

Lab Notes

July 2002

IUPUI ENVIRONMENTAL HEALTH AND SAFETY

More Lab Glove Choices Now Than Ever!

By Kyla Henke

The severity of consequences due to the lack of proper gloves can be life threatening. In 1997, an experienced scientist at Dartmouth University died after an over exposure to dimethyl mercury. She was diagnosed with 80 times the lethal dose of mercury in her bloodstream. While working in her laboratory, she spilled several drops of dimethyl mercury on her latex-gloved hands. The gloves that she was wearing were determined to be inadequate in protecting her from this toxic compound, which rapidly absorbs through the skin.

Wearing personal protection equipment such as gloves is a simple step that will help ensure the safety of all employees working in laboratories. OSHA mandates that employees must wear appropriate hand protection when employee's hands are at risk. The selection of gloves should be based on the potentially hazardous materials handled, the duration of use and any other perti-

nent performance characteristics.

It is important to recognize that there is not a single glove that will protect an individual from all chemicals that are encountered in a laboratory. Latex and Nitrile gloves are the two most popular glove types found in most laboratories. Other glove types that may be appropriate for some laboratory uses include polychloroprene, vinyl, Viton and other gloves composed of a mixture of the previously mentioned materials.

In order to determine the proper glove for a given task, many glove companies have developed compatibility charts that list the chemical resistance properties of their products. The data is collected from standardized testing designed by the American Society for Testing and Materials (ASTM). Table 1 provides a comparison of

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Table 1: Glove Permeation Resistance When Exposed to Common Chemicals

	Latex	Nitrile	Polychloroprene
Acetone	Very Good	Not Recommended	Poor
Chloroform	Not Recommended	Not Recommended	Not Tested
Ethanol	Very Good	Very Good	Excellent
Ethidium Bromide	Not Tested	Not Tested	Excellent
Formaldehyde	Very Good	Very Good	Not Tested
Hexane	Not Recommended	Good	Good
Isopropanol	Very Good	Very Good	Excellent
Methyl Methacrylate	Good	Fair	Not Tested
Sodium Hydroxide	Very Good	Very Good	Excellent
Sulfuric Acid	Good	Good	Excellent
Toluene	Not Recommended	Fair	Not Recommended
Xylene	Not Recommended	Fair	Not Tested
Representative Cost/100	\$11.57	\$11.92	\$14.75

Fume Hood Flow Monitors – Do We Really Need Them?

“I can hear my fume hood working but I can still smell the toluene that I am working with in the hood”. “I’m only working with isopropyl alcohol so it doesn’t really matter whether the hood is functioning properly or not”. “I really thought that it was working and besides I couldn’t smell any chemical odors while working at the fume hood”. These statements and the finding of fume hoods not operating at all during annual testing indicate that more attention needs to be paid to hood operations and additional information needs to be provided concerning fume hood monitors.

There are many different types of systems used on campus to indicate that a fume hood has airflow into the hood and is operational. Newer buildings have electronic displays (both digital and analog) that indicate an airflow rate through the hood sash opening. Some renovations have had flow monitors that use red, yellow and green lights to indicate safe or unsafe conditions for hood use. Older labs that have not been renovated may not have any electronic equipment installed to indicate airflow into the hood. Hoods with no monitoring equipment installed should have a thin strip of tissue taped to the bottom of the hood sash as a primary indicator of flow into the hood.

New fume hood installations planned through the University Architects Office are installed with flow indicators and typically low-flow alarms. There have recently been some installations of fume hoods that departments purchased and had installed without flow monitors. Some of these customer-purchased hoods were not exhausting any air when recently tested but the users believed that they were working, partly because they were still new. Please ensure that flow monitors and/or alarms are a part of all new hood installations.

Environmental Health and Safety (EHS) is almost finished with annual fume hood testing. If your hood has a sign indicating “Low or No Flow”, do not use it but ensure that repairs have been initiated with Campus Facility Services (CFS). In general, if your fume hood does not appear to be operating properly, please call your CFS Zone Maintenance Trouble Line listed in the campus directory. After a fume hood has been repaired, please call EHS at 4-2829 for follow-up testing.

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chemical permeation resistance of gloves made with different materials.

In addition to the three glove materials listed in the table, there are other materials that may suit individual laboratory needs. Specific information regarding glove use with chemicals can be obtained by contacting glove manufacturers or searching the Internet. Some useful Internet addresses include: www.microflex.com/products/glovechem/a.asp, <http://www.mapaglove.com/pro/ChemicalSearch.asp>, and <http://www.chemrest.com>.

NEW EMPLOYEE TRAINING SCHEDULE

Union Building Roof Lounge - 6th Floor

General Safety -For all new employees. 10:00- 12:00 Noon	July 2, 9, 16, 23, 30, 2002 Aug. 6, 13, 20, 27, 2002 Sep. 3, 10, 17, 24, 2002 Oct. 1, 8, 15, 22, 29, 2002
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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 Tuesday of every month from 8:30 - 9:30 A.M.	July 8 & 22, 2002 August 12 & 26, 2002 September 9 & 23, 2002 October 14 & 28, 2002
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Chemical Lab Safety - For all employees who work with chemicals in laboratories. Sessions held the second Tuesday of every month from 9:30 - 11:30 A.M.	July 8, 2002 August 12, 2002 September 9, 2002 October 14, 2002
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Lab Safety Quiz – Do You Know the Answers?

12. Which of the following chemicals can be safely disposed down the sink in any quantity without further treatment?

- a. 1 N sodium hydroxide
- b. Acetone
- c. 0.1 N hydrochloric acid
- d. ethanol
- e. None of the above

17. The necessary eye/face protection when using fuming sulfuric acid is:

- a. Face shield
- b. Goggles
- c. Safety glasses
- d. a, b and c
- e. a and b

(answers on page 4)

These two questions are among the 20 quiz questions whose answers are provided in the monthly Lab Safety Training sessions given by Environmental Health and Safety for new employees and others at the University. This quiz was developed primarily as part of the alternate lab safety training program for the few new lab workers who are unable to attend a regularly scheduled session. The other part of this training is a 2-hour videotape of an actual training session given to a class of new employees in the past.

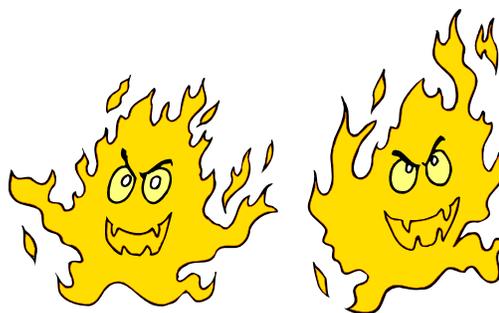
This alternate lab safety training program is only offered as a last resort for workers who are unable to attend a regularly scheduled session. An opportunity for interaction and answers to questions at the time of learning is not available with this alternate program. Questions can be answered by contacting the Lab Safety Manager by phone or e-mail after the conclusion of the session. The referenced quiz is a tool that the departmental Lab Safety Coordinator can use to ensure that key concepts of the class have been learned. If anyone would like to preview the videotape or take the quiz, please contact John Beltz by e-mail or at 4-2829.

We Had a Small Lab Fire..... Now What?

By Tom Hulse

To coin a phrase, “stuff happens”! One example is a fire in a lab trash can which was quickly extinguished with an available portable fire extinguisher. The person who put out the fire was fortunate that the fire was actually extinguished and not spread since the person had never completed fire extinguisher training. In addition, the fire was not reported. **Every fire, no matter how small, is required to be reported to the university.** In accordance with the Emergency Procedures Handbook, this is done by calling the IUPUI Public Safety Dispatch Center at **274-7911**.

The reasons for the reporting requirement are both legal and practical. All fires in public buildings are reported by University Policy and Indiana Code. Additionally, areas where fires occur must be checked by fire protection personnel to determine whether there has been damage to university property, particularly things such as electrical receptacles, etc. It is also necessary for any fire extinguisher that has been discharged to be re-charged by an approved technician. The presence of a partially discharged fire extinguisher is a violation of Indiana Uniform Fire Code. Therefore, it is imperative that **Fire Protection Services be notified immediately**. Any questions about this policy or how to identify and extinguish a small fire can be answered by calling Fire Protection Services at **274-8000**.



Biosafety Updates

By James Klenner



Hello everybody and greetings from the Biosafety Manager in EHS. As promised in the last issue, I am writing to inform the campus community of some Biosafety-related updates. First, the training module for Shipping and Packaging Infectious and Biological Material is complete and will be presented to a select audience for review. As soon as this initial review is complete and all agreed upon modifications made, this will be presented to staff on a regular basis. The training session also includes an exam and a certificate for those achieving a passing grade. The certification is good for two years and brings the staff member compliant with IATA and DOT regulations.

Second, the IUPUI Biosafety Manual is finished and available. The goal is to get it online soon, but until then I will be happy to email it in pdf format to anyone requesting it.

Third, I have ordered training materials for a new Biosafety Training module. This will focus on the various Biosafety Levels, use and function of Biosafety Cabinets, risk assessment, and particular lab practices as they apply to each level. Look for an announcement regarding this new training in the next few months. As always, please feel free to contact me with any questions or concerns regarding biohazardous materials.

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Answers to Lab Safety Quiz

12. e. None of the Above

17. e. a and b

Please Post or Circulate



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Be Alert for Safety - Expect the Unexpected