

Department of Occupational and Environmental Safety NEWSLETTER

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CASE WESTERN RESERVE UNIVERSITY

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Fire in the BRB

Another fire erupted on campus last month, this time in the BRB. Like the fires last year in Olin and Millis, it is suspected that an unattended experiment contributed to the cause. While the Department of Occupational and Environmental Safety realizes that often this is an unavoidable aspect of lab work, we would like to discourage the practice of running unattended or overnight experiments. If you must leave an experiment unattended, please take the following precautions:

- Plan for possible interruptions in utility services such as electricity or water. Make sure that possible hazards stemming from your experiment can be avoided if these or other important utilities should shut down. This is especially important if you depend on a water-cooling device for your experiment; problems arising from this unexpected dilemma are quite frequent.

- Arrange for periodic checking of the experiment. If you are running an experiment overnight, we would like all labs to let us know so Security can check on it during their rounds of the buildings. Leave the laboratory lights on, and post an appropriate sign on the door.

- Check all of your equipment that cycles on and off throughout the day and night—incubators, constant-temperature baths, an electrophoresis—for electrical or other hazards. You know better than we do which equipment may cause problems. If a piece of equipment needs fixing or

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New Location for Training Sessions

Beginning in June the OSHA Laboratory Standard and Initial Bloodborne Pathogen training sessions will be held in the new DOES office conference room, located on the first floor of the Service Building, instead of in Adelbert Hall.

These training sessions will still be held every Monday at the same times. The Right-to-Know training session will remain in Adelbert Hall at its usual time. However, it will be held in Room 2 instead of Room 1.

New Radiation training and Radiation retraining will also be held in the new conference room.

Please call our office (x2906--Radiation Safety or x2907--Chemical Safety) if you have any questions or to sign up for one of the sessions.

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What WASTE!

Recycling Issues

Do We Recycle Fluorescent Bulbs?

All fluorescent bulbs—those in regular overhead lights or mercury-vapor lamps, for example—contain a small amount of mercury. Since mercury is a regulated material, these bulbs cannot be thrown away in the regular trash when they burn out—the mercury in them must either be recycled or disposed of in an environmentally sound way.

The university has recently put a recycling program in place to take care of these bulbs. Researchers should place burned-out fluorescent bulbs of any sort or size in an empty box, keeping it in an area where the bulbs will not get broken. When Plant Services comes to replace the bulbs they will pick up the old ones.

Again, do not throw these away in the regular trash. If you have any questions, contact Plant Services at x2580.

WANTED: Acetone for the Still

DOES encourages researchers to think about waste materials their labs generate that can be recycled using our new spinning band still. We are looking especially for researchers who use large quantities of the acetone and water mixture commonly used to wash glassware. The acetone in this mixture is a regulated substance and therefore costly to dispose of, yet it can readily be recycled.

Recycling acetone can save researchers and the university money, by not having to buy new acetone or pay disposal costs. Furthermore, recycling reduces the amount of a hazardous material introduced into the environment. If your lab generates this waste, or if your lab produces another waste you think could be effectively recycled, please contact us as soon as possible (x2907).

Emergency Eyewash and Shower Stations: Keep Them Clean!

Eyewashes and shower stations are tested yearly by Plant Services. During this year's inspection, a serious problem was noted in the eyewash stations, particularly in the Biomedical Research Building.

These eyewash stations are mounted on a swing arm, so as to be able to be moved over the lab sink when needed in an emergency. Some of these stations were found unuseable because the polyurethane filter on the outlet heads had melted. We assume this occurred because liquids being dumped into the sink splashed up and melted the filter. The insides of pipes had to be scraped out to allow water flow to the nozzles.

Regular maintenance of eyewash stations is each lab's responsibility. They must be kept working perfectly and should be periodically tested. If you notice any problem, or if the inspection sticker on your station is out of date, notify Plant Services (x2580).

Upcoming Training Sessions

Note the new location for these training sessions, the DOES conference room on the first floor of the Service Building.

Radiation (x2906) (DOES conference room)

•**New Training:** June 4(9-12), 13(9-12), 20(1-4), 26(1-4)

•**Retraining:** June 6(2-3), 18(2-3)

•**X-ray Training:** call office to set up training session

Chemical (x2907)

•**OSHA Lab Standard:** Mondays 1-3 (DOES conference room)

Bloodborne Pathogen (x2907)

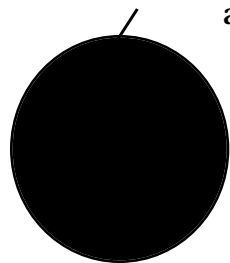
•**New Training:** Mondays 3-4 (DOES conference room)

• **Retraining:** call office to reserve videotape

Is There a Bomb in Your Lab?

Bombs capable of inflicting countless injuries and millions of dollars of property damage are present in many hospitals, research facilities, laboratory classrooms and industrial settings. These bombs are not the variety used by terrorist groups but are the potential explosives produced by educators, scientists, students and other professionals when they store flammable liquids and gases in domestic refrigerator and freezers.

Just like you should not store food in refrigerators that also contain chemicals, nor should you store chemicals in refrigerators designed to hold food. Storing acetone, acrylonitrile, cyclopentane, methanol



and ethyl ether in domestic refrigerators and freezers presents a potentially dangerous situation.

These chemicals and gases, when stored in glass or metal containers with open tops, loose-fitting caps or cotton stoppers, create a flammable vapor when placed in domestic refrigerators. Storing these chemicals in this manner creates a time bomb of sorts.

Every time the door of the domestic refrigerator or freezer is opened or closed, or the compressor starts or stops by an internal temperature control switch, an electrical arc is produced. When a flammable va-

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HOT TIPS



NO FOOD OR DRINK in the Lab

Our technicians have noticed several instances of food, drink, or cosmetics in lab areas during recent walk-throughs. We want to emphasize that this is not allowable under any circumstances. This includes evidence of eating or drinking (candy wrappers or styrofoam coffee cups in trash) and the application of hand lotion.

The "lab area" in which eating and drinking is not allowed should be self-explanatory in most cases. For those in the BRB, this includes the area beginning with set of double doors leading to the lounge.

Both the Nuclear Regulatory Commission (NRC) and the Occupational Safety and Health Administration (OSHA) have formulated strict safety guidelines, and the Radiation Safety Manual and the Chemical Safety Manual define the university's safety policies and procedures. Both documents prohibit eating, drinking and applying cosmetics in laboratories.

Accidental ingestion of a harmful substance occurs most readily when food or drink is on hand, and contamination of food can occur without your knowledge. It is vital that you keep these sorts of items out of the lab area. Thank you for your cooperation.

How To Keep Your Food "Clean"

Contamination of food, drink, smoking materials and cosmetics is a potential route for exposure to toxic or radioactive substances. These items should be stored, handled, and consumed in an area free of any hazardous substances. In order to ensure the safety of your personnel, make sure these rules are known and followed in your lab:

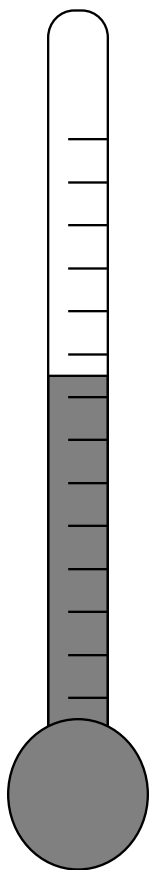
1. Establish well-defined areas for storage and con-

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Non-Mercury Thermometers

Various companies, including Fisher and VWR Scientific, have created a non-mercury "environment friendly" thermometer.

The thermometers vary in temperature range, scale (Fahrenheit or Celsius), length, and price. Though they are slightly less accurate than mercury thermometers, they are also much cheaper—about one fourth the cost. The liquid is usually composed of mineral spirits and another non-toxic chemical depending on the thermometer's range. A dye gives color to the liquid. Because the thermometers contain no mercury, a highly toxic chemical, clean-up is easy if an accident occurs and no hazardous waste is created.



Even a small mercury spill poses a health hazard since its vapors are *odorless, colorless, and tasteless*, making them impossible to detect without a special meter. Your body cannot rid itself of these toxins, making the effect of the poison cumulative.

Equipment used in conjunction with thermometers—heat blocks, ovens, incubators—becomes contaminated if a mercury thermometer should break during the experiment. Usually the equipment must be thrown out since mercury may bond with metal and permeate it completely.

While it may seem a very small step towards reducing hazardous waste, buying a non-mercury thermometer will save you and DOES a lot of time and money should one break. Please consider purchasing one for your laboratory.

Is There A Bomb In Your Lab?

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por-air mixture is present in the storage compartment of the freezer or refrigerator, any of these arcs can set off an explosion.

Not only can these bombs threaten life and destroy property, they can also destroy valuable analytical research work that may take months to duplicate.

To prevent this dangerous situation, store these chemicals and gases in approved explosion-proof refrigerators and freezers **ONLY**. Domestic refrigerators can be used to store liquids having a vapor generated at temperatures above 50o F or are noncombustible at that temperature. For combustible or flammable materials, however, these refrigerators will not do; nor is a modified version of a domestic appliance acceptable.

Be sure that your lab is made bomb-proof by having the proper equipment.

How To Keep Your Food "Clean"

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sumption of food and beverages. No food should be stored or consumed outside of this area.

2) Prominently mark the area where food is permitted and post a warning sign (e.g. EATING AREA—NO CHEMICALS). No chemicals or equipment should be allowed in such areas.

3) Never eat food in areas where lab operations are being carried out.

4) Never use glassware or utensils that have been used for laboratory operations to prepare or consume food or beverages. Similarly, laboratory refrigerators, ice chests, and cold rooms should not be used for food storage; separate equipment should be dedicated to that use. Label everything prominently.

Every Accident Has Its Cause

A chemical splashes into an eye; static electricity builds up, sparking an explosion; a beaker drops to the floor, spilling its contents. Accidents can happen in any laboratory, sometimes with disastrous consequences. But every accident has a cause, and most accidents can be prevented if you know how to recognize a potential accident and take steps to prevent it. Be on the lookout for these “accidents waiting to happen”:

PERSONAL PROTECTIVE EQUIPMENT

- no eye protection or the wrong type of eye protection for the job
- no face protection or the use of a half-face shield when a full-face shield is needed
- no gloves, improper gloves, or gloves that have pinholes or have been contaminated by previous use.
- clothing that is not resistant to fire or corrosive material or is inadequate for the risk such as a lab apron when coveralls are indicated

FIRE HAZARDS

- frayed or damaged electrical cords
- flammable liquids not stored in appropriate containers or cabinets
- no fire extinguishers or extinguishers that are not regularly maintained
- equipment wires that pass too close to an open flame or oxidizing reagent likely to be spilled
- not knowing what type of fire extinguisher to use on different kinds of fires

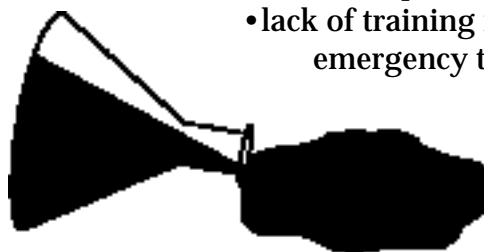
UNSAFE LAB PRACTICES

- storing food in lab refrigerator, eating in the lab, or using lab equipment in place of cups, plates, or bowls

- pipetting by mouth
- unsecured compressed-gas cylinders
- incompatible chemicals stored together

LACK OF INFORMATION

- ignoring information on Material Safety Data Sheets (MSDS) or warning labels
- not knowing what to do in an emergency
- not knowing the signs and symptoms of over-exposure and what to do if overexposed
- failure to inform co-workers of plans to carry out hazardous procedures
- lack of training in first aid, CPR, and other emergency techniques



EQUIPMENT PROBLEMS

- ventilation problems such as hoods that are in poor condition or are being used improperly
- leaky glove boxes
- aisles in the lab or storeroom blocked by equipment or chemicals
- safety showers or eyewash stations that are not regularly tested
- physical hazards such as unguarded moving belts or pulleys or unattended heat sources



Fire in the BRB

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if you want someone to check it for you, please contact us BEFORE you use it again.

- Never override the safety devices on equipment or make homemade electrical connections.
- Make sure the area has proper ventilation, using a fume hood if necessary.
- Depending on the hazard, consider using water flow sensors, quick blow fuses, or a small suppression device. This is especially true when using highly flammable or explosive chemicals.

Again, while we know that running attended experiments are an inevitable part of lab work, every precaution possible must be taken to assure that the highest levels of safety are maintained. If you have any questions about how to “fire-proof” your experiment, please call us (x2907).

We appreciate your cooperation in this matter.

Department of Occupational and Environmental Safety

Staff

Warren Malchman, Director
Richard Dell, Manager, Safety Services
Richard Harley, Loss Prevention Specialist
Karl Von Ahn, Assistant RSO
Shirley Mele, Dept. Administrator
Gwendolyn Cox-Johnson, Dept. Assistant
Cheryl Palfalvi, Dept. Assistant
Carla Kungl, Technical Writer

Safety Technicians

Robert Armstrong
Todd Crawley
Robert Latsch
Marc Rubin

Radiation Safety Technicians

Karen Janiga
Joe Nikstenas
Felice Thornton
Yelena Tigay
Edward Traverso
Shirley Xu

