Georgia Tech-Environmental Health & Safety

Fall 2006

Safety Buzz

www.ehs.gatech.edu

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From the Assistant Vice President of EH&S

Last fall a team of environmental health and safety directors from three major research universities with extensive bio-related programs performed a peer review of environmental health and safety activities at the Georgia Institute of Technology. The primary purpose of the review was to assess the ability of the Institute and the Environmental Health and Safety (EH&S) Department to assure the environmental health and safety of its students, faculty and staff in a more bio-intensive research environment in the future.

The review team recommended changes to further improve accountability, reduce institutional risk, enhance partnership opportunities, and address unmet operation needs at Georgia Tech. They stated Georgia Tech must enhance its biological safety program to support the planned increase in biotechnology research and the unique needs of research in the biological sciences. EHS has been challenged to enhance communications, better provide service efficiently and increase user involvement in the ownership of safety on campus.

The Department of Environmental Health and Safety has been restructured to reflect the recommendations of the external review team and the bio-related research directions of the Institute. Given the importance of this function to the future of the Institute, the position of Director of EHS has been elevated to an Assistant Vice President of EHS and a search has been initiated to fill this position. Mr Ed Guida, who had guided the department through its formative years, has taken a position in the Facilities Department, and I have agreed to be acting AVP pending the appointment of the new AVP. This position reports administratively through the Vice President of Administration and Finance and functionally to the Provost and the Vice President for Academic Affairs and the Senior Vice President for Administration and Finance.

EHS is bridging communication between the academic community by listening to your needs such as a coordinated program to inspect and certify all of the biosafety cabinets, laminar flow hoods and autoclaves on campus. Our coordinating the inspections of the biosafety cabinets, etc saves you and GaTech money while it ensures that all units are working at a standard intended to keep you safe as you do your research. We are also happy to announce that the decontamination of any Biosafety units needing it will use the safer, more efficient peroxide method of decontamination which can be done without shutting down your whole lab.

Also along the lines of new biotech related services being offered to you from EHS is our new biological and chemical material shipping program. Keep us all legal, avoid the hassle of learning all the regulations, and save yourself the cost of shipping supplies by calling us when you need to ship these potentially hazardous materials.

You will want to sign up the fire extinguisher training using our new training tool. Of course, you will have to get in line with EHS because we are all excited about getting to try this new tool too.

Lastly, many of you were here when the EPD inspected GaTech's main campus in 2001. It was a wake-up call for GaTech to be more proactive in managing the chemicals on campus. Thanks to your due diligence the

Cont'd on pg 2

Chemical & Biological Shipping Policy

By Michelle Short

Did you know that only certified persons can pack and ship potentially hazardous chemical and biological materials? All others are breaking the law, which can result in penalties for the sender and Georgia Tech. Let EHS be your trained professional!

The Environmental Health & Safety Department now has three certified, shipping specialists who will pack and ship biological and chemical material for you. **ALL** outbound shipments, no matter what size, of chemicals and biologicals from Georgia Tech's campus need to be handled by our department. Typical materials that fit these criteria are exchanges between researchers and sponsors, or returns to suppliers of excess materials or materials that do not meet specification. The chemical shipping specialists are Vanessa Keel and Therrell Hall. The shipping specialist for biologicals is Michelle Short.

EH&S provides most of the packing materials, which saves you money. You are responsible for the water-tight, inner container, which holds your material, and dry ice, if required. An MSDS must also be provided for shipments of chemicals. Give us a call and we will make recommendations on which type of inner container would be appropriate, based on your material. We will then supply the insulation packing and final outer packaging, along with proper labels, and coordinate the shipment with FedEx. EH&S covers the cost of the shipping boxes, but we require your PeopleSoft number to invoice the shipping charges.

Some shipments require a Material Transfer Agreement (MTA) or, if shipping internationally, an export review must be done before the material can be shipped. MTAs are normally needed when transferring material to another university or to the private industry. More detailed information regarding MTAs and export reviews is available on our website at www.ehs.gatech.edu/shipping.

Also included on our site are two separate shipping request forms, depending upon the type of material you want to ship- chemical or biological. Fill the appropriate form out and email or fax to our shipping specialists to start the process.

If you have any questions regarding this new shipping policy, please give one of our specialists a call:

Vanessa Keel at 385-2963,
Vanessa.keel@ehs.gatech.edu (Chemical)

Therell Hall at 894-9258,
Therell.hall@ehs.gatech.edu (Chemical)

Michelle Short at 894-9381, Michelle.short@ehs.gatech.edu (Biologicals)

From the AVP cont'd from pg 1….

2006 EPD inspection was vastly better. However, we have been warned that the EPD has given us (you and EHS) a year to "break in" our new chemical tracking software and more importantly, the processes built around it, to manage our chemical inventory. Then, the EPD will be back looking specifically for how well we are managing our chemical inventory and if we have improved our performance in the problem category of "storage in lieu of disposal". The good news? You are capable of anything you set your mind to do and we have been forewarned!

We hope you enjoy this issue of the Safety Buzz. Feel free to contact us at any time.

Fire Extinguisher Training

By Michael Hodgson

People often underestimate the danger of a fire and are unsure of how to decide if they should use a fire extinguisher. Georgia Tech's Environmental Health & Safety (EH&S) Fire Safety Office offers education and training to provide students, faculty & staff with an awareness level of knowledge that can guide their decisions when it is too dangerous to utilize a fire extinguisher. The purpose of this training is to provide instruction on how to size up a fire and understand the limitations associated with a portable fire extinguisher.

EH&S is available to provide training to all campus departments or organizations using the recently purchased fire extinguisher training simulator. Advanced sensor technology detects where the trainee aims and sweeps our compressed air and water training extinguishers called SmartExtinguishers™. The on-board control system realistically and automatically varies the propane-fed flames and can simulate Class A, B and C fires. In addition, there are four levels of difficulty to use. SmartExtinguishers™ can be quickly refilled in the field. Fire extinguisher training is now clean, safe and effective.

Fire Extinguisher Training Regulations

Fire extinguisher training is critical to preserving lives and property. Each year fire causes over $9 billion in direct property loss. Studies have shown that when an individual is properly trained on the use of fire extinguishers, they are two ½ times more effective when extinguishing a fire.

Training classes start with a lecture/presentation and then outside for the hands-on training weather permitting. Our goal here in EH&S is to train everyone on campus in the proper use of fire extinguishers. For more information, you can contact your Campus Fire Safety Office by sending an email to michael.hodgson@ehs.gatech.edu, or by calling 404-385-7474.

This is the old method.

This is using the simulator.

Institute Council on Environmental Health and Safety Announced !

An Institute Council on Environmental Health & Safety is being established in response to an external peer review last year. The Council will serve as a forum for development and implementation of policies and procedures for chemical, biological, radiological, occupational health and environmental health and safety, and for the integration of policies developed by compliance oversight committees pursuant to federal laws and regulations. The Council Chair will be appointed by Provost and Senior Vice President of Business and Administration. The members will be a subset of the Chairs of EHS and Compliance Committees. Three new EHS Committees are also being formed: Occupational Health and Safety, Chemical and Environmental Safety, and Biotechnology Safeguards. Committee Charters and other details are available on the EHS website (www.ehs.gatech.edu).

EPD Visit

By Ed Pozniak

On the 25th and 27th of April, the Environmental Protection Division of Georgia's Department of Natural Resources inspected Georgia Tech for compliance with hazardous waste regulations.

Overall the visit went well. Several labs were complemented on their organization, waste handling, and waste reduction efforts: Dr.'s Wilkenson, Collard and Bunz of Chemistry and Dr. Gang Bao of Biomedical Engineering. The inspector was also impressed with the on-going efforts to monitor and control inventory with CHEMATIX, Georgia Tech's chemical tracking tool.

There were some deficiencies - most were corrected on the spot. Specific corrective action on others has already been taken.

There was one prevalent deficiency - open waste containers. Hazardous waste regulations require that waste containers be kept closed except when waste is actually being added. But, it is not just a regulatory issue. Keeping containers closed (waste or new material) is just good practice. It limits loss of material by evaporation, prevents cross contamination, and reduces the hazard in the event of a spill.

One easy method for keeping containers closed is to use safety funnels like those pictured. These can be ordered from the Chemistry storeroom or purchased from most labware suppliers.
But you must still remember to **CLOSE THE LID!**

UPCOMING TRAINING EVENTS

Class	Date
Basic Lab Safety & Fume Hood Facts	Oct 24, Nov 28, Dec 13
Right to Know	Oct 24, Nov 28, Dec 13
How to Translate an MSDS	Oct 24, Nov 28, Dec 13
Advanced Lab Safety for PIs & Lab Managers	Oct 24, Nov 28, Dec 13
Defensive Driving	Nov 21
Bloodborne Pathogen Training	Call Lee Zacarias at 4-6119 for scheduling
General Biosafety Training	Call Lee Zacarias at 4-6119 for scheduling
Fire Safety Training	Call Mike Hodgson at 5-7474 for scheduling

Register at www.trainsweb.gatech.edu

Biological Safety Cabinet/Laminar Flow Hood/Autoclave

By Lee Zacarias

Inspections and Certifications

Environmental Health and Safety has stepped up to researchers' request to coordinate the inspection and certification all of the biological safety cabinets and laminar flow hoods at Georgia Tech. Autoclaves are also being inspected to ensure they are operating to manufacturer's specifications.

As of this date all identified biological safety cabinets, laminar flow hoods, and autoclaves have been inspected or certified. During the inspection and certifications of the biological safety cabinets and laminar flow hoods, blowers will be checked, HEPA filters will be inspected, cabinets will be checked for leaks, and air flow will be tested.

EHS will contract to have all biological safety cabinet, laminar flow hoods, and autoclaves on campus inspected, checked, or re-certified each year during the months of July and August. If anyone has a biological safety cabinet, laminar flow hood, or autoclave that was not checked or certified, notify the Department of Environmental Health and Safety.
All personnel should use care when servicing a biological safety cabinet. Biological safety cabinets are designed to filter out potential biological materials. Handling HEPA filters, repairing motors, etc., could expose personnel to unknown hazards. The contractor can perform needed repairs on your behalf, if you so request. Repairs performed by the contractor after October 2006 will be charged back to the PI's project.

The contractor who performed the biosafety cabinet inspections in July and August is one of the first companies in the US to adapt to the new biosafety cabinet decontamination process using hydrogen peroxide instead of the older Para formaldehyde process. This means the labs are not shut down during the decontamination.

Please contact EHS whenever you procure a new biological safety cabinet or laminar flow hood, move one, or your unit is repaired. EHS will arrange the certification, or recertification, of your safety units under our existing contract. For assistance or additional information, contact Lee Zacarias at 404-894-6119 or Michelle Short at 404-894-9381.

Pictured above is a biological safety cabinet.

Pictured above is a laminar flow hood. Notice, there is no sash in the front.

Pictured above is a fume hood. Vanessa Keel of EHS certifies these hoods.

Website Address

Change

Georgia Tech-Environmental Health & Safety

www.ehs.gatech.edu

Georgia Tech-Environmental Health & Safety

490 10th Street, 3rd Floor
Atlanta, GA 30318
Mail Code: 0465
Phone: 404-894-4636
Fax: 404-894-5042

In Case of Fire: Call GT Campus Police at 894-2500 or if Off-campus, call 911

Get to know your chemicals!

Written by Debbie Wolfe-Lopez

Benzene, Toluene, and Xylenes

Background
There seems to be a lot of confusion regarding the relative hazards of working with benzene, toluene, and xylene. Namely, toluene and xylene are often confused with their carcinogenic cousin, benzene. Toluene and the three isomers of xylene are in no way harmless, but as of yet have not been designated as carcinogenic by IARC, NIOSH, or the NTP.

Exposure Limits (American Conference of Governmental Industrial Hygienists Threshold Limit Values)

Criteria	Benzene	Toluene	Xylenes (mixed)
TLV (8 hour)	0.5 ppm	50 ppm	100 ppm
STEL (15 min)	2.5	none	150 ppm

Symptoms
Acute respiratory exposures of these chemicals all result in Central Nervous System (CNS) depression- starting with headache and/or dizziness and/or nausea which can progress to symptoms such as staggering gait, delirium, loss of consciousness, slowed breathing and (eventually) death, if the victim isn't moved away from the source of the chemical to fresh air. In addition, xylene exposure can result in cardiac sensitization to epinephrine, such as might be given in an Emergency Room to help revive an exposure victim. Exposures to vapors of these chemicals may cause skin and eye irritation as well as irritation to the mucus membranes of the nose and throat.

Chronic exposures toluene and xylene have been associated with liver damage. Benzene has been shown to damage bone marrow. The results are anemia and leukemia. All three chemicals are widely used in industry and there is a large body of epidemiological data on all of them. To date, only benzene carries the distinction of being carcinogenic.

Handling Procedures/Exposure Prevention
Use of these chemicals constitutes "wet bench chemistry" and require the use of safety glasses, lab coat, and gloves.

All three of these chemicals have high vapor pressures and should be handled in a hood.
Benzene has the greatest potential of the three to be absorbed through the skin. However, toluene and xylene may be absorbed as well. All three can cause irritation and defatting of the skin. Finding a glove to protect from the aromatic hydrocarbons can be difficult and expensive; it is therefore important to look at the process in which the chemicals are being used before making a decision.

Benzene

- For light exposures, such as just the protection from splashes: Heavy nitrile (15 mil)
- For heavier exposures: Silver Shield,® or heavy butyl rubber

Toluene

- For light exposures: heavy butyl rubber, or heavy nitrile (15 mil)
- For heavier exposure: Viton,® or heavy PVA

Xylene

- For light exposure: the use of light nitrile gloves is OK, if you change your gloves at the first sign of wetness- otherwise- heavy butyl rubber, or heavy nitrile (15 mil)

For heavier exposure Viton,® or heavy PVA

Please note that regular lab gloves, such as 3 mil nitrile examination gloves, have a 3 minute breakthrough time when exposed to benzene, 5 minutes when exposed to toluene, and 11 minutes when exposed to xylene.