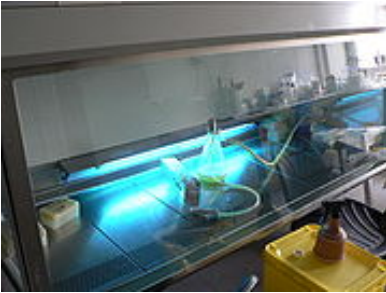


# SAFETY WAVE

## Beware the Blue Light



Ultraviolet (UV) radiation is widely used for killing bacteria and producing fluorescence. Because of these properties, UV radiation can be found in air handling systems, several types of laboratory equipment, and in some overhead light fixtures. Welding operations also produce UV radiation. Personnel may be inadvertently exposed to UV radiation if certain precautions are not taken.

UV radiation is divided into three distinct bands (UV-A, UV-B, UV-C) based on wavelength. UV can be associated with adverse health effects depending on duration of exposure and the wavelength. Overexposure to UV radiation can cause erythema (sunburn) and eye damage (photokeratitis - a painful inflammation that feels like sand in the eyes). Chronic exposure to UV radiation can accelerate skin aging and cause skin cancer. UV-C or “germicidal” light is the most hazardous—this is the “blue light” to be aware of.

Germicidal UV lamps are often used to disinfect the interior surfaces of a biosafety cabinet (BSC) before and after use. UV should only be used in conjunction with routine chemical disinfection and should never be relied on as the sole method of disinfection. Typically, BSCs are equipped with an interlocking switch which deactivates the UV lamp when the fluorescent lamp is activated.

Overhead germicidal UV lamps are sometimes installed in laboratories where they are used for air and surface disinfection. Access to the room where overhead UV lamps are operating must be strictly controlled to prevent accidental exposure. Interlock switches (similar to those found in BSCs) must be installed to deactivate UV lamps wherever overhead fluorescent light fixtures are used.

Any equipment that emits UV radiation (BSCs, transillumination boxes, crosslinkers, UV lasers, etc.) should be equipped with a warning label or sticker that contains language similar to:

CAUTION  
ULTRAVIOLET ENERGY  
PROTECT EYES & SKIN

**All areas that are equipped with overhead UV lighting must have a UV warning sticker next to the light control switch.** OEHS recently purchased UV warning stickers and will provide them upon request. Contact Pam Fatland at 988-2800 or [pfatlan@tulane.edu](mailto:pfatlan@tulane.edu).

Finally, all labs which are equipped with any sources of UV radiation must have a UV warning symbol on their door sign. Requests for door warning labels can be made to OEHS online at: <http://www.som.tulane.edu/oehs/DOORLABL.htm>.

Personnel should avoid direct exposure to UV radiation and use personal protective equipment to protect eyes and skin. UV-resistant goggles or face shield should be used to protect the eyes and face. Gloves, long sleeve shirts, and sunscreen can help protect exposed skin.

## Have You Checked Your Eyewash Lately?

According to ANSI standards, plumbed eyewash units should be tested weekly to ensure that they are operating properly. Here at Tulane, the laboratory or area supervisor is responsible to ensure that this weekly test is performed. This helps to clear the line of any sediment build-up that could prevent fluid from being delivered to the head of the device and minimizes microbial contamination due to standing water. Nozzles should be capped to protect from airborne contaminants. If you run your eyewash unit and find that the water flow to the nozzle heads needs to be adjusted (e.g., the flow is too low, or one nozzle gets no water while another gets too much), please contact Facilities Services on your campus to have the flow adjusted. Your eyes are important. Take care of the emergency equipment designed for their protection.

## Mardi Gras Safety Tips

There is nothing quite like Mardi Gras – bands, floats, beads, trinkets, excitement. New Orleans really knows how to throw a party like nowhere else on earth. But Mardi Gras can be dangerous. The South Louisiana Chapter of the National Safety Council offers these safety tips:



- Decide in advance on a meeting place in case anyone in your group gets lost. Consult police for directions to lost child stations.
- Be alert for beads and trinkets thrown during a parade. Do not throw anything at floats or riders. Do not run alongside floats for throws. Never reach under a float for a throw.
- Keep beads, small trinkets, and plastic bags out of reach of young children.
- Do not approach the horses in a parade unless the rider indicates that it is okay.
- Plan your route, leave early, and include alternate routes. Be careful driving and walking near parade routes.
- Unoccupied homes and parked automobiles are tempting targets for burglars especially during a parade. Secure personal property. Lock doors and do not leave personal property including clothing in unattended vehicles. Report any suspicious persons or activities.
- Do not bring your pets to the parades. Animals are prohibited within 150 feet of the parade route.
- Skates, skateboards, rollerblades, and bicycles are not allowed within 50 feet of the parade route in Jefferson Parish.
- Stay behind barricades and do not move or tamper with them.
- Observe parking laws and do not park along parade routes or within 15 feet of the curb.
- Do not fasten ladders to public property such as light or utility poles, or to each other. Do not place ladders closer to the curb than the height of the ladder. Do not place ladders or chairs in intersections.
- Respect the directions of the police and band/marching unit chaperones.

With these tips in mind, put your hands in the air, yell for beads, have fun, be responsible, and enjoy the festivities that make New Orleans so unique!

## Anyone Want an Ultra-Low Freezer???



OEHS has a -40°C upright ultra-low freezer that we are no longer using and we would like to transfer it to any other University department that is willing to take it. (You pay to move it though!) It is a Baxter Scientific Products Cryo-Fridge and is equipped with a carbon dioxide emergency backup system. The freezer is circa 1993 but it is very clean and is in excellent condition. Keys and operation manual are available. The freezer is located in the JBJ building on the downtown campus. Please contact Susan Welch at 988-3996 or [swelch@tulane.edu](mailto:swelch@tulane.edu) if you are interested.

## Don't Be Remembered for the Mess You Left Behind!

If you have a laboratory here at the university and are planning to leave the university, move your lab to a new location, or do major renovations, then you **must** notify OEHS of your plans. There is a Lab/Studio Close-out Notification Form found in the TU Office of Environmental Health & Safety Policies and Procedures Manual at <http://www2.som.tulane.edu/oehs/safety/22F-oehs30.pdf> which needs to be filled out prior to vacating. This document informs OEHS of the types of hazardous materials which were used in your area and helps to identify any disposal issues or concerns that may arise. OEHS will work with you to make sure the materials are properly handled and that your area is left in a safe condition for Facilities Services or the next occupant.

When this notification form is sent to OEHS in a timely manner, unpleasant situations can be avoided. Facilities Services cannot begin work or renovate an area if there are abandoned hazardous materials. New occupants cannot move in without delays. Hazardous materials cannot go into the regular trash and are usually not wanted by the next researcher. If chemicals, biologicals, sharps or unwanted equipment are left abandoned in your area, your department will be responsible for the cleanup including any costs associated with disposing of the hazardous materials or any fines by regulatory agencies.

Be responsible and make sure your hazardous materials are properly secured and disposed in the event you leave, move, or renovate your lab. Notify OEHS of your plans as soon as possible!

*Contributors: James Balsamo, Pam Fatland, Mitzi Hithe, Kellie Mayer, Susan Welch*

## Effective Use of Autoclaves

(The following article is printed with permission from Terese Keller, Radiation Safety, EHS, Oregon State University. See <http://oregonstate.edu/ehs/bulletin/si78.html>.)

Autoclaves are common laboratory tools that must be properly used to be effective. They utilize moist heat in the form of saturated steam under pressure to destroy microbial life. This process, which is dependent on temperature, time, contact, and moisture to be effective, is the most reliable method of destroying biohazardous or infectious waste.

### Successful Components of Sterilization

- **Temperature:** Recommended temperature is 121-123 degrees C (250-254 degrees F), and an operating pressure of 15 psi.
- **Time:** The time required for sterilization should be 30-40 minutes for small loads, 60 minutes or greater for large loads, after the proper temperature has been attained.
- **Contact:** Steam must contact all areas of the load. Bags and containers must have openings for complete steam penetration. Carefully open bags or uncover containers before starting autoclave. The load must not exceed the capacity of the unit.
- **Moisture:** Steam saturation is essential for maximum heat transfer. Air pockets or inadequate steam supply will cause sterilization failure. Water can be added to the containers to add moisture.

### Autoclave Sterilization and Safety Procedures

- Most people are aware that autoclaves contain pressurized steam. Burns can result if the autoclave door is not properly seated or if the autoclave is opened while there is still pressure in the chamber. If you are not sure how to prepare the autoclave, seek help before starting the run.
- Infectious or biohazardous waste must be transported from the laboratory to the autoclave in covered, leak proof containers. Containers should be labeled to indicate the laboratory of origin, the agents present, and the fact that the material has not been autoclaved.
- Wear heat-resistant gloves and a lab coat when removing items from the autoclave.
- Never place any sealed container in an autoclave. Large bottles with narrow necks can simulate sealed containers if filled with too much liquid.
- Do not autoclave items containing more than trace amounts of solvents, volatile or corrosive chemicals (phenol, trichloroacetic acid, ether, chloroform, etc.), or any radioactive materials. Call OEHS if you have unusual decontamination or waste disposal needs.
- Choose the appropriate exhaust setting: Slow Exhaust for liquids and Fast Exhaust for non-liquids.
- It takes longer for a few large volumes of liquid to be sterilized than if the liquid is divided into several smaller volumes.
- While most autoclaves have safety interlocks which prevent the door from opening while the temperature inside is greater than 80°C, a puff of steam may still be ejected if the autoclave is opened immediately after the cycle. It is safest to wait until the load has cooled and to avoid standing directly in front of the door when opening it after a run.
- When bottles containing liquid are removed too soon after autoclaving, the superheated liquid may boil over, splashing any personnel in the area with scalding media. This possibility is more likely as the amount of liquid in the container increases.
- If there is a possibility of the liquid leaking from bags, support them in shallow pans or trays. When autoclaving large vessels, leave the covers off and don't stack other items on top of them. Pipette cans should be loosely capped and dried in an oven after autoclaving, if necessary.
- The recording and/or indicating thermometer on the autoclave must be checked annually for calibration by a technician certified by the manufacturer.
- The autoclave must be on a preventive maintenance program that is performed annually by a technician certified by the manufacturer.

Remember, here at Tulane, if anything can be perceived as biomedical waste (including items such as needles or sharps), it must be disposed as biomedical waste and cannot go into the regular waste stream, even if it has been autoclaved. Contact Bruce McClue, Hazardous Waste Supervisor, 988-2865 or [bmccclue@tulane.edu](mailto:bmccclue@tulane.edu) for questions.

## CSHEMA (Campus Safety, Health & Environmental Management Association) Conference

The CSHEMA Conference will be held in New Orleans July 13-15, 2009. This is a premiere group dedicated to continual improvement of environmental health and safety at all colleges and universities. Some focus areas of the conference include fire safety, building design, nanotechnology, hazardous materials, emergency management, biosafety, management systems, general safety, laboratory safety, environmental management, risk management, and radiation safety. If anyone would like to submit a technical paper to be presented at the conference, or for more information on CSHEMA or the conference, see [www.cshema.org](http://www.cshema.org) or contact OEHS Director James Balsamo at 504-988-2872.

## 2008 OSHA Summaries

As required by federal law, the OSHA Form 300A Summary of Work-Related Injuries and Illnesses for 2008 for Tulane University must be posted on department bulletin boards between Feb 1 and April 28, 2009. A campus-wide summary as well as summaries for the individual campuses (TUHSC, TNPRC, and Uptown) are available at [www.som.tulane.edu/oehs/posters](http://www.som.tulane.edu/oehs/posters). For more information, contact Mitzi Hithe at 988-2866 or [mhithe@tulane.edu](mailto:mhithe@tulane.edu).

## Death of Researcher at UCLA

A UCLA research assistant who was seriously burned in a laboratory fire on December 29, 2008 recently died from her injuries. The assistant was working with t-butyl lithium, a pyrophoric compound that will react spontaneously with the moisture in the air. Organic lithium compounds are normally purchased in a highly flammable solvent, in this case pentane, in special Sure/Seal bottles that allow the reagent to be dispensed through a syringe inserted in a hole in the cap. The Teflon/elastomer liner in the cap will self seal to protect against atmospheric exposure. Somehow, the syringe plunger popped out or was pulled out of the syringe barrel, splashing the employee with the solution of t-butyl lithium and pentane. The mixture caught fire upon contact with air. The researcher was wearing nitrile gloves, safety glasses and a synthetic sweater, but no lab coat. The fire ignited the gloves and sweater. The researcher ran away from the nearby emergency shower. Although the researcher was working alone over the holiday break between Christmas and New Year's, her screams attracted two post-docs working in a nearby lab. One of the post-docs used his lab coat to smother the flames. The researcher had been employed in the lab for about 3 months and she and the two nearby post-docs had limited English proficiency. The researcher received burns to about 40% of her body.

Never work alone when handling highly hazardous chemicals. Wear personal protective equipment and be aware of the location of emergency showers and eyewash stations. Do not store highly hazardous chemicals for a long period of time as they may degrade or leak. Dispose of unused chemicals promptly when the experiment is done. Only purchase the amount of chemical you plan to use. Review safe handling and emergency procedures with all lab members. Use fume hoods whenever possible.

If any researcher has t-butyl lithium or other highly hazardous chemicals that they would like to dispose of, please contact Bruce McClue at 988-2865 or [bmccclue@tulane.edu](mailto:bmccclue@tulane.edu). Technical bulletins from Aldrich on handling pyrophoric and air sensitive reagents are available on the OEHS website at <http://www.som.tulane.edu/oehs/docs/pyrophoricReagents.pdf> and <http://www.som.tulane.edu/oehs/docs/airsensitiveReagents.pdf>.

## Animal Handler Health Surveillance Program Revised

Tulane's Animal Handler Health Surveillance (AHHS) Program and related documents (Risk Assessment & History Form and Declination of Medical Examination) were recently revised. All Tulane personnel who have contact with or exposure to animals or animal tissues in conjunction with teaching or research are required to participate in the AHHS program. No action is required of personnel who have previously submitted the necessary paperwork; however, any new personnel should use the new forms. Please see the OEHS website for details: <http://www.som.tulane.edu/oehs/ahhs.htm>

## Reducing Eye Strain



In former Safety Wave issues OEHS has mentioned ways to reduce eye strain at your computer such as taking breaks, adjusting lighting, closing blinds, using filters to prevent glare, and even using a different type monitor. If you have modified your work habits and adjusted your workspace but are still having problems with eye strain, you should probably get an eye exam. According to the American Optometric Association, adults up to age 40 should have an eye exam every three years. Those aged 40 to 60 should have an exam every two years, and every year if over 60. If you have a medical condition such as diabetes or work in a visually demanding job, you should get more frequent eye exams. Be sure to describe your workspace to the eye doctor so he/she can make suggestions for correcting problems related to computer vision syndrome. There is no such thing as over-the-counter "one size fits all" computer glasses. Computer glasses must be designed for the individual and prescribed by your eye doctor. Sometimes multi-focal length glasses can help where you can look through the upper part of the lens at the monitor screen and through the bottom half of the lens for keyboard and desktop work. Always follow the recommendations of your eye care professional.

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