



Lab Notes

January 2000

IUPUI ENVIRONMENTAL HEALTH AND SAFETY

“Moving” in the Fast Lane

by Kevin Mouser

In years past, it was commonplace that a professor would stay in a given lab space for much, if not all, of their teaching/research career. As new facilities are constructed and as existing space undergoes renovation, lab staff are increasingly being asked to relocate their lab operations to other locations within the same building and frequently to other campus buildings.



The Department of Environmental Health and Safety (EHS) has a vested interest in seeing that the movement of lab chemicals is completed in the safest manner possible. To assist in this endeavor, EHS has prepared guidelines (***IUPUI Chemical Move Guidelines***) to assist lab staff in preparing for and completing the actual move of stock chemicals.

The Guidelines are based on valuable lessons learned during the relocation of the 38th Street campus at which time several thousand chemical containers from Chemistry, Biology, Psychology, Geology and Physics labs were moved to the main campus.

With advance notice, EHS staff, vehicles and equipment can be made available to assist in moving stock chemicals from building to building. In addition, EHS staff may also assist, on a fee basis, in moving chemical inventories to new locations within the same building.

Please keep the following concerns in mind as you prepare for your next move.

Please remember that University workers and non-University contractors will be working in your vacated lab space. These workers are not familiar with the hazards of your chemicals and, more important, how to protect themselves from the hazards of any chemicals left behind.

The responsibility remains with the vacating department to ensure that all chemical materials and other physical hazards (e.g., glassware, sharps waste, items with radiation warning labels, etc.) are removed from the lab. Under no circumstances should chemicals or chemical wastes be left in the lab unless prior arrangements have been made with EHS.

According to University policy, materials abandoned in labs will be removed by EHS staff at a cost of \$75.00 to \$100.00 per hour and charged back to the vacating lab or department.

MOVING WITHIN THE SAME BUILDING

- Utilize a suitable cart when moving chemical products throughout the building. Past experience has shown that most accidental releases occur when staff drop chemical containers being moved by hand. Pack breakable containers in boxes with separators to prevent breakage.
- Always segregate chemicals by chemical compatibility. Incompatible materials should be boxed separately and moved in separate loads.

Continued on page 2

“Moving” in the Fast Lane

Continued from page 1

CLOSING OUT YOUR OLD LAB

- Avoid utilizing stairways when moving chemicals from floor-to-floor. Again, utilizing a suitable cart, transport the materials by means of a service elevator or in the absence of one, a passenger elevator.
- Promptly report any chemical spill that may occur as outlined in the *IUPUI Staff and Faculty Emergency Procedures Handbook*.

MOVING TO A DIFFERENT CAMPUS BUILDING

With adequate notice and at no charge, EHS will provide comprehensive services (e.g., staffing, limited amounts of moving supplies and a vehicle) to assist in relocating chemical materials to a different campus building. EHS does require 30 days advance notice prior to the move as is required for the disposal of 50 individual containers or more of chemical waste. Large-scale moves, such as the relocation of several labs

within a given department, require a significant amount of advanced training and detailed coordination. Ninety days advance notice will help ensure that the move is conducted in a safe, efficient and timely manner.

Under no circumstances should chemical, biological and radiological materials be transported in personal vehicles unless approved by EHS or the Radiation Safety Office.

CHEMICAL MOVE GUIDELINES

The *IUPUI Chemical Move Guidelines* referenced earlier details segregation, packaging and logistical procedures for moving chemical materials on campus. Please call 4-4351 or visit our web page to obtain a copy for your next move.



Surge Protector Fire

A report from Stanford Linear Accelerator Center indicated that a fire occurred at a multioutlet power strip/surge protector. According to the report, a Kensington Power Tree 20 model # 62162 caused the fire which was believed to be due to an overheated metal oxide varistor (MOV) in the surge protector unit. Units are available that provide the same service but contain a thermal fuse that eliminates the overheating issue.

Check the power strip/surge protectors in use in your lab for this model. If you have any, call Kensington at 800-535-4242 for more information and replacement models.

NEW EMPLOYEE TRAINING SCHEDULE

Union Building Roof Lounge - 6th Floor

Jan. 3,10,24,31; Feb. 7,14,21,28; Mar. 6,13,20, 27; Apr. 3,10,17,24-2000

9:00-10:00 AM **Bloodborne Pathogens-** For all employees who may be exposed to human blood, body fluids or tissue.

10:00-12:00 Noon **General Safety-** For all new employees.

Union Building (North) - Room 542

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 AM.

**January 11, 2000
February 8, 2000
March 14, 2000
April 11, 2000**

Danger of Phosgene Generation From Chloroform



Researchers at the University of California, Los Angeles became ill after using a three-year-old bottle of chloroform. The chloroform was properly stored and was stabilized with amylene. Analysis of the chloroform revealed concentrations of

15,000 ppm of phosgene in the headspace of the bottle and 1.1% concentration of phosgene in the bulk solution.

Very brief exposures (1 to 2 minutes) to 20 ppm phosgene can cause severe lung injury, and higher concentrations can cause death from pulmonary edema. The initial symptoms include throat irritation, coughing, chest pain, nausea and difficulty breathing. More severe symptoms such as extreme difficulty breathing may appear one to twenty-four hours post exposure.

Many material safety data sheets (MSDS) warn that phosgene may be generated from chloroform when exposed to flames, electrical arcs, intense sunlight or hot surfaces. They do not mention that phosgene may be generated over time from prolonged storage. The recent incident at UCLA suggests that chloroform can break down and form phosgene in older containers.

Chloroform is widely used in laboratories on campus. Researchers using chloroform should follow these precautions:

- * Purchase stabilized chloroform whenever possible. Amylene as a stabilizer may not prevent the generation of phosgene.
- * If unstabilized chloroform is needed, treat it as a time-sensitive chemical similar to ether; date when received; date when opened; and discard within one year.
- * Store chloroform in a dark place (cabinet) in an amber bottle to reduce rate of decomposition.
- * Open chloroform containers in a chemical fume hood and use it in the fume hood as much as possible.

- * If you have opened unstabilized chloroform or chloroform stabilized with amylene that has been in the laboratory for more than one year, eliminate it as hazardous waste.

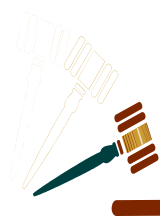
If you have any questions regarding the handling of hazardous materials on campus, Environmental Health and Safety is available to assist you at 4-2829.

(Adapted from the Yale University "Safety Bulletin" January, 1999)

The Five Most Prevalent Violations in Labs on Campus

By Linda

Jacobs



Completion of the 1999 campus laboratory safety inspections revealed several redundant safety violations. Listed below are the five most frequent safety issues found.

1. **Consuming or storing food items in a lab.**
Eating and drinking in a lab is a dangerous habit. Avoiding ingestion of hazardous materials used in the lab is important. Storing food or drink in your lab refrigerator/freezer is also prohibited for the same reason. Be sure to store your food items in a specified lounge or office area.
2. **Storing flammable chemicals in a non-explosion safe refrigerator/freezer.**
If the conditions are right, this can result in an explosion or fire. If your refrigerator would happen to malfunction and release a spark, this creates an optimal situation for the flammable material to explode. If you do not have a non-explosion safe refrigerator/freezer, you may be able to borrow space from another lab or use an ice bath to prepare your flammable solvents for cold use when required.
3. **Open chemical waste containers.**
Having an open waste container is dangerous be-

The Five Most Prevalent Violations in Labs on Campus

Continued from page 3

Continued on page 4

cause the container could easily be knocked over and result in a spill cleanup. Open waste containers are a state and federal hazardous waste violation which could result in costly fines for your department. In addition, they create gaseous emissions to the lab or the atmosphere which are a safety and health concern. Chemical waste containers should be closed when they are placed in the fume hood as well.

4. Keep an Emergency Plan Handbook posted at all times.

IUPUI has created an *Emergency Procedures Handbook* to alert all staff concerning actions to take in case of emergency. Keeping everyone in the lab informed about what to do in case of an emergency is critical. The flipchart contains all of the emergency phone numbers you would need to get help. The flip chart is easy to use and could save your life.

5. Segregate chemicals by hazard class.

Storing chemicals by compatibility classes is necessary in any lab. For example, storing flammables, oxidizers, reducers, acids, and bases with one another can result in unwanted chemical exposures or fire situations. Basic chemical segregation is essential for general safety.

Being aware of the possible health hazards that could result from these violations is important. Accidents and injuries can be avoided by practicing general safety in your laboratories. If you have any questions regarding your personal lab inspection or need assistance with suggestions on improving your lab practices, please call John Beltz at

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

Occupational Safety

Norman Baker.....4-2830
NEBAKER@IUPUI.EDU

Fire Protection Services

Lowell Black.....4-8000
LBLACK@IUPUI.EDU

Industrial Hygiene/Lab Safety

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

All Other Areas.....4-2005

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Please Post or Circulate



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

Make Safety a Habit - Today and Every Day