



# Environmentally Speaking

A Newsletter by Environmental Safety Division

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## What's New at ESD?

### INTERIM ASSOCIATE VICE PRESIDENT

**William (Bill) Favaloro**  
*Interim Associate Vice President*

William (Bill) Favaloro, Outlying Facilities Manager, is the Interim Associate Vice President at Environmental Safety Division.

Bill has been with ESD for almost 11 years. He came to the university as a student and graduated in 1978. Upon graduating, he left for his hometown of New Orleans, Louisiana where he went to work in nuclear power generation with Entergy Corporation. He accepted a position at UGA in 1997 with Environmental Safety Division. He has served ESD in several capacities until he became the interim associate vice president replacing Wayne Dill who retired in November 2008. Bill will hold this position until a replacement for Wayne Dill has been found. ■■■



**Mike Stover seen here testing air flow rate at the face of a fume hood .**

## FUME HOODS

**Mike Stover**  
*Environmental Regulations Manager*

The fume hood program at UGA is a cooperative effort between the Environmental Safety Division and the Physical Plant. The Physical Plant handles the maintenance and the Environmental Safety Division ensures the fume hoods operate according to safety standards set by

the Board of Regents. There are approximately 950 fume hoods on this campus; so, as you can imagine, it is a big job. Walt Norton at the Physical Plant does an excellent job of scheduling the maintenance of the hoods and supervising the maintenance crew, and Mike Stover with ESD coordinates with Walt to determine which hoods need maintenance. The goal has a 95% efficiency rating in hoods operating vs. total hoods formula and we are better than that right now.

Mike said, "The fume hood is the largest and probably the most important safety feature in most labs and it is critical they operate safely. I enjoy this part of my job because it is hands-on, worthwhile, and the researchers and technicians really appreciate it." ■■■

## HART Team On-call for Hazardous Materials Responses

By: Wes Kolar



The ESD HART (Hazard Assessment Response Team) team is a group of hazardous materials technicians that are on call 24/7/365 to respond to the release of either chemical, biological, or radiological substances. Should you have a hazardous materials spill that is beyond the capability of your laboratory personnel to handle safely, please notify the HART team immediately.

During normal working hours, contact HART at (706) 542-5801. After hours and weekends, contact the HART team by calling UGA Dispatch at (706) 542-2200. For more information, please contact Wes Kolar, UGA Hazmat Response Coordinator, at (706) 227-7276, or visit our website at <http://www.esd.uga.edu/hart>.

Thank you, and work safely.



## An Introduction to Working with Formaldehyde

by Wes Kolar, UGA Hazmat Response Coordinator

Formaldehyde is an irritating, colorless and flammable gas that is used in a number of industrial applications including the production of chemical resins, rubber products, latex paints, dyes, plastics, paper products, and cosmetics. Formaldehyde may be found in a wide variety of commercial products including insulation, plywood, particle board, adhesives, new carpets, glues, disinfectants, fumigants, and fingernail products. It is typically employed in an aqueous solution containing 37.4% formaldehyde by weight. On the UGA campus, formaldehyde is widely used as a preservative in histology and pathology laboratories, and is often used to preserve tissue specimens. Several synonyms and trade names are used for formaldehyde including formalin, methaldehyde, methanal, methyl aldehyde, formol, formalith, paraform, and morbid

Formaldehyde is poisonous, and considered to be a carcinogen, as little as a couple of deep breaths of formaldehyde vapors, can result in unconsciousness and death. The most common signs of human exposure to low levels of formaldehyde include eye, nose and throat irritation, and tearing of the eyes. Relatively high exposure levels may also produce chest pain, shortness of breath, wheezing, coughing, and death. Additionally, formaldehyde is termed a "sensitizer" meaning that persons who work with it regularly may at some point develop a high degree of sensitivity to even very low levels of formaldehyde vapors. Once sensitization occurs, workers typically find it very difficult if not impossible to work in environments that contain even very low levels of the vapor. Owing to its toxic and irritating effects, OSHA has developed strict standards for workplace use of formaldehyde (29CFR1910.1048).

The OSHA Permissible Exposure Limit (PEL - average concentration that is considered to be safe to breath for up to eight hours/day) for formaldehyde is 0.75 ppm (part per million). The Short Term Exposure Limit (average concentration that is considered to be safe to breath for up to any given fifteen minute period) is 2.0 ppm. That is to say that a worker's average exposure level should not exceed 2.0 ppm for any fifteen minute period during the work day. OSHA has also defined an action level of 0.5 ppm. If and when formaldehyde levels in a work place reach an average of 0.5 ppm, employers must provide the following:

- 1) air monitoring to determine the exact level of formaldehyde vapors present;
- 2) medical surveillance of persons exposed to formaldehyde vapors; and,
- 3) a plan that addresses the limitation and/or reduction of formaldehyde vapors; and, in some cases may be required to provide respiratory protection.

The UGA Environmental Safety Division has a direct reading formaldehyde monitor that can be used to detect and log formaldehyde vapor concentrations as low as 2 ppb (part per billion), well below the OSHA mandated limits listed above. If you would like to have formaldehyde levels monitored in your area, please contact the author at (706) 227-7276. Medical surveillance typically involves self reporting of any signs of exposure to formaldehyde vapors, followed by a qualified physician's examination.

*(cont. on page 3)*

## Did You Know ...

Charles Meaders is the systems administrator specialist for ESD. He is the one responsible for the newsletter getting onto the website for all you readers to enjoy the ESD newsletter. He is responsible for the other information on our website as well.

Just wanted you to know who to thank for the ESD website.

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(cont. from page 2)

Whenever possible, formaldehyde should be replaced by less toxic substitutes such as dilute bleach, ethyl alcohol, or polyethylene glycol. Before working with formaldehyde, workers are required to be familiar with its toxic properties along with signs and symptoms of exposure. Several excellent sources of general information on formaldehyde safety are located online at:

- 1) General information - <http://www.atsdr.cdc.gov/tfacts111.html> , <http://www.epa.gov/iaq/formalde.html> , and, [http://www.osha.gov/OshDoc/data\\_General\\_Facts/formaldehyde-factsheet.pdf](http://www.osha.gov/OshDoc/data_General_Facts/formaldehyde-factsheet.pdf) ;
- 2) Management of exposures - <http://www.atsdr.cdc.gov/MHMI/mmg111.html> ) ;
- 3) Material Safety Data Sheets - <http://www2.hazard.com/msds/index.php> .

Employees must be familiar with work practices for using formaldehyde safely, including appropriate spill neutralization and clean up procedures. When working with formaldehyde, proper personal protective (PPE) equipment must be worn at all times, up to and including gloves (nitrile, butyl rubber, or polyethylene), goggles, face shields, and chemically resistant suits. PPE may also include respiratory protection as re-



**“Jane Ullah, research assistant, tests formaldehyde levels while Dr. Cherlyn Roberts works on a specimen in the Veterinary Medicine Gross Anatomy Laboratory.”**

quired by the work environment. Whenever possible, and in order to reduce hazardous fumes, work with formaldehyde should be conducted in a properly functioning fume hood.

When formaldehyde vapors exceed the 0.5 ppm average (OSHA action level) in a labo-

ratory, vapors can often be reduced with the aid of engineering controls such as fume hoods, or by increasing laboratory ventilation. Available is an additional engineering control in the form of specially designed filters which circulate room air and scrub formaldehyde vapors from the breathable air. Additionally, preserved specimens can be sprayed with products such as Infutrace and Formalex that react with aqueous solutions of formaldehyde converting them into non-hazardous liquids (see: <http://www.sascochemical.com/> ) and reducing the level of formaldehyde vapors that are given off to the room air.

The above article is intended as a brief introduction to working safely with formaldehyde. Before working with this potentially dangerous substance, readers are encouraged to learn more about the potential hazards and associated safety practices. For more information, please contact Wes Kolar at: [wkolar@esd.uga.edu](mailto:wkolar@esd.uga.edu). ■■■

## Next Newsletter

The next ESD newsletter will be Spring 2009 which will be online around the end of May 2009.

Remember, you can save the newsletter as a file in Word and read it at your leisure. More than one newsletter can be saved as a file. But, you can always go on the ESD website to read the present newsletter as well as later editions.

For safety, just read.

## Reducing the Risks of Contaminated Seafood

**By: Bill Favaloro, Outlying Facilities Manager**

**Contributed by: Lisa Liguori  
UGA Marine Extension Service  
715 Bay Street  
Brunswick, GA 31520**

In recent years, scientists have become increasingly aware of the long-term health risks associated with eating contaminated seafood. Consuming seafood with dangerously high levels of contaminants has been linked to cancer (PCBs) and irreversible neo-natal damage to nervous system development (mercury). For this reason, product and harvest warnings are especially crucial for women of childbearing age. In coastal Georgia, both PCBs and mercury have been detected in significant amounts in several local species. In fact, seafood consumption advisories exist in all six coastal counties.

Because contaminated seafood involves both local livelihoods and public health, the issue is a complicated and potentially a controversial one. People must be informed of existing risks, but not frightened into avoiding seafood altogether. Seafood is one of the best sources of Omega-3 fatty acids, which are especially important for the growth and development of children and for the health of new mothers. In many coastal communities, seafood serves as an inexpensive source of protein for families with limited options for affordable, healthy meals. Seafood also provides livelihoods for many commercial harvesters. In 2007 for example, Georgia crabbers landed 4,001,759 pounds of blue crabs worth \$3,103,406. While hard crabs are a popular seafood item for many locals, soft shell crabs are enjoyed as a luxury item, providing important supplementary income to crabbers with shedding facilities. Soft shell crabs continue to be a commercially valuable product with 2008 prices reaching \$13.17 per pound (DNR, 2008).

Glynn County, Georgia, has seventeen hazardous waste sites, four EPA Superfund sites, and six actively polluting industries. Children under the age of seven, young women, and those who are pregnant or nursing are advised to limit consumption of local fish and blue crabs to one meal per month in Glynn County. As this warning suggests, contaminated seafood presents serious risks to public health. However, not all areas are equally polluted and fear of consuming toxins may lead some people to avoid seafood altogether. For a coastal community with fishing traditions going back for generations, public perceptions of risk may have serious social and economic implications for the fishing industry.

Last year in a pilot study, the University of Georgia Marine Extension Service (MAREX) determined levels of PCBs and mercury found in blue crabs harvested near the abandoned LCP Superfund Site. This site is responsible for polluting over 500 acres of tidal marsh, causing severe ecological, economic, and social disruptions. The EPA estimated that 400,000 pounds of mercury were "lost" from this site during its seventy years of operation. Over the years, this site served as an oil refinery, a paint manufacturing company, a power plant, and a chlor-alkali plant. In addition to mercury pollution, this site has also been responsible for PCB contamination, specifically Aroclor 1268, a marker PCB which was not manufactured anywhere else in the world. MAREX initiated both community outreach and awareness efforts coupled with preliminary contaminant analyses of crabs collected in Glynn and McIntosh Counties (control area).

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## Shipping Hazardous Materials

By Brian Adams, Hazmat Facility Coordinator

The US Department of Transportation (DOT) has strict and complex regulations governing the shipment of hazardous materials through public contractors, i.e. FedEx, UPS etc. Shipping personnel must have specialized training and ensure specific packages, labels and paperwork are properly used. Therefore, the Hazardous Materials Treatment Facility (HMTF) has been designated as the one central hazardous material shipping center for the University of Georgia campus. All HMTF personnel are fully trained and have materials to handle shipment of most, if not all, hazardous materials. Please ensure any hazardous materials you need to ship off campus through a public contractor are coordinated through the HMTF.

Please keep in mind that there are very costly penalties associated with non-compliance of the DOT regulations. A person who knowingly violates the Federal hazardous material transportation laws can be fined, imprisoned or both. Monetary fines can range from \$275 to \$32,500 per day of offense for civil fines, a maximum of \$500,000 and/or up to 5 years in prison for criminal violations. Do not attempt to ship hazardous materials on your own, let us help you.

If you have a package to be shipped containing hazardous materials, please contact Brian Adams at (706) 369-5706 for assistance or visit us on the web at <http://www.esd.uga.edu/hazmat/>.

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Working with a local family living near this Superfund site, we collected and processed blue crabs for analysis. Ninth grader, Ben Varndoe, who participated in all stages of this project, had the opportunity to teach his classmates (both seniors and freshmen) about ways to reduce risks by properly cleaning contaminated crabs (Figures 1 and 2).



**Figure 1.** Ben Varndoe worked in the field and the lab with the Brunswick crew.



**Figure 2.** MAREX extended the outreach activities to include hands-on training for Cooperative Extension Agents from six counties and one hundred local high school students. A. P. science students prepared a sample for PCB and mercury analysis.

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## RAD DAWG NEWS

By: Jody Jacobs, Radiation Safety Manager

### Classes at T&D for January 2009

The next series of Radiation Safety training classes begins on Wednesday, February 11, 2009. These classes are available to all UGA faculty, staff, and students.

The classes are offered at Training and Development. To view class schedules or register, you can visit the UGA Self Service website at:

<https://employee.uga.edu/FacStaff/index.jsp>

The schedule for the Radiation Safety classes is as follows:

| Date/Time                   | Description                                 |
|-----------------------------|---|
| Feb. 11<br>1:15 -<br>4:30pm | Module 0<br>Orientation                     |
| Feb. 18<br>1:15 -<br>4:30pm | Module 1<br>Basic Radiation<br>Principles   |
| Feb. 25<br>1:15 -<br>4:30pm | Module 2<br>Safety and Radiation            |
| March 4<br>1:15 -<br>4:30pm | Module 3<br>UGA Site Specific<br>Procedures |

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## Helpful Tips for Hazardous Waste Removal

By: Jeff Shirey, Hazmat Technician and Matt Slafkosky, Hazardous Material Specialist

In the course of placing Chematix labels on your hazardous waste containers for disposal, there are several things you can do, and several things you should avoid, to insure that the process is as smooth as possible. The following is a list of do's and don'ts to assist you in labeling your lab waste containers:

### DO:

- Use rubber bands (size #64) or glassine bags to affix the tag to the container.
- Be sure to include accurate contact info on all forms and tags.
- Replace any tags that have been contaminated or defaced.
- Be sure to sign each tag.
- Place one tag on EACH container to be picked-up.
- Be sure that all percentages on tags equal to 100%.
- Include container size NOT amount in container.
- Use standard container sizes on the waste card (e.g. 100 g, 500 g, 500 ml) (container sizes are almost always on the label)
- Be sure that the container size is correct.
- Be sure that all writing on tag is legible.
- Peel off large sticky tab on glassine bag and NOT small tab so that we can access the tag inside.
- Include current contact information, phone and email.
- Notify us if your satellite accumulation area is full.
- Notify us if your pick-up is URGENT.

### DON'T:

- Use tape to affix tag to container.
- Seal glassine bag containing the tag.
- Use chemical formulas or abbreviations.
- Cover original label unless the container no longer contains that substance.
- Use an incompatible container or lid for container.
- Place the waste card in a location where contamination could occur if the waste container leaks.

There are also times when researchers are removing large numbers of containers from laboratories, often called "lab cleanouts." Before you begin filling out large numbers of tags, please call Hazmat at 369-5706, and we will come to your lab to examine the containers and determine which containers will require tagging. Many times we can reduce the tagging work substantially and cut down on wasted labor.

We also try to recycle containers as much as possible. If you would like to reuse your container, you will need to place the researcher name, building and room number prominently on the container in permanent marker. Be sure to write your request for your old containers on your next inventory, and we will bring them back when we revisit your lab. When the container is no longer deemed safe by the ESD staff, we will dispose of it. You can purchase new containers at Central Research Stores, 542-2411, or the vendor of your choosing. The catalog # for 5 gallon carboys is 721850. As always we will provide 55 gallon drums at no charge.

If you have any questions regarding hazardous materials, please call 369-5706 and we will be happy to answer your questions. ■■■

## Food Recall Information

By: Beth Maples  
Environmental Safety Specialist

There have been quite a few food recalls and safety alerts recently, ranging from tomatoes to peanut butter. When you learn of such recalls, please visit the FDA website (link below). This website will provide specific information pertaining to recalled products and gives you an option to sign up for recall email updates. Always feel free to call the ESD office if you have additional questions or concerns.

<http://www.fda.gov/cpacom/7alerts.HTML>

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## Chematix Update

By: Bill Megathlin  
Environmental Safety Specialist

As the first full year elapses since the Chematix Waste Module deployment, please remember that your Annual Online Responsible Management of Hazardous Waste training may also be expiring. The links within Chematix that you need to create waste cards and request waste pick-ups will disappear if your training expires. Go to <http://www.esd.uga.edu/hazmat/training.htm> to update your training. Be sure to enter your UGA Photo ID card number (**starting with 810**) in the field provided. Chematix records will automatically be updated when you complete the training. Please **do not** enter social security numbers. If you enter an incorrect number, Chematix will not be updated and you will need to call or email us so that we can manually update your record.

Also, as we have mentioned in the past, please do not tape your waste cards to your waste containers. Use a rubber band or clear plastic pocket whenever possible. To order additional plastic pockets, call CRS at 706-542-2411 and request catalog number 848519. Cards taped on waste containers causes damage and prevents our technicians from making EPA required notations on waste cards.

Radiologistix, the radiation safety module within Chematix, is currently being loaded with active rad material permit holder information as well as their corresponding isotope possession limits and inventories to prepare for the migration from the old "B-number" system. The new system is highly interactive and truly dynamic. Keep an eye out for Radiologistix to be deployed to your lab by the second half of 2009!

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# Electrical Fire Safety

**By: Tori Outlaw  
Fire Safety Inspector**

Each year in the United States, hundreds of people die and thousands are injured in accidents involving electrical fires. Most of these incidents can be prevented by following simple electrical fire safety rules. Although some of these fires are caused by electrical system failures and appliance defects, many are caused by the misuse and poor maintenance of electrical appliances, incorrectly installed wiring, and overloaded circuits and extension cords. Statistics show that winter is the most dangerous time of year for electrical fires. People tend to stay indoors and increase lighting, heating, and appliance use during the cold weather months.

## Electrical Wiring

Most electrical fires result from problems with "fixed wiring," such as faulty electrical outlets and old wiring. Many are caused by cords and plugs, such as extension and appliance cords. In urban areas, faulty wiring accounts for 33% of residential electrical fires. Misuse of electric cords, overloading circuits, poor maintenance of cords, and running cords under rugs or in high traffic areas often lead to electrical fires that could have been avoided.

## Home Appliances

Next to heating your home, appliances consume the most electricity and sometimes cause electrical fires. Those most often involved are electric stoves and ovens, dryers, central heating units, TVs, and radios. Always follow the manufacturer's safety precautions when using an appliance. Many people overlook warning signs such as overheating, unusual smells, short circuits, sparks and sputters. If any of these occur, the appliance should be immediately turned off and unplugged. Contact the manufacturer in order to determine what steps to take next. If the appliance functions well, you may have encountered an electrical wiring problem and should contact a certified electrician to check the wiring in your home.

## Some Safety Precautions

- Routinely check your electrical appliances and your home wiring.
- Replace all old, worn out, or damaged appliance cords.
- Use electrical extension cords as temporary wiring only.
- Keep clothes, curtains and other potentially combustible items away from all heaters.
- Never overload extension cords or wall sockets.

Have a working smoke alarm in your home and practice a home escape plan frequently with your family.

## Fuses and Circuit Breakers

When a fuse blows or a circuit breaker is tripped, find out what caused it to overload before replacing or resetting it. Correct the problem; and if you cannot find the source or feel uneasy about the situation, do not hesitate to call an electrician.

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### **Electrical Receptacle Outlets**

Have a professional electrician replace old or damaged receptacles with modern, three-wire, polarized receptacles. To minimize fire and shock hazards, proper grounding is essential. Make sure that appliance plugs match their receptacles. Never cut off or bend the ground pin of a three-pronged plug as this ground connection protects you from shock caused by a faulty cord or a malfunctioning appliance.

### **Warning Signs**

Many electrical problems can be detected before they cause a fire or harm someone. To better ensure electrical fire safety, learn to be alert and pay attention to any irregular electrical function in your home. Some warning signs include:

- A recurring problem with blowing fuses or tripping circuit breakers?
- Experiencing a tingle when you touch an electrical appliance?
- Discoloration of wall outlets?
- A burning smell or unusual odor coming from an appliance or wiring?
- Flickering lights?

If you notice any of the above warning signs or if an appliance functions oddly, take appropriate measures to prevent an accident. Unplug the malfunctioning appliance immediately. If necessary, cut off power to the problem circuit by disconnecting the fuse or tripping the circuit breaker manually and locate the problem. Contact an electrician or call the power company to inspect the electrical connections outside your home. Electrical fire safety is a serious matter and precaution is of utmost importance.

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