

## Minors in Laboratories

As the summer approaches, Yale experiences an increase of staff and students under the age of 18 in research laboratories throughout campus. This is an excellent opportunity for these students to get experience working in laboratories before attending college. However, there are federal and state regulations covering the presence of minors in the laboratory, and the University has developed the "Minors in University Laboratories" policy to assure compliance with these regulations, address safety concerns, and optimize the student laboratory research experience.

Under this policy, youths aged 12 to 17 may enter a Yale University research laboratory for a one time educational or recruitment purpose. Tours must be conducted with permission of the faculty member responsible for the laboratory and the Department Chair or his/her designee. The faculty member will be responsible for proper supervision and for providing any appropriate personal protective equipment for the visitors. Tours must be supervised at all times while on the premises, and tour participants may not participate in any laboratory activities. Children under 12 years of age are prohibited from entering laboratory areas under all circumstances.

Minor students aged 16 and 17 may work in a university research laboratory as part of an educational program approved by the Dean or Department Chair of the School and EHS. All minor students must complete the required safety trainings and adhere to all restrictions imposed by EHS. No persons under the age of 18 may work in a Yale University laboratory unless they are part of an approved program.

For additional information, please refer to the Minors in University Laboratories Policy [http://www.yale.edu/provost/html/minors\\_lab.html](http://www.yale.edu/provost/html/minors_lab.html).

Application for Student Minors to enter Yale Laboratories (completed by Faculty Sponsor): [http://www.yale.edu/provost/html/Minors\\_in\\_Labs\\_Application.doc](http://www.yale.edu/provost/html/Minors_in_Labs_Application.doc)

Parental Consent Form (must be completed by each minor student and parent/guardian): [http://www.yale.edu/provost/html/Minors\\_in\\_Labs\\_Consent.doc](http://www.yale.edu/provost/html/Minors_in_Labs_Consent.doc).

## Working Safely with Organolithium Compounds

Organolithium compounds are commonly used in chemical synthesis due to their unique reactive properties. However, they are also corrosive, flammable, and can spontaneously ignite in air. Yale EHS, together with members of the Department of Chemistry, have put together a web-based training program on working safely with organolithium compounds. This training provides an overview of the basic safety practices for working with these reagents. It includes a review of their hazards, facility and personal protective equipment requirements, and the appropriate procedures for setting up the reaction apparatus and transferring organolithium compounds.

This training is intended to supplement the specific hands-on training from the Principal Investigator and/or Senior Researcher in the laboratory. It is expected that anyone who will be working with organolithium compounds review this training course as part of their overall training and demonstrate competency to their PI before being allowed to handle organolithium compounds alone.

Access to this training program is available at: <http://www.yale.edu/ehs/onlinetraining/OrganoLithium/OrganoLithium.htm>



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## Employee Spotlight

We are pleased to introduce the newest member of the EHS team - Senior Health Physicist Corinne Mancevice.

Corinne is completing her Masters degree in Health Physics at the University of Massachusetts – Lowell. She has worked for the past four years as the Assistant RSO at Thermo Fisher Scientific in Billerica, MA and previous to this she served as a Senior Reactor Operator at the University of Massachusetts - Lowell, running their nuclear research reactor.

Corinne will be involved in all of our health physics programmatic areas, but will be most heavily involved in our radiation safety training program, the radioisotope use authorization, x-ray safety, and radiation safety survey programs as well as a member of our EHS emergency response team.



## Dosimetry Report

**To all Radioactive Material & X-Ray Equipment Users:** Be on the lookout for your annual dosimetry report and annual retraining document which will be coming out at the end of April. Please make sure to review the retraining document as it includes general safety reminders, results from the NRC inspection last November, and information related to your radiation exposure for 2009.

**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.**

## Incident Report

A small sampling of incidents Yale EHS responded to during the past few months...

### January 2010

**Description: Radioactive spill**

A researcher conducting a personal survey during research involving <sup>32</sup>P found one shoe and a small part of her lab coat was contaminated. This led to additional surveys of the space where several small areas on the floor in the lab were also found to be contaminated.

**Resolution:**

All members of the laboratory were surveyed by EHS and found that contamination was limited to the lab areas found by the researcher. Contaminated areas of floor were cleaned by EHS and clothing taken to decay. No contamination was detected outside of the lab. Room was cleared for re-entry.

**Lessons Learned:**

Researcher conducted thorough personal and area surveys contamination before it could spread to other areas. A review of work practices found that the contamination may have come from spin columns as they were being discarded. EHS recommends that spin columns should be put into secondary containers (plastic Ziploc bags, conical tubes, etc.) before being discarded to prevent any possible contamination.

### February 2010

**Description: Chemical splash to eye**

A lab researcher was pouring isopropanol into a waste container and was splashed in the eye. She was not wearing any eye protection.

**Resolution:**

The researcher rinsed her eyes at the eyewash for 15 minutes, then followed up at Employee Health. Luckily she only suffered irritation and no permanent damage.

**Lessons Learned:**

Eye protection must always be worn when working in a laboratory.

### March 2010

**Description: Methylene chloride spill**

Worker dropped a 4 liter bottle of dichloromethane on the floor, spilling approximately 1/3 of the contents.

**Resolution:**

Dichloromethane (methylene chloride) is a commonly used solvent that is also carcinogenic. It readily permeates most glove materials and the only approved respiratory protection for methylene chloride is SCBAs.

**Lessons Learned:**

Use of dichloromethane is strongly discouraged at Yale University, due to its high toxicity and the limited types of personal protective equipment effective at preventing exposures. A full risk assessment, including exposure monitoring, must be conducted before methylene chloride can be used outside of a research laboratory. In a research laboratory, all handling of methylene chloride must be performed in a chemical fume hood. A less hazardous chemical substitution for methylene chloride should be used whenever feasible.

## Air Emissions

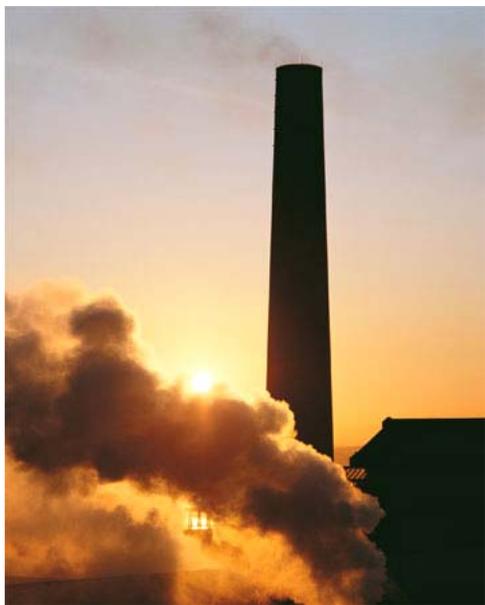
### New Air Emissions Training Available

Environmental Health & Safety has created a new on-line training course on Air Emissions, available on the EHS website at: <http://www.yale.edu/ehs/trainingenviron2.htm>.

This training is designed for Facilities operations personnel and others who install, operate, or procure sources of air emissions. The training discusses what are regulated air pollutants, the types of equipment that are considered air emissions units, actual versus potential emissions, state and federal air pollution regulations, and air emissions permit requirements.

Common types of equipment that can produce air pollution include natural gas or oil-fired boilers, furnaces and water heaters, emergency generators, paint and other material spray booths, solvent "parts washers," and even chemical and oil storage tanks. Pollution can be dispersed as dust from construction sites, solvent evaporation, and from chemical reactions. EHS maintains a list of all air emissions equipment on each campus; please contact us prior to procuring a potential source of air pollution so inventory can be updated, potential pollution can be calculated, and assessments to air permit requirements can be performed.

The University policy on Air Emissions is located: <http://www.yale.edu/ehs/Documents/environ/airdischarge.pdf>.



## Tick Tactics

Heading for the trails or planning on spending some time in the yard? Be on the lookout for those pesky creatures that lurk in moist, shaded woods, low growing brush, dense weeds, or piles of leaves, woodpiles, or areas of high grass. Yes, they're everywhere! Follow the 'tick tactics' below to protect yourself.



### Know your environment

If you're hiking, try to walk in the center of the trail. If you need to take a break, sit on a rock instead of on the ground.

### Raise your protective barrier

Wear long-sleeved shirts and long pants to keep your skin protected from ticks. Throw on a hat (make sure to tuck your hair under it). Ticks are usually found close to the ground, so tucking your pants into your socks or boots may provide extra protection.

### Repel

Use insect repellent on areas of your body and clothing that may come in contact with grass and brush. The CDC recommends the use of products containing active ingredients which have been registered with the U.S. Environmental Protection Agency (EPA) for use as repellents applied to skin and clothing.

Repellents containing 20% or more DEET (N, N-diethyl-m-toluamide) can be applied to the skin, and they can protect up to several hours. **Always follow product instructions!** Parents should apply this product to their children, avoiding the hands, eyes, and mouth. Repellents containing permethrin can be used to treat boots, clothing and camping gear which can remain protective through several washings.

### Tick Checks

Check your clothing to make sure there aren't any ticks on it. Don't forget about those other hiding places like your back, the top of your head, and in your hair. If you wear light-colored clothing, you can see ticks more easily and brush them off before they become attached to your skin. If you find one tick, keep looking—there may be others that you didn't see the first time around. Ticks are hard to see—nymphs (ticks that are not quite adults yet) are the size of a pinhead, and adults are smaller than a sesame seed.

### Removing Ticks

- Use fine-tipped tweezers to remove a tick. If you don't have tweezers, put on gloves or cover your hands with tissue paper, then use your fingers.
- Do not handle the tick with bare hands.
- Do not grab the tick around its bloated belly. You could push infected fluid from the tick into your body if you squeeze it.
- Grab the tick as close to its mouth (the part that is stuck in your skin) as you can. The body of the tick will be above your skin.
- Gently pull the tick straight out until its mouth lets go of your skin. Do not twist or "unscrew" the tick. This may separate the tick's head from its body and leave parts of its mouth in your skin.
- Put the tick in a jar filled with rubbing alcohol and save it for later identification if necessary.

## Green(er) Laboratories Update



Back in the Fall 2009 issue of the Yale EHS Safety Bulletin, we announced an initiative to create a Green Lab Certification Program. At that time, we had joined with Sustainability and Facilities Systems Engineering to develop a program where interested laboratory groups could sign up for the certification program, take a self assessment of what current green practices their labs are conducting or could easily implement and then see what other longer term changes they could put in place to create a more sustainable laboratory working environment.

Since fall, we have compiled a working group of volunteers including faculty, graduate students and staff and created a checklist of applicable sustainable categories and certification levels. The certification program is purposely similar in format to the Green Office Certification Program that is also being launched by Sustainability this spring. You are encouraged to become one of the first laboratory groups to join this new program and as a result be proud that your laboratory is reducing its impact in terms of energy, water consumption, resource use, and waste generation.

Be on the look out for additional announcements as we formally begin this program in May/June 2010. For more information, please check our website [www.yale.edu/ehs/sustainability/intro.htm](http://www.yale.edu/ehs/sustainability/intro.htm).

## Alternate Worker Safety Reminder

With the weather warming up, we are reminded that the end of the academic year is rapidly coming to a close, and with it, a change in work location for many employees in Dining Services and some other departments. If you will be performing Alternate Work this summer, please remember the following:

### The Basics:

- Talk with your summer supervisor – even if you've worked in this department before.
- Acquaint yourself with work locations and equipment, and ask questions if you are unsure of how to use or operate any equipment.
- Learn the location of safety equipment and emergency supplies.
- Be sure to wear the appropriate work clothing, and all required personal protective equipment (PPE).
- Know where the nearest sanitary and handwashing facilities are located.
- If you are going to be working outdoors, remember to drink plenty of non-caffeinated beverages, wear a broad-brim hat, and apply plenty of sunscreen no matter what your skin type. Take periodic breaks and be on the look-out for any of the signs of heat stress.

### Summoning Emergency Help:

- Dial 911 from any Yale or cell phone, and give as much information as you can. Try to be specific about your location.
- You can also hit the red button on any blue Yale Emergency phone for a direct connection to Yale Police.

### Minor Medical Issues:

- For minor medical issues that might arise during your work, but do not require emergency treatment, you may obtain first aid at the University Health Services Center Urgent Visit department even if you are not a Yale Health Plan member. Urgent Visit is located on the first floor of 17 Hillhouse (203-432-0123).
- As for any incident, be sure to notify your supervisor and arrange to fill out a report of injury form as soon as feasible.

# EHS Safety Training

## Biosafety Training

Mandatory for employees prior to initiating work with agents classified at Biosafety Levels 1 and 2. Classroom only.

## 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 in 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 in classroom.

## Dry Ice Training

This is a mandatory course 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.

## 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

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

## EHS Web Trainings

### Air Emissions Training

[www.yale.edu/ehs/onlinetraining/airemissions/airemissions.htm](http://www.yale.edu/ehs/onlinetraining/airemissions/airemissions.htm)

### Bloodborne Pathogens for Lab Personnel

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

### Bloodborne Pathogens for Clinical Personnel

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

### Laboratory Chemical Safety

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

### Chemical Hazardous Waste Training

[www.yale.edu/ehs/onlinetraining/hazwaste/chemicalwaste.htm](http://www.yale.edu/ehs/onlinetraining/hazwaste/chemicalwaste.htm)

### Dry Ice Shipper's Training

[www.yale.edu/ehs/Documents/training/dryice.pdf](http://www.yale.edu/ehs/Documents/training/dryice.pdf)

### Laser Safety Awareness

[www.yale.edu/ehs/onlinetraining/laser/lasersafety.htm](http://www.yale.edu/ehs/onlinetraining/laser/lasersafety.htm)

### Organolithium Compounds Training

[www.yale.edu/ehs/onlinetraining/OrganoLithium/OrganoLithium.htm](http://www.yale.edu/ehs/onlinetraining/OrganoLithium/OrganoLithium.htm)

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

[www.yale.edu/ehs/onlinetraining/Biosafety/BioAdmin.htm](http://www.yale.edu/ehs/onlinetraining/Biosafety/BioAdmin.htm)

### Safe Use of Biological Safety Cabinets

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

### Shipping Infectious Substances – Category A

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

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

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

### Radiation Safety Training

Radiation Safety Basics—Part I Web Training  
[www.yale.edu/ehs/onlinetraining/RadiationSafety/RadiationSafety.htm](http://www.yale.edu/ehs/onlinetraining/RadiationSafety/RadiationSafety.htm)

### Radiation Safety for X-Ray Technologists

[http://www.yale.edu/ehs/powerpoint/radtechs\\_files/frame.htm](http://www.yale.edu/ehs/powerpoint/radtechs_files/frame.htm)

### Tuberculosis Awareness

[www.yale.edu/ehs/onlinetraining/TB/TB.htm](http://www.yale.edu/ehs/onlinetraining/TB/TB.htm)

### Universal Waste

[www.yale.edu/ehs/onlinetraining/universalwaste/universalwaste.htm](http://www.yale.edu/ehs/onlinetraining/universalwaste/universalwaste.htm)

### Workplace and Office Ergonomics

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

### X-Ray Diffraction

[www.yale.edu/ehs/powerpoint/X-RayDiffraction.htm](http://www.yale.edu/ehs/powerpoint/X-RayDiffraction.htm)

## Yale *Environmental Health & Safety*

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[www.yale.edu/ehs](http://www.yale.edu/ehs)

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](http://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](http://www.yale.edu/training) to find out what type of training is required for your job duties.