

We're Having a Heat Wave ! Avoiding Heat Stress

The first heat wave of the season is always extra-stressful, and we are likely to experience a few more periods of hot weather this summer. We'd like to remind you to take special precautions to avoid heat-related illness in unusually hot weather when working outdoors or in unconditioned indoor environments.



People suffer heat-related illness when their bodies are unable to regulate internal body temperature. In hot weather, the body normally cools itself by sweating. Under some conditions, however, sweating isn't enough. Such conditions include high humidity, where air movement is limited, working in the direct sun, heavy physical exertion and poor physical condition. Some medical conditions and medications can also reduce the body's ability to tolerate heat. Still, heat-related illness is preventable by following these guidelines when working outdoors in hot weather:

- Drink small amounts of cool water frequently, regardless of your activity level. Drink throughout the day. Don't wait until you're thirsty.
- Replace salt and minerals you lose in sweat with a sports drink.
- Wear appropriate clothing. Choose lightweight, light-colored, loose-fitting clothing.
- Protect yourself from the sun by wearing a wide-brimmed hat, sunglasses and sunscreen—SPF 15 or higher—are also recommended.
- Schedule outdoor work carefully. If outdoor work must be done in hot weather, try to limit it to morning hours. Limit sun exposure during mid-day hours. Supervisors should consider rotating outdoor work schedules.
- Pace yourself. Start slowly and pick up the pace gradually.
- Monitor yourself for the signs and symptoms of heat-related illness, listed below.
- Take time to cool down. Rest often in shady areas, or in an air-conditioned area.
- Use a buddy system. When working in the heat, monitor the condition of your co-workers and have someone do the same for you.
- Monitor those at high risk. Some people are at greater risk than others, including people who are overweight, people who overexert themselves, and people with heart disease or high blood pressure, or who take certain medications.
- Take time to acclimate to heat and humidity. A heat wave is stressful to your body. You will have greater tolerance for heat if you limit physical activity until you become accustomed to it.

Signs and symptoms of heat-related illness include headache, dizziness, lightheadedness, fainting, weakness, mood change, mental confusion, upset stomach or vomiting. An employee experiencing the above symptoms should be taken to the nearest hospital emergency department as soon as possible. Contact Yale Employee Health at 203-432-7978 if you have any questions.

Departments with employees who normally work outdoors or in unconditioned indoor environments need to address heat stress when planning their work. Supervisors should

review safety precautions and warning signs with their employees. For further assistance, please contact Yale Environmental Health and Safety (EHS) at 203-785-3550. EHS can also suggest appropriate controls to reduce your risk of heat-related illness.

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EHS is dedicated to reducing injuries, accidents, environmental impact, and ensuring compliance. We achieve this by providing high quality training, comprehensive workplace evaluation, managing regulatory information, emergency response and hazardous materials management from acquisition to disposal.

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Chemical Clean Out Day – A Success Story

On May 27th, EHS hosted a special chemical clean out day for the Chemistry Department. The department was notified that on this one coordinated day, any unwanted or expired chemicals could be properly disposed of without having to fill out the usual paperwork and forms. Instead, they had to safely bring their containers of chemicals to the EHS waste facility located under the chemistry stockroom at 350 Edwards Street. Yale's hazardous waste vendor was brought in for the day and worked along side EHS technicians to package and label the waste as it was received.

The day was a huge success due to Chemistry Department's cooperation and willingness. Six chemists took a full day to segregate, commingle and package the waste for disposal. Many pyrophorics, poisons and acutely hazardous chemicals were removed including:

- 67 shipping containers ranging from 5 gal to 55 gal in size
- 14 gas cylinders
- 1650 lbs of hazardous waste shipped off site

The lab that cleaned out the greatest number of chemicals was promised a pizza party for their lab, with Herzon lab the overwhelming winner.

Due to the success of the day and the potential to reduce flammable loads and hazards from lab spaces, EHS will try replicating these special clean out days on other parts of campus. Please remember to periodically review your inventory of chemicals and contact EHS for pick up. Let us know if a chemical is suitable for reuse and we can put it in the chemical reuse inventory and post on our web page. Others can receive the chemicals free of charge. If you'd like to see the list of surplus chemicals EHS has to offer, visit: <http://www.yale.edu/ehs/chemdist.htm>.



Research Use of Controlled Substances Lecture Bottles

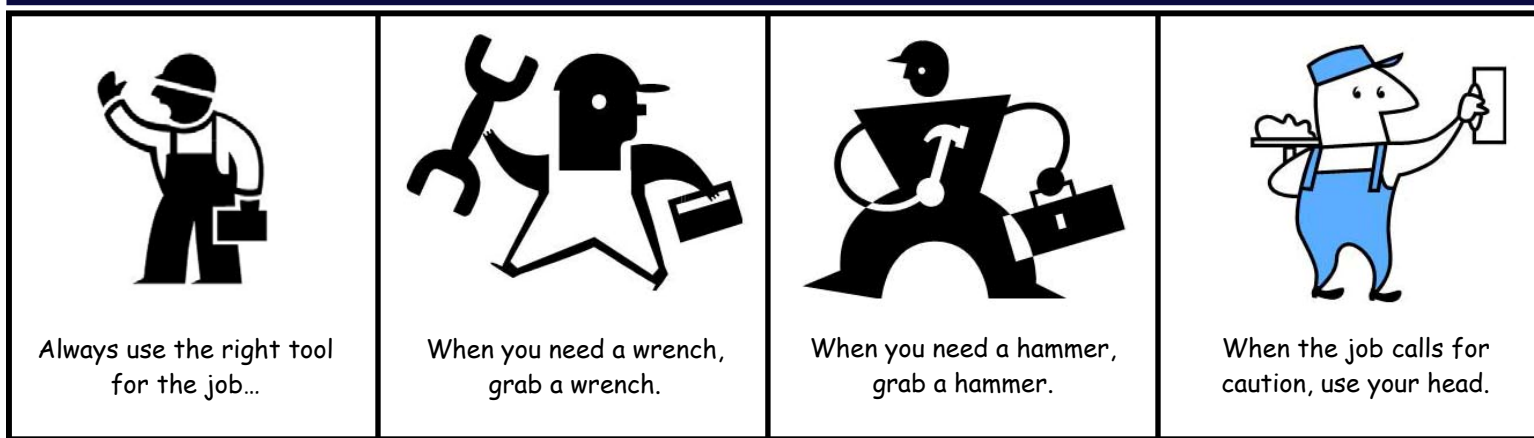


Due to their abuse potential, drugs identified as controlled substances by the US Drug Enforcement Administration (DEA) or the Connecticut Drug Control Division (DCD) are subject to extensive licensing, registration, storage, security,

use, and disposal requirements. Principal Investigators using these materials in their research (which includes research with animals or human subjects) are subject to these requirements. At Yale University, Environmental Health and Safety (EHS) has the responsibility for assisting researchers negotiate these requirements, including obtaining appropriate regulatory documents. Please note that these requirements are separate from and in addition to the requirements that apply to medical or veterinary practitioners. Therefore, MDs, MD/PhDs, and DVMs conducting laboratory or non-therapeutic human subject research with controlled substances must also obtain laboratory licensure and registration in addition to licensure for their medical or veterinary practice. For additional information about controlled substances in research, please consult the Yale EHS website at: <http://www.yale.edu/ehs/consub.htm> or call us at 203-785-3550.

Lecture bottles are small compressed gas cylinders that are useful for experiments where very small volumes of hazardous gases are needed, which makes it safer to use. Unfortunately, while most gas suppliers sell lecture bottles, they will not accept the cylinders back for disposal. As a result, many labs have kept lecture bottles for years in their labs. EHS will collect these cylinders, but must spend large amounts of money to safely and legally dispose of them. Because of these concerns about disposal, lecture bottles are rarely approved for purchase anymore at Yale.

Airgas is now marketing a returnable, refillable gas cylinder that can replace the lecture bottle for four of the more commonly used hazardous gases – sulfur dioxide, hydrogen chloride, ammonia, and chlorine. These cylinders can hold ½ lbs of product and are specially shrouded to prevent the cylinder from rolling and to protect the valve from damage. They also have a built-in flow control valve. These cylinders may be an excellent solution for research where only small amounts of these hazardous gases are required. Please contact matt.godbout@airgas.com for more information.



Always use the right tool for the job...

When you need a wrench, grab a wrench.

When you need a hammer, grab a hammer.

When the job calls for caution, use your head.

Incident Blotter



July 2010

Description: *Mercury Spill*

As part of a laboratory renovation, a contractor was breaking down piping in a mechanical space below the lab and mercury spilled from the drain trap while it was being removed.

Resolution: Contractor recognized the potential hazard, and left the area and contacted EHS. EHS surveyed the area and determined that airborne levels were low enough and cleaned up the mercury.

Lessons Learned: There is always a chance that mercury droplets will be found in sink traps in older lab buildings. Contractors and Yale plumbers have been trained to recognize mercury and on the proper procedure for breaking down lines and removing traps. Contractors were reminded that they must always have a bucket underneath the area and to place the traps in the bucket after removal.



June 2010

Description: *Overpressurization of glass reaction apparatus*

A student was working on a chemical reaction in a fume hood. At the final step during warming to room temperature, the glass overpressurized and shattered, causing lacerations to his face and arms. He was wearing safety glasses, which protected his eyes from the glass. No chemicals were released or spilled.

Resolution: 911 was called and the student was brought to the emergency room where he received stitches. The student, his PI and EHS reviewed the incident and identified steps for improvement.

Lessons Learned: This incident served as a vivid reminder of why eye protection must always be worn. It also reinforced the need to expand safety information on potential energetic reactions and additional safety steps to take.



May 2010

Description: *Needlestick*

While collecting trash from a lab, a custodian who was wearing shorts was stuck on the leg by a needle that had erroneously been placed in the regular trash bag.

Resolution: Custodian washed affected area with soap and water and was seen by Employee Health. Investigation of the origin of the needle determined that a new undergraduate student working in the lab had inadvertently thrown sharps, including needles, into the regular trash. Fortunately the lab worked with non-hazardous materials. EHS reviewed the issue with lab staff to remind them of the consequences of this careless action.

Lessons Learned: All sharps must be disposed of in appropriate, puncture-proof containers, even if they have not been used with hazardous materials. When supervising new students in the lab, always review proper disposal of materials. For custodians and most other staff on campus, long pants should always be worn when working in our near labs or with recognizable hazardous materials.

New Haven's "Downtown Crossing Project"



On Thursday June 24, 2010, a community workshop was held at the New Haven Public Library to discuss what is being called the "Downtown Crossing Project" to overhaul the eastern end of the Route 34 connector. The team, which includes Chan Krieger Sieniewicz (CKS) Architects, Parson Brinkerhoff Engineers, and Newman Architects, will be working on the traffic components, and the \$36 million dollars in infrastructure changes needed to prepare the area for development from the connector near the railroad station to the Air Rights Garage. The vision of the project is to reconnect neighborhoods and to transform this route from a "high speed thoroughfare" into a 10 acre destination which is already

zoned for mixed use development, with residential units as an anchor. Ease of access by pedestrians and cyclists will be a major emphasis.

Among other things, the team proposes to take advantage of the 12 foot drop in grade of the connector in some sections, and use North and South Frontage as multi-lane boulevards, while lower level driveways would connect the different parcels of the Downtown Crossing. Where the current bridges exist over the connector at College, Temple, Church, and Orange, "fill structures" may be used to support the road, which are retaining walls filled with soil, similar to causeways. The timeline was discussed at the community meeting with the preliminary design to be completed by 2011 and the final design by 2013. Construction will begin in 2013 and should be completed by 2016. According to Mike Piscitelli, Director of New Haven Transportation, Traffic, and Parking, the next project update will be sometime in the fall and progress on the project will be tracked on the city's website: <http://www.cityofnewhaven.com>.

Information was liberally gathered from articles in the online New Haven Register (June 25, 2010, Maureen O'Leary), and the New Haven Independent (June 25, 2010, Thomas MacMillan).

Autoclave Tape Hazard-Get The Lead Out Summer Attire in Laboratories

Some brands of autoclave tape contain lead, a toxic metal. Although these tapes do not pose health hazards from routine use in a lab, the concentrations are elevated enough to require a full role to be disposed of as hazardous chemical waste. **If your autoclave tape has stripes that run across the length of the tape at an angle (//////) and the tape is not labeled with the words "Lead-Free", it most likely contains lead.** If the tape has the word "autoclaved" in very faint text, it most likely is lead-free.



The following autoclave tape products do NOT contain lead:

- VWR - Autoclave Indicator Tape (VWR#: 73390-064)
- VWR - Autoclave Indicator Tape from TimeMed Labeling (VWR#: 14217-334; TimeMed Labeling#: TSI-534)
- SPS Medical - Latex/Lead Free Steam Indicator Tape (SPS Medical#: LF2-048)

Note: The Medical School and KBT stockrooms now carry only lead-free autoclave tape. If you purchase your tape through Sciquest, please purchase one of the listed lead free tapes.

If you suspect your autoclave tape contains lead or if you are not sure whether or not it contains lead, please contact EHS for disposal.

Summer time is often the most difficult time to enforce laboratory dress codes. Maximize your protection by following a few simple rules to keep yourself protected while working in the lab:

- Always wear long pants and shirts. Long lab coats and aprons should be worn for additional protection.
- Shoes should be worn at all times in buildings where chemicals are stored or used. Sandals and opened toed shoes or cloth sneakers should not be worn in laboratories or where mechanical work is conducted. Such footwear offers no barrier to chemicals or broken glass.
- Shorts, mini-skirts, and shirts that don't completely cover your upper body such as tank tops or cropped shirts, are not appropriate attire for labs even when worn under lab coats. Loose clothing (such as overlarge lab coats or ties), torn clothing and unrestrained hair may pose a hazard in the laboratory.
- Please remember, don't wear lab coats in public places such as offices, lunch rooms, lounge areas, outdoors, or anywhere else as they can transfer hazardous materials and contaminate these areas.

EHS Safety Training Information

Biosafety Training

Mandatory for employees prior to initiating work with agents classified at Biosafety Levels 1 and 2. Available online and classroom.

Biosafety Level 3 Initial

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

Bloodborne Pathogens

Required annually for laboratory and clinic personnel working with human materials, including blood, body fluids, unfixed tissues, human cell lines or bloodborne pathogens. Available online and classroom.

Chemical Hazardous Waste Training

This is an interactive training course in chemical waste management on the proper collection, storage and labeling of chemical wastes. Available online only.

Chemical Safety for Laboratory Personnel

This required training covers the hazards of chemicals in the workplace, including information on hazard classes, exposure limits, and personal protective equipment. Available online and classroom.

Dry Ice Training

This mandatory course is designed to fulfill performance-specific training requirements for employees sending, transporting, or receiving dry ice with no other hazardous materials. Retraining is required every two (2) years.

Formaldehyde Training

Training is required for all workers who are exposed to formaldehyde. This training must be completed annually.

Office and Workplace Ergonomics

If your job requires frequent or heavy manual lifting or if you need information on the setup of a workstation and the prevention of repetitive motion injuries, review the "**Ergonomics @ Yale**" website.

Powered Industrial Vehicles

This annual training is mandatory for personnel who operate a powered industrial vehicle or PIV. Call 203-785-3211 to schedule.

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. Employees must first complete the online session "Radiation Safety Basics-Part I" prior to enrolling in the classroom session.

Respiratory Protection

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

Safe Use of Biological Safety Cabinets

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

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. This is a classroom only training.

Shipping Infectious Substances – Category A

This is a mandatory course designed to fulfill performance-specific training requirements for employees who do any of the following: package, label, ship, prepare shipping documents, offer packages of hazardous materials to carriers for shipment, transport and/or receive infectious substances. This also fulfills the requirement for shipping materials classified as Biological Substance, Category B, Exempt Human and Animal Specimens and Dry Ice training. Retraining is required every three (3) years.

Shipping Biological Substances – Category B

This is a mandatory course designed to fulfill performance-specific training requirements for employees who do any of the following: package or label shipping materials, prepare shipping documents, offer packages of hazardous materials to carriers for shipment, or transport and/or receive biological substances. This training fulfills the requirements for shipping dry ice. Retraining is required every three (3) years.

Tuberculosis Awareness Training

TB training is mandatory for personnel in a clinical setting with potential exposure to TB positive patients. Available online or classroom.

EHS Web Trainings

Air Emissions Training

www.yale.edu/ehs/online/airmissions/airmissions.htm

Biosafety Training

www.yale.edu/ehs/online/BiosafetyPartI/BiosafetyPart1.htm
www.yale.edu/ehs/online/BiosafetyPartII/BiosafetyPart2.htm

Bloodborne Pathogens for Lab Personnel

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

Bloodborne Pathogens for Clinical Personnel

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

Chemical Hazardous Waste Training

www.yale.edu/ehs/online/hazwaste/chemicalwaste.htm

Dry Ice Shipper's Training

www.yale.edu/ehs/Documents/training/dryice.pdf

Formaldehyde Training

www.yale.edu/ehs/online/formaldehyde/formaldehyde.htm

Laboratory Chemical Safety

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

Laser Safety Awareness

www.yale.edu/ehs/online/laser/lasersafety.htm

Organolithium Compounds Training

www.yale.edu/ehs/online/OrganoLithium/OrganoLithium.htm

P. I. Orientation of Yale's Biological Safety Manual, Procedure & Policies

www.yale.edu/ehs/online/Biosafety/BioAdmin.htm

Safe Use of Biological Safety Cabinets

<http://www.yale.edu/ehs/online/safetycabinet/safetycabinet.htm>

Shipping Infectious Substances – Category A

<http://www.yale.edu/ehs/online/categorya/categorya.htm>

Shipping Biological Substance – Category B and Exempt Human or Animal Specimens

<http://www.yale.edu/ehs/online/categoryb/categoryb.htm>

Radiation Safety Training

Radiation Safety Basics–Part I Web Training

www.yale.edu/ehs/online/RadiationSafety/RadiationSafety.htm

Radiation Safety for X-Ray Technologists

<http://www.yale.edu/ehs/powerpoint/radtechs.htm>

Tuberculosis Awareness

www.yale.edu/ehs/online/TB/TB.htm

Universal Waste

www.yale.edu/ehs/online/universalwaste/universalwaste.htm

Workplace and Office Ergonomics

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

X-Ray Diffraction

www.yale.edu/ehs/powerpoint/X-RayDiffraction.htm

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The EHS training room is located in the lower level, Room 15, at 135 College Street. To find out upcoming classroom session date and times, visit Yale's training website at: www.yale.edu/training or call EHS at 203-785-3211. EHS offers a wide variety of safety trainings in classroom sessions as well as online. Be sure to complete your Yale training assessment at: www.yale.edu/training to find out what type of training is required for your job duties.