

Put Waste In Its Place

NOTICE: Special Reminder for Disposal of Laboratory Waste

To protect health and the environment, please comply with the following rules for the disposal of laboratory waste. The metal carts are only for the disposal of the biomedical waste as explained below.



Sort
and
Separate



Do Not Place In Metal Biomedical Waste Carts

- Chemicals or chemical waste
- Aerosol cans
- Needles not contained within a needle box
- Surgical equipment
- Other large metal items
- Unautoclaved state registered BSL2 or BSL3 agents
- Pathological and chemotherapy waste
- Unabsorbed free liquids
- Radioactive waste
- Normal lab trash
- Broken glass
- BSL-3 waste

Laboratory Waste Disposal Procedures

Please follow these procedures for the disposal of laboratory waste:

- **Biomedical waste:** Waste containers must be puncture-proof and leak-proof. Write the name of the Principle Investigator (PI) and lab room number on the side or top of the medical waste collection container before placing in to the metal cart.
- **All radioactive or chemical waste**, including aerosol cans: Visit www.yale.edu/oehs for waste request
- **Needles** (with or without syringes), and **razor and scalpel blades:** Dispose of in a needle box.
- **Large surgical equipment and other large metal items:** Contact EHS for disposal at 785-3551.
- **State registered BSL-2 waste:** First, collect in a red bucket or needle box; then sterilize or disinfect (e.g., autoclave) locally; finally, place in metal biomedical waste cart.
- **Pathological and chemotherapy waste:** Collect in a Stericycle box and label with "pathological waste" sticker.
- **Normal lab trash** (e.g., wrappers, clean gloves): dispose of in the normal trash.
- **Broken uncontaminated glass:** Place in any cardboard box and label "broken glass" for removal by custodial services.
- **BSL-3 agents:** autoclave in lab and put in Stericycle box and label with "pathological waste" sticker.

Please Help, and Let Others Know

Most biomedical waste generated at the School of Medicine is treated on-site through the Yale Environmental Health and Safety's (EHS) autoclave-shredder. The above procedures are necessary to comply with Connecticut law, protect you and waste handlers, and prevent needle-sticks, leaks, damage to the autoclave-shredder and environmental harm.

These procedures apply to the laboratories at Yale's medical school campus. Please contact EHS for laboratory waste disposal procedures that apply to central and west campus.

Your assistance and compliance is greatly appreciated. For more information, Call EHS at 785-3551 or go to <http://www.yale.edu/oehs/biomedicalwaste/intro.htm>. To print a poster to serve as a reminder, please go to: <http://www.yale.edu/oehs/Documents/waste/wasteinplace.pdf>.

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Highly Concentrated Acid Cleaning Solutions EHS 2008 EOY

Aqua Regia and Piranha are highly concentrated acid solutions that are used as aggressive cleaning solutions. Aqua Regia consists of a mixture of nitric and hydrochloric acid, and will dissolve noble metals such as gold and platinum. Piranha is a mixture of 30% hydrogen peroxide and concentrated sulfuric acid. It is extremely effective at removing organic sediments. Both of these solutions are highly corrosive and very powerful oxidizing agents and are very hazardous to work with and dispose. They should only be used if there are no alternatives available to do the job.

There have been several incidents at Yale University over the past few years involving these solutions. Two of the most recent incidents occurred when waste bottles containing Aqua Regia ruptured after being tightly closed without allowing the reaction to complete, causing glass and the acid solution to be violently spewed. One of these incidents occurred outside of a fume hood, and chlorine gas and acid mists were generated in the room. In all these incidents, we were lucky that no one was in the immediate area and there were no injuries. These incidents serve to illustrate the hazards associated with working with these solutions and the need to follow strict procedures for handling and disposal.

Before working with highly concentrated acids such as Aqua Regia or Piranha, check to see whether a less hazardous solution can be used to do the work. These acids are highly corrosive and reactive and therefore do an excellent job at cleaning, but the risks associated with these solutions can be quite high. They should never be used for routine cleaning.

Notify your Safety Advisor for approval and handling procedures if it is determined that only highly concentrated acid cleaning solutions such as Aqua Regia or Piranha can be used.

Winter Safety Quiz

Surviving winter is about being prepared. Read our Winter Safety article on page 3 and then take this quick quiz to test your knowledge.

1. Clumsiness, lethargy and slurred speech are symptoms of what cold weather condition?
 - a. Hypothermia
 - b. Frostbite
 - c. Eczema
2. What should you install near a working fireplace, woodstove or kerosene heater?
 - a. Smoke detector
 - b. Battery-operated carbon monoxide detector
 - c. Both a and b
3. When dressing for a cold day, you should:
 - a. Layer several thin garments to increase insulation.
 - b. Wear one very thick article of clothing.
 - c. Wear one thin article of clothing to prevent temperature loss through sweat.
4. Space heaters shouldn't be used near anything that could burn, such as curtains, furniture and bedding. How far away from these should a space heater be?
 - a. At least one foot away.
 - b. At least three feet away.
 - c. At least 10 feet away



In recognition of her high level of support and leadership to her own staff, as well as to every staff member of EHS, Stephanie Perry, EHS Business Manager, has been named the 2008 recipient of our Employee of the Year Award.

Stephanie facilitates our hiring, oversees our daily operations and special projects, ensures the security of the EHS department, manages the departmental budget, has excellent written and communication skills, as well as strong analytical and problem solving skills.

She promotes interest in her staff and in their personal development. She is exceptionally dedicated and conscientious in everything she does and she continually strives to produce high quality work and work ethics.

Any aspect of the running of the office of EHS goes through Stephanie. She wears many hats and she makes our work life easier.

Congratulations Stephanie!

EHS Facts 2008

- Students, faculty and staff who completed EHS web training: 3,853.
- EHS Instructor led courses: 459
- Classroom training attendees: 5, 268
- EHS processed 2196 radioactive material orders.
- EHS performed over 3000 radiation safety surveys.
- EHS recycled 202,018 feet of fluorescent light bulbs (stretched end a distance of 38 miles).
- More than 1000 fume hoods tested and certified.
- In excess of 200 incidents requiring EHS emergency response.
- Pounds of electronic waste recycled: 250,615
- Pounds of batteries recycled: 5063
- Pounds of medical waste autoclaved/shredded on site 427,102
- Pounds of hazardous waste: 388,259

1: a, 2: c, 3: a, 4: b

We are all saddened by the terrible accident that recently occurred at UCLA, in which a young chemistry researcher was fatally burned in an accident involving an alkyl lithium compound. This type of reagent is commonly used in chemistry laboratories. It is extremely hazardous and the potential for serious accidents is great if strict handling procedures are not followed. Because of this, we are asking your help in taking the following steps to protect against such a tragic accident occurring here at Yale.

1. Lab coats and safety glasses must be worn at all times when working with hazardous chemicals in the laboratory.
2. Never work alone when handling highly hazardous chemicals such as organic lithium reagents. Always let others in the laboratory know you are working with these solutions.
3. Perform all work in a laboratory with a safety shower nearby. Be sure to know the procedures to follow in the event of an emergency.
4. In order to avoid an excessive amount of chemical waste, only purchase the amount that you plan to use for each experiment. Any purchase over 100 ml bottle will need to be authorized by Yale Environmental Health and Safety.
5. Yale EHS highly recommends that you order these reagents from Sigma Aldrich, which has their patented Sure/Seal bottle. Contact us if you desire to use a different vendor for these reagents.
6. All Principal Investigators must review the safe procedures for handling highly reactive reagents such as these with their lab members. Everyone should be familiar with the Aldrich technical bulletins AL-134 "Handling Air-Sensitive Reagents" and AL-164 "Handling Pyrophoric Reagents".
7. Work inside the fume hood with the horizontal sash positioned in front of you to protect you from any splash that may occur.

Go through your inventories and dispose of any opened containers of these reagents that you are not planning on using in the near future.



With the recent cold weather and winter storms, EHS would like to reiterate some winter safety tips for home, outdoors, and while driving.

In Your Home

Insure your home's heating systems are functioning properly. Furnaces should be tuned up yearly with fireplace chimney and flue inspected yearly as well. There should be smoke and carbon monoxide alarms on each floor and near bedrooms, with batteries replaced twice a year. If

using portable space heaters, keep them three feet away from anything that could burn, and keep them away from pets and small children. Only recommended fuel should be used in kerosene heaters; these should be refueled outside while unit is cool. When using kerosene heaters, keep door open to rest of house, or open window slightly. When using fireplaces and wood stoves, ensure flue is open during use, and never burn treated wood or paper. Paper can float out of chimneys and ignite your or your neighbor's roof. Keep an emergency supply of water, non-perishable food (and a manual can opener), essential medicines, and extra blankets and batteries.

When outdoors

Dress in layers, covering nose, ears, fingers, and feet. Babies and small children should be dressed in one more extra layer than adults. Keep alert for signs of hypothermia and frostbite. Signs of hypothermia include lethargy, clumsiness, slurred speech, and in infants, bright and cold skin. If hypothermia is suspected, get indoors, remove wet clothing, and drink warm beverages and warm center of body first. If body temperature is 95 ° F or below, seek medical attention immediately.

Signs of frostbite include burning or numbness, and white or grayish-yellow skin. Most susceptible areas are fingers, toes, ears, and nose. At signs of frostbite, place affected parts in warm (but not hot) water, or use warm washcloths. Dry area and cover with clothing or blankets. If numbness continues, seek medical assistance.

When participating in snow sports, wear approved helmets, skate (never alone) on approved ice surfaces only, in daylight. Sled feet first, avoiding areas with trees, obstructions, or traffic, and sled in areas that have flat run-off areas. Apply sunscreen to avoid sunburn from snow reflection.

Avoid shoveling if out of shape or if you have a history of heart trouble, unless approved by physician. Warm-up before shoveling, take frequent breaks, shovel lifting with legs pushing snow in front of you, and avoid tossing snow to the side or over your shoulder, which can lead to twisting type injuries. Read the manual before using snow blowers, fuel up when engine is cool, never aim discharge at persons or traffic, never leave running unattended, and do not insert fingers into blade area, instead use stick or other tool to remove obstructions.

When driving

Prepare your vehicle before the winter season, and before departing. Ensure tires have adequate tread and are suited for use in snow. Consider installing snow tires, it is recommended that they be mounted at all four wheels. Tire chains can be used in extreme snow. Check your battery's ability to hold a charge, ensure anti-freeze level and strength is satisfactory, ensure the vehicle is running well, all lights and signals functioning, and that wipers are in good shape. Keep your gas tank greater than one half full. Prepare emergencies supplies, including ice scraper, flashlight, charged cell phone, extra gloves, socks, hat, a small sack of sand and a shovel, traction mats, jumper cables, non-perishable food, and water.

EHS Web Training Links

- info.med.yale.edu/bbp
- info.med.yale.edu/bbpclinical
- www.yale.edu/oehs/onlinetraining/hazwaste/chemicalwaste.htm
- info.med.yale.edu/chemsafe
- www.yale.edu/oehs/onlinetraining/TB/TB.htm
- www.yale.edu/oehs/onlinetraining/RadiationSafety/RadiationSafety.htm

Environmental Health & Safety

135 College Street, Suite 100 New Haven, CT 06510

Telephone: 203-785-3550 / Fax: 203-785-7588

<http://www.yale.edu/oehs>

Director: Peter Reinhardt

Email: peter.reinhardt@yale.edu

Telephone: 203-737-2123

How you work can have a major influence on others so always consider your actions in terms of potential impact and what steps are necessary to prevent harm or injury. Become familiar with and observe established safety requirements and procedures in your work area, use any required protective equipment, and report unsafe conditions to your supervisor or our office.

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A Hazardous Waste Recycling Success!



Using a grant awarded by the Yale University Provost's Advisory Committee on Environmental Management (ACEM), Environmental Health & Safety has purchased a solvent distillation unit for Professor Christine Dimeglio's undergraduate teaching labs in the Chemistry Department. Professor Dimeglio's Laboratory Manager, Anna Yu, and work study students are using the unit to recycle 100% of the acetone waste that is generated when Professor Dimeglio's 250-300 undergraduate students clean their laboratory glassware each

semester. Anna and the work study students began recycling this hazardous waste stream on February 12, 2008 and have recycled approximately 52 gallons so far. The distilled acetone is then reused by Professor Dimeglio's undergraduate students to clean their glassware. Recycling all of acetone waste generated from cleaning glassware has eliminated the need to purchase new acetone for this purpose thus resulting in a recycling success! During its first semester of use, the solvent distillation unit saved the Chemistry Department approximately \$405.

According to Professor Dimeglio, Anna and the work study students are enthusiastic about recycling the acetone waste generated, especially since "It's so easy." The recycling of acetone waste in her lab has heightened the awareness of everyone in the lab about being conservative in the amount of materials used, so they use the least amount possible, and has raised her students' confidence that Yale is committed to caring for the environment.

The cooperation between Environmental Health & Safety, Professor Dimeglio, and Anna Yu has been instrumental in the success of this project. For this particular project, success includes a reduction in the amount of hazardous waste requiring disposal, a reduction in hazardous waste disposal cost, and a reduction in the cost associated with purchasing new acetone.

Environmental Health & Safety encourages all Yale faculty, staff and students to minimize the amount of hazardous waste they generate, as well as the amount of hazardous waste requiring off-site disposal. If you would like to be a part of our ongoing efforts to create a successful waste minimization plan for Yale, please contact Environmental Health & Safety at 785-3551.

Winter Safety Tips (cont'd)

While driving in snow, slow down and increase following distances. When driving anti-lock brake equipped vehicles, do not pump brakes. Realize that heavier vehicles such as trucks take longer to stop, do not cut-off trucks. When safe to do so, stop to clean off lights, including brake and taillights.

If you are stranded, stay in your vehicle unless help is visible within a short distance. Tie a brightly colored cloth to the antenna and raise the hood. To stay warm, turn on engine for 10 minutes each hour. When vehicle is running, turn on dome light, this is a signal to rescuers. Keep exhaust pipe clear of snow and when vehicle is running open downwind window slightly. Use minor exercise occasionally.

Sources

American Academy of Pediatrics, 11/08
American Academy of Orthopedic Surgeons
CDC. Extreme Cold, 1996
National Fire Protection Association (NFPA)
National Highway Safety Administration (NHTSA). Winter Driving, 12/99
National Safety Council, 12/99
NY State Disaster Preparedness Commission
U.S. Consumer Product Safety Commission

Environmental Health & Safety's training room is located at 135 College Street, in the Lower Level, Room 15.

NOTICE:

You need an active NETID to log onto the EHS online trainings. Please contact your business office to process your activation request.

Safety Training

Winter
2009 **EHS**

Biosafety Training

This training covers work practices, safety equipment and facility requirements used to work safely at Biosafety Levels 1 and 2. Incident response and emergency spill clean up protocols are also reviewed.

Wed. Feb. 18th, 2009 10:00AM -12:30 PM
Thurs. Mar. 19th, 2009 1:00 PM -3:30 PM

Biosafety Level 3 Training

Mandatory for employees prior to initiating experiments with agents classified at BL2+, BL3, or BL3+.

Fri. Jan. 30, 2009 2:00 PM – 4:00 PM
Fri. Feb. 27th, 2009 2:00 PM – 4:00 PM
Fri. Mar. 20th, 2009 2:00 PM – 4:00 PM

Bloodborne Pathogens Training for Lab and Clinic Personnel

Required annually for laboratory and clinic personnel working with human materials, including blood, body fluids, unfixed tissues, human cell lines or bloodborne pathogens, this training covers the exposure control principles and practices encompassing engineering controls, work practices and personnel protective equipment.

Initial Training

Wed. Jan. 7th, 2009 1:30 PM – 3:30 PM
Tues. Jan. 20th, 2009 9:00 AM - 11:00 AM
Thurs. Feb. 5th, 2009 9:00 AM - 11:00 AM
Wed. Feb. 18th, 2009 1:30 PM – 3:30 PM
Tues. Mar. 3rd, 2009 9:00 AM - 11:00 AM
Wed. Mar. 18th, 2009 1:30 PM – 3:30 PM

BBP Training Online:

Bloodborne Pathogens for Lab Personnel

<http://info.med.yale.edu/bbp>

Bloodborne Pathogens Clinical Personnel

<http://info.med.yale.edu/bbpclinical>

Safe Use of Biological Safety Cabinets

This training reviews the biological safety cabinets, their limitations, proper use techniques, and certification and repair procedures.

Thurs. Jan. 22nd, 2009 9:30 AM - 10:30 AM
Tues. Feb. 24th, 2009 1:30 PM - 2:30 PM
Thurs. Mar. 19th, 2009 9:30 AM - 10:30 AM

Office Ergonomics

Are you satisfied with your office workstation? Call your Safety Advisor to schedule a personal assessment.

Laboratory Chemical Safety

This required training covers the hazards of chemicals in the workplace, including information on hazard classes and exposure limits. Training on personal protective equipment selection and use is also given during this course.

Tues. Feb. 17th, 2009 1:00 PM - 2:30 PM
Wed. Mar. 18th, 2009 9:15 AM - 10:45 AM

Chemical Safety Training Online:

<http://info.med.yale.edu/chemsafe>

Chemical Hazardous Waste Training

This is an interactive training course in chemical waste management on the proper collection, storage and labeling of chemical wastes. This course is only available on the web at:

www.yale.edu/oehs/onlinetraining/hazwaste/chemicalwaste.htm

Safety Orientation for Non-Lab Personnel

This course combines three required training classes for non-laboratory personnel: Bloodborne Pathogens, Chemical Safety, and Radiation Safety. This training fulfills the annual requirement for bloodborne pathogen training.

Wed. Jan. 7th, 2009 8:30 AM - 9:40 AM
Wed. Feb. 4th, 2009 8:30 AM - 9:30 AM
Wed. Mar. 4th, 2009 8:30 AM - 9:30 AM

Shipping and Transport of Hazardous Biological Agents

This course reviews the shipping regulations from the Centers for Disease Control, the Department of Transportation (DOT), and the International Air Transport Association (IATA). Packaging, permits, shipping declaration forms, labels, and emergency response are among items that will be addressed. This is a mandatory course for employees sending, transporting, or receiving infectious substances.

Wed. Jan. 21st, 2009 10:00 AM - 12:00 PM
Wed. Mar. 25th, 2009 10:00 AM - 12:00 PM

Powered Industrial Vehicles

This training is mandatory for personnel who operate a PIV (Powered Industrial Vehicle). The training is in two parts, and consists of a combination of formal and practical hands-on instruction, and an evaluation of the operator's performance at the workplace. Annual renewal will only require part two: demonstration of competency. Call 785-3211 to participate in the next group training session and to arrange for an evaluation.

Respiratory Protection Training

Respiratory protection training and fit testing is required initially and annually for all respirator wearers.

If you already have and/or wear a respirator, please bring it with you to this class so that you can be fit-tested.

Mon. Feb. 9th, 2009 9:00 AM – 10:00 AM
Thurs. Mar. 5th, 2009 11:00 AM – 12:00 PM

Radiation Safety Training

Mandatory two (2) part training: Basic and Applied, for personnel working with radioactive material or frequenting an area where radioactive materials are stored or used.

Radiation Safety Basics Part I-Web Training is a mandatory prerequisite to the instructor lead course; Applied Radiation Safety-Part II. A quiz is included after this course.

Personnel must complete Applied Radiation Safety-Part II to fulfill their requirement. Registration for part II will be open to enrollees 24 hours after completion of Radiation Safety Basics-Part I.

Remember: both trainings are required to fulfill your Radiation Safety training requirement. For questions, please call 737-3211.

Radiation Safety Training Online:

Radiation Safety Basics-Part I Web Training

www.yale.edu/oehs/onlinetraining/RadiationSafety/RadiationSafety.htm

Radiation Safety Classroom Sessions: Applied Radiation Safety-Part II

Tues. Jan. 13th, 2009 1:00 PM – 2:30 PM
Thurs. Jan. 29th, 2009 9:30 AM – 11:00 AM
Tues. Feb. 10th, 2009 1:00 PM – 2:30 PM
Thurs. Feb. 26th, 2009 9:30 AM – 11:00 AM
Tues. Mar. 10th, 2009 1:00 PM – 2:30 PM
Thurs. Mar. 26th, 2009 9:30 AM – 11:00 AM

Tuberculosis Awareness Training

Mandatory training for personnel in a clinical setting with potential exposure to TB positive patients. In order to receive your requirement credit for this course you must complete and pass the quiz at the end.

Tues. Jan. 13th, 2009 9:00 AM - 11:00 AM
Wed. March 18th, 2009 9:00 AM - 11:00 AM

Tuberculosis Awareness Training Online Tuberculosis Awareness Web Training

www.yale.edu/oehs/onlinetraining/TB/TB.htm

All EHS training sessions are held in the EHS training room, located at 135 College Street, Lower Level, Room 15.

An active NETID is required to access EHS online trainings.

Please contact your business office to process your activation request.

Call EHS at 785-3211 or email: safetytraining@yale.edu if you have questions regarding your training or for additional information.