



Ultraviolet Lamps in Biosafety Cabinets

By Meagan Parrott

When determining how to decontaminate the workspace of your biosafety cabinet (BSC), it may seem like flipping a switch to turn on the ultraviolet (UV) lamp is the easiest and most effective method. But when it comes down to the details of effectiveness, upkeep, and hazards, the UV lamp is not the best choice.

In 2006, the American Biological Safety Association (ABSA) published a position paper on the "Use of Ultraviolet Lights in Biological Safety Cabinets" in the Journal of Applied Biosafety. They found that there are five factors that limit the effectiveness of the UV light as a germicide in BSCS:



- 1. In the BSC's dynamic air stream, UV light is non-penetrating. Thus, microorganisms beneath dust particles are not affected by the UV light.
- 2. Humidity adversely affects the effectiveness of UV, especially above 70% relative hu-
- 3. Optimum temperature for output is 77-80°F and moving air tends to cool the lamp below its optimum operating temperature.
- Dust and dirt present on the bulb can block the germicidal effectiveness of UV lights.
- The amount of germicidal wavelength light emitted from UV bulbs decreases with age.

The CDC and NIH published *Biosafety in Microbiological and Biomedical Laboratories*, 5th Edition (BMBL) does not recommend the installation or use of UV lamps in BSCs. Their primary reason being that in order for the lamp to be used as an effective germicide, it must be cleaned weekly to remove any dust or dirt and checked weekly with a UV meter to ensure that the appropriate intensity of light is being emitted.

In ABSA's same position paper, they described the additional hazards that UV bulbs introduce into the laboratory environment. Exposure to UV light can lead to the development of skin cancer or burned corneas. For that reason, UV lamps must be turned off when the room is occupied and if the cabinet has a sliding sash, the sash should be closed when the lamp is on.

So, the next time your UV light burns out and you go to replace the bulb, consider not replacing it at all. Most BSC manufacturers are no longer placing UV lamps in their BSC's especially since the National Sanitation Foundation (NSF) Standard 49 no longer recommends them. Spraying and wiping disinfectant solutions on your work surfaces may be the safest and most effective choice.

References:

Burgener, J. (2006). Position Paper on the Use of Ultraviolet Lights in Biological Safety Cabinets. Applied Biosafety, 11 (4), 228-330. Available at www.absa.org/abj/ abj/061104burgener.pdf.

NSF International Standard, American National Standard: NSF/ANSI 49-2010A: Class II (Laminar Flow) Biohazard Cabinetry. The NSF Joint Committee on Biohazard Cabinetry. U.S. Department of Health and Human Services, Public Health Services, CDC and NIH. (2009). Biosafety in Microbiological and Biomedical Laboratories, 5th Edition, Washington, DC: U.S. Government Printing Office. Available at http://www.cdc.gov/biosafety/ publications/bmbl5/.

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Training

Most of EHSO's Trainings are available online in Blackboard.

www.ehso.emory.edu for registration information.

Radiation Safety Training 2nd Tuesdays at 9:00 am Shipping Training August 17th (12:00p.m-4:00pm) Laboratory Safety Training 3rd Thursdays at 10:00 am

Eye Wash Testing

Someone in your lab should test the evewash station once a month.

Bio-safety Cabinets/Chemical Fume Hoods Certification required annually.

Chemical/Radioactive Waste Pick-up Schedule:

Monday Pick-up

RRC

Whitehead

1462 Clifton Road

School of Public Health

Tuesday Pick-up

Math & Science

Tuesday & Friday Pick-up

Atwood and Emerson

Wednesday Pick-up

Emory Children's Center

Clinic Building A & B

Winship Cancer Institute

Yerkes Main Station

Thursday Pick-up

Woodruff Memorial Research

Building

EUH (Clifton)

Friday Pick-up

All others on Atlanta campus

All **chemical** waste pick up should be requested by emailing

chemwaste@emory.edu

All **radioactive** waste pick up should be requested via EHS Assist pick-

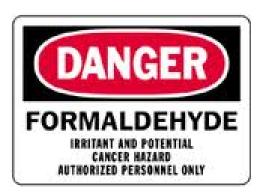
up.**Chemical** waste disposal inventory form and/or **radioactive** waste inventory form should accompany all waste containers at the time of pick-up.

Formaldehyde Monitoring

EHSO has started formaldehyde monitoring in selected laboratories beginning July. Formaldehyde questionnaires were distributed to Research Laboratories earlier this year. After reviewing those questionnaires, EHSO has selected laboratories which will require personnel monitoring. The process will be as follows:

- We will be contacting the laboratories for which personnel monitoring is necessary via email to schedule.
- Monitoring will be conducted during the use of formaldehyde, formalin or paraformaldehyde.
- A badge will be placed on the collar of the individuals being monitored and will be worn in 15 minute intervals.
- The PI will receive a written report, including results and recommendations, within two weeks of the monitoring.

If you use formaldehyde, formalin or paraformaldehyde in your laboratory and have not received the formaldehyde questionnaire please contact kelly.young@emory.edu. If you have any questions please contact your building liaison.





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Building Liaisons

Each building has been assigned an EHS Specialist to assist with any questions/concerns you may have.

- Dionna Thomas 404-727-4673 Woodruff, Woodruff Extension, & Winship (Clinics B & C)
- Meagan Parrott 404-712-9480 Dental, Medical Office Tower, Emory Midtown, School of Public Health (CNR/GCR), & Rollins
- Steve Arehart 404-727-4171 Clinic B-Eye Center, Pediatrics. North Decatur, Carlos Museum. Yerkes, Hope Clinic, Wesley Woods, Briarcliff Campus, & Anthropology
- Rodrick Esaw 404-727-1348 Whitehead, Math & Science, Emerson, Oxford College, & Atwood

Dtick

- This newsletter is a tool to help fulfill a legal requirement for ongoing safety training.
- Supervisors are responsible for ensuring that individuals in their area have read and understood the information that applies to their area.
- The signed newsletter should be placed into the PIs EHSO Binder.

Signature indicates: I have read and I understand the information in this issue of Lab Rat Newsletter. Use an additional sheet of paper for more signatures, if needed and attach to this document.

PPE

Personal Protective Equipment

Choice to be based on potential exposures involved:

Eve: Glasses, goggles & face shields

Gloves: Appropriate for the type of procedure

Clothing: Gowns, lab coats, aprons, coveralls

Respirators: Appropriate for the type of procedure

Fire Extinguishers

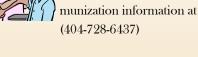
Check fire extinguishers in your lab:

A. Is it present and mounted in its proper location?

B. Is it readily accessible?

If it appears to need servicing contact the Maintenance HELP line at 7-7463

> Contact Employee Health Services /Emory Healthcare Corporate regarding im-



Lab Rat NEWS August 2011

WA Would like to bear from Will

What do you like most about the Lab Rat?

What do you like least about the Lab

Which article was most helpful to you? What topics would you like to be featured in upcoming issues?

Do you have an article you would like to contribute?

Feel free to send your answers to biosafe@emory.edu. We look forward to reading your ideas and comments!

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