storm drain and local creeks.
- **Stay on the designated sidewalks and walkways.** This will reduce the amount of exposed soil from student-made paths. This soil contributes to the amount of sediment that reaches our streams. Soil is considered pollution when it runs off to a creek, causing problems with fish, aquatic vegetation, and other creatures in the stream.
- **Report spills and leaks.** Report any spills or leaks that you observe on University Property to Environmental Health and Safety at 302-831-8475 during working hours or to UD Public Safety at 302-831-2224 after working hours.

Get Involved!

Check out these websites for volunteer cleanup opportunities:

Christina Basin cleanup <http://www.christinarivercleanup.org/>

City of Newark cleanup days <https://newarkde.gov/738/Fall-Community-Clean-Up>

For more information please see the University of Delaware's Stormwater webpage <http://www1.udel.edu/ehs/environmental/stormwater-management.html>

National Fire Sprinkler Day

Delaware Fire Sprinkler Coalition Demonstration

On May 19th at 10:00 am, on the grounds of the Delaware State Fire School, 1461 Chestnut Grove Road, Dover, DE, the Delaware Fire Sprinkler Coalition conducted a Side by Side Fire Demonstration, explaining the benefits of Fire Sprinklers. Chairman Paul Eichler cast a statewide invitation to state and municipal code officials, elected state and municipal officials and the general public to see first-hand just how fast a typically furnished room will ignite and be consumed in heat and flames. Within one minute of ignition, the room contents had activated the smoke detector and were generating enough smoke and heat to hamper safe egress.

Understanding Fire Sprinkler Protection for Homes

Fire kills more people in the United States annually than all natural disasters combined. Ironically, most fire deaths occur in the very place where we feel safest — our own homes. Those at highest risk are very young children and older adults, who may have difficulty making a quick escape. Fire sprinklers provide powerful protection from fire. They work automatically and immediately; before a fire spreads. Sprinklers put water right where it is needed, slowing or stopping the flames and poisonous smoke, so people can get out safely.

If Building a New House or Undergoing a Major Renovation

Please consider installing sprinkler protection within the home as an added measure of assurance that your family will be afforded the highest level of fire protection. The One-Two Family Home Sprinkler Standard, NFPA 13-D targets only the primary occupied spaces of the home for sprinkler protection and omits other spaces which are a lesser risk death from fire. The criteria as applied during new construction may only cost \$2.00 per square foot to install; very affordable when compared to other features being considered during construction.

For more information, please see this link: www.firesprinklerinitiative.org/Delaware



A moderately furnished room without sprinklers at the 3-minute mark. The room is beyond survivability and would be threatening the entire home at this stage.



This sprinkler protected moderately furnished room at the 30-second mark where a single sprinkler head activates and contains the fire. This is a survivable event that contained the fire to one room.

For more information on fire sprinklers and fire safety, please contact Environmental Health and Safety at 302-831-8475.

Another Lesson Learned..

Lab Trash Box Fire

Ever wonder where your white “lab trash” boxes go? Perhaps it goes to some dump in the middle of New Jersey. Maybe it ends up in the Pacific Ocean somewhere, either way it probably ends up as garbage. Actually, this is quite contrary to the strict regulations we must follow for their disposal. These boxes must be treated the same way we manage all lab waste including expired chemicals, liquid waste from waste containers, cylinders, and more.

Once these white lab trash boxes disappear from your lab they end up in a large roll off or dumpster with a compactor at one end. Once full, this roll off can hold more than ten thousand pounds of trash and lab debris. The roll off is then shipped to a facility in Ohio where the lab trash is put through a lengthy process of incineration. The important thing to remember is that your lab trash goes through a lengthy process with many people encountering the hazards that go along with it. It is only a matter of time before one mislabeled container, or one thing not properly segregated can cause an incident to occur. Unfortunately, this already happened.

A fire broke out in one of these roll offs and burnt a significant amount of contents inside until the fire fighters arrived and extinguished it completely. The fire itself is one of the biggest and most obvious hazards associated with this incident but since it was a hazardous roll off more hazards come into play. For instance, something in the roll off could have been combustible making the fire spread, or even worse, an oxidizer could have made the fire more intense and much bigger.

Another hazard related to this incident would be the smoke coming off the trash; something hazardous could have been burning and emitting a hazardous gas. This incident could have been easily avoided with simple training and knowledge.

Lab trash boxes are exclusively for contaminated gloves, paper towels, broken or used glassware, pipettes, non-hazardous powders, etc. Absolutely no batteries, free liquids including vials, chemicals, or other things that should be going through the chemical waste program.

For more information or assistance in answering any questions you may have regarding lab trash, please contact Environmental Health and Safety at 302-831-8475.



Firefighters extinguishing the roll off fire



Burned remains of trash inside the roll off following the fire



Ergonomics

Have you had your free ergonomic evaluation?

With employees working longer hours, spending more time at their workstation, and logging in more time on computers, cell phones, and tablets, ergonomic risk factors they face increase. At the end of the workday, employees may experience various aches and pains and wonder why they are feeling that way, especially since they are completing their normal, routine daily tasks.

What they may not realize is that the ergonomic set up of their workstation plays a significant part in how they feel at the end of the day. How they're feeling can be effectively treated in part through ergonomic adjustments in their office space – it's amazing on how some 'tweaks' to the work area can make marked improvements on physical and mental wellbeing while at work.

This is where ergonomics plays an important part – proper sitting posture, distance/height of monitor, keyboard height, repetitive motions (typing, twisting/turning to file items, etc.), and taking breaks are key factors to remember in order to be fully comfortable while working and being productive.

It is better to be proactive rather than reactive with your workstation set up – use ergonomic guidelines at your workstation before feeling any pain rather than waiting until you're hurting and having to try to reduce/eliminate the pain. In addition to reducing/preventing pain, ergonomics helps to reduce turnover and absenteeism, along with improving productivity and morale.

There is also a cost benefit to ergonomics; while there may be an initial cost at times for items like new chairs, document holders, footrests, or sit-stand units, the cost savings dramatically increase from the reduction in expenses accrued from the ergonomic-related workplace injuries. Ergonomics is a sound investment for the employee and employer in creating a productive, healthy workspace and working environment.

For a free proactive ergonomic evaluation, contact Environmental Health and Safety at 831-8475 or dehsafety@udel.edu.

Environmental Health and Safety would like to hear from you!

We encourage all members of the UD community to submit safety improvement ideas on campus.

You may submit ideas that impact your personal safety here on campus or the safety of the greater community.

Your participation will help raise safety awareness in our community!

Please submit your safety concerns/ideas via email to dehsafety@udel.edu

