



Lab Notes

APRIL 2002

IUPUI ENVIRONMENTAL HEALTH AND SAFETY

Class II Biosafety Cabinets and Bunsen Burner Usage

by James Klenner

This is the initial installment of articles related to biosafety in laboratories. As topics of special interest emerge, more articles will follow. I would like to take this opportunity to solicit ideas from any member of the IUPUI community they find of particular interest, and who knows – perhaps your topic will be discussed in a future article!

The topic of Bunsen burners in biosafety cabinets is an interesting topic, in that it represents a “bench” procedure that has been grandfathered into “hood” procedures. Prior to routinely working in a biosafety cabinet (BSC), researchers (especially those working with cell cultures) would use an open flame to sterilize the media bottle by passing the opening through a flame. Another common use was for a bacteriologist to dip a streaking rod or wire into alcohol and flame sterilize by igniting the alcohol.

On the bench, flaming the open neck of a bottle will not only flame microbes on the glass but is also intended to create an upward draft which prevents microbes from falling into the open vessel. In a Class II BSC, where recirculated air flows downward onto the work surface, using an open flame in a BSC actually disrupts this air flow and can possibly lead to contamination as more unfiltered air enters the BSC. There is also the potential for dangerous situations arising from burner use in a BSC. There was recently an incident in a laboratory in a Hong Kong university. A Bunsen burner was left on in a Class II BSC with the sash closed. The re-

searcher returned to find environmental staff in the lab trying to open the sash. Again, Class II BSCs recirculate (typically 70%) of the air. With the sash closed, fresh air could not enter the BSC and the small flame inside continued to heat the recirculated air, which became so hot the sash handle could not be touched without gloves. This situation could have resulted in more serious damage had it not been spotted in time.

There are other risks with using flames in a Class II BSC. If one is using alcohol to flame-sterilize an inoculating loop, the alcohol source can become ignited. The tubing can become frayed or loose resulting in a cloud of flammable gas – just waiting for an ignition source from the next person. With the recirculation pattern of a Class II BSC, a burner could be open, with an inadvertently extinguished flame, and develop into an explosive situation – possibly with the person using the striker to re-light the flame. An example of the potential danger is shown at right.



In the sterile environment of a BSC, open flames are not necessary and alternatives do exist. If there is a need to sterilize a platinum wire for microbial inoculation, one should consider one of the commercially

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LOOKING GOOD

By Kyla Henke

Do you like to wear your safety glasses in your laboratory? Do you think that they are uncomfortable? Do you think that they are ugly and unattractive? Nobody likes to wear their safety glasses; however, safety glasses must be worn in order to protect yourself and to comply with University Policy and Procedures.

All University laboratories that are classified as a Class 2 or a Class 3 are required to wear safety glasses if not all of the time, at least part of the time. Class 2 laboratories are laboratories that use chemicals, biologicals, or physically hazardous materials on an occasional basis and require the use of safety glasses at that time. Class 3 laboratories are labs that routinely use chemicals, biologicals, or machinery and require wearing safety glasses at all times. University policy exists not only to meet standards set forth by OSHA, but also for the personal protection of staff and visitors who enter the laboratories.



Companies such as Uvex, American Allsafe, Wilson, Smith and Wesson, etc. provide safety glasses that are comfortable, attractive, and affordable. Safety glasses produced by these companies vary in style, size, shape, and color. The price range generally varies from about \$3.00-\$12.00 per pair of glasses. This is quite affordable and a small price to pay to protect yourself from the risk of losing your vision.

Next time you think you are too cool for safety glasses, think about the new styles and comfort levels. Don't risk your vision by leaving your safety glasses on the lab bench.



Although safety glasses may not be comfortable and may clash with your personal style, there are some good reasons to wear them. Wearing safety glasses and other personal protective equipment is an integral part in providing a positive laboratory experience. Safety glasses must be worn not only to protect you from the work that you are doing, but also must be worn to protect you from potentially harmful situations anyone else in the laboratory may be creating.

NEW EMPLOYEE TRAINING SCHEDULE

Union Building Roof Lounge - 6th Floor

General Safety -For all new employees. 10:00- 12:00 Noon	April 2, 9, 16, 23, 30, 2002
	May 7, 14, 21, 28, 2002
	June 4, 11, 18, 25, 2002
	July 2, 9, 16, 23, 30, 2002

Union Building (North) - Room 542

Bloodborne Pathogens -For all employees who may be exposed to human blood, body fluids or tissue. Session held the 2nd & 4th Monday of every month from 8:30 - 9:30 A.M.	April 8 & 22, 2002
	May 13 2002
	June 10 & 24, 2002
	July 8 & 22, 2002

Chemical Lab Safety - For all employees who work with chemicals in laboratories. Sessions held the second Monday of every month from 9:30 - 11:30 A.M.	April 8 2002
	May 13 2002
	June 10 2002
	July 8 2002

Introducing ...



As the newly hired Biosafety Manager for IUPUI, I'd like to take a moment to introduce myself. My name is Jim Klenner and my position is within the Department of Environmental Health and

Safety in the Union Building. I'm fortunate to be in a newly created position, but not without involving several areas of immediate attention. Until recently, the Biosafety Program at IUPUI was rudimentary; therefore, my primary task will be to create and implement a complete program that takes into account both the needs of researchers and the university itself. This will involve determining what those needs are in generalized and lab-specific terms through direct contact with research and clinical personnel at various levels. I have had the pleasure of meeting with many of you so far, and look forward to contacting others as the months go by. By participating as an active member of the IBC, IACUC, Biohazard Committee and Biohazard Compliance Committees, I will come to know many of you in a short time.

The Biosafety Program I envision at IUPUI will not only assure safe work environments where biological hazards exist, but will be a "service oriented" style of program. While the safety of laboratory personnel working with biological materials is important above all else, implemented procedures should be welcomed and not merely delegated. The input of any involved individual will always be paid attention to and hopefully safe practices can be maintained through education and understanding. To that end I offer my assistance to any person with questions and concerns regarding Biosafety in the workplace.

What can IUPUI expect in the coming year? I have recently updated the Bloodborne Pathogen Training module, including revisions made to the OSHA standard resulting from the Needlestick Safety and Prevention Act of 2001. I've taken an active role in getting this institution registered with the CDC for Select Agent use in order to ensure compliance with 42 CFR Part 72 and the USA Patriot Act of 2001. I plan to develop a Biosafety Training module that goes beyond the scope of BBP

Training and provides information for the safe use of Biosafety Cabinets. In the near future, there will be a Shipping and Packaging Infectious Substances Training module available allowing for required certification of attendees. I am also in the process of creating a Biosafety Manual for IUPUI and will eventually make this available through the EHS web page. The coming year will certainly be robust as the IUPUI Biosafety Program is fully implemented.

Once again, if there are ever concerns or questions regarding Biosafety, please do not hesitate to call or email.

Class II Biosafety Cabinets and Bunsen Burner Usage

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available electric "furnaces" or even disposable pre-sterilized inoculating loops. If there is a reasonable need for a burner within a Class II BSC, an alternative would be the new micro-burners available from Fisher Scientific, seen at right.



These work by using a small pilot light and depressing a touch plate for each flame use – thus removing the presence of a constant and larger flame from an older Bunsen burner.

Baker, the leading manufacturer of BSCs, states that open flames are not to be used in their Class II hoods unless approved by a responsible safety officer. It is my hope that I will be able to communicate these issues to individual researchers and come to some agreement regarding their use.

Campus laboratory safety information review!

By Quratulain Saeed

We are coming! Don't worry, though, this is just an informational review and not an inspection. Most labs work with great regards to lab health and safety. We will be visiting campus labs during the next couple of months to make sure we have current information regarding emergency contacts and also to insure that lab staff have completed the required safety training for their potential exposures in the lab. In addition, we will be reviewing the hazard warning signs posted outside labs. We are also reviewing waste disposal techniques in use to ensure that they are current with campus policies.

All laboratories are requested to cooperate with us during the reviews, as we believe that an exchange of information is an integral part of promoting health and safety in labs. You are invited to bring any problems / issues regarding lab health and safety to us and we will address these issues to help ensure a safer and better work environment for all of us.

EHS STAFF

Director

Rich Strong.....4-1388
RSTRONG@IUPUI.EDU

Hazardous & Infectious Waste

Kevin Mouser.....4-4351
KMOUSER@IUPUI.EDU

Asbestos Management

Jerry Bush.....4-5239
JBUSH@IUPUI.EDU

Biosafety Manager

Jim Klenner.....4-2830
JKLENNER@IUPUI.EDU

Fire Protection Services

Thomas Hulse.....4-8000
THULSE@IUPUI.EDU

Industrial Hygiene/Lab Safety

John Beltz.....4-2829
JBELTZ@IUPUI.EDU

All Other Areas.....4-2005

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Indiana University-Purdue University
at Indianapolis
Environmental Health & Safety
620 Union Drive, Room 043
Indianapolis, IN 46202-5167

Be Alert for Safety - Expect the Unexpected