

Environmentally Speaking

The University of Georgia
Environmental Safety Division

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Director Notes

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Dear Colleagues:

The University of Georgia is required by the Georgia Environmental Protection Division to develop an emergency operations plan to establish response activities during a number of potential emergency situations, including natural disaster, fire, spills and civil unrest. This plan will supersede the existing Civil Disaster/Disorder Operations Plan written in 1993.



Approximately 200 buildings were targeted in the initial facility assessment in which departments were asked to update information with regard to floor plans, emergency resources, lines of communication, and divisions of responsibility. This information will be used to structure the "core plan" which sets forth in words, tables and flowcharts the designated procedures to follow for different types of emergencies. Another essential part of the new plan are tabletop drills which will be conducted annually in various buildings throughout campus.

We will soon begin interviewing for an emergency operations coordinator to implement and manage this plan. This individual will serve as a central point of contact for discussions of emergency plans and questions related to such planning. We look forward to announcing the appointment of a highly-qualified individual in the near future.

Thank you for your cooperation in this extremely important effort to maintain preparedness and ongoing safety at UGA.

Sincerely,

Kenneth A. Scott, Director



Thomas Wray preparing for one of his many demonstrations. Yes, that is a rubber chicken.

Hazardous Materials Chemistry for the Non-Chemist by Mark Harrison

The Environmental Safety Division sponsored the course "Hazardous Materials Chemistry for the Non-Chemist" last month. The seminar was conducted by Thomas Wray of the Professional Environmental Trainers Association. Over 45 people attended the seminar at the CCRC auditorium both days.

Mr. Wray covered various topics—from DOT, EPA, and OSHA regulations to inorganic and organic chemistry to list a few.

The seminar was enhanced by numerous visual effects, real life stories, and humor. The seminar kept the audience attentive with the many pops, booms, and bangs throughout the demonstrations. ESD will continue to sponsor seminars, classes, and training sessions throughout the year. Feel free to call (706) 542-5801 or visit our web site at www.esd.uga.edu to stay up to date with upcoming events.

June is National Safety Month

Since 1995, National Safety Month, sponsored by the National Safety Council, has reached more than 40 million Americans annually. The June observance was created to help raise awareness of on and off the job safety and health issues. Each of the four weeks of June will focus on different areas of safety. For more information visit www.nsc.org. The focal points of each week are:

June 4-10
Workplace Safety Week

June 11-17
Home Safety Week

June 18-24
Community Safety Week

June 25-July 4
Driving Safety Week

Can't Touch That!



Personal protective equipment protects our eyes, hands and other potentially exposed skin from exposure to hazardous chemical and biological agents. Carefully selected gloves, in particular, can protect hands from different hazards such as corrosives, solvents and infectious materials. In other circumstances, gloves are used to protect our research materials from contaminants carried on or shed by the skin.

Often lab workers move from one lab to another or to another part of the building while wearing gloves. When lab workers leave the lab with gloved hands, it is difficult for other people to determine whether the gloves are contaminated in any way. Concerns have been raised when gloved hands have contacted door knobs, elevator buttons and other common areas outside the lab. Many

non-lab staff are unfamiliar with the types of materials and procedures used in labs and assume that the main use of gloves is for handling particularly hazardous materials. Non-lab staff are especially worried that they may get a significant chemical exposure or an infectious disease by contacting surfaces outside the labs that have not been properly decontaminated. As a reminder, good lab practice indicates that wearing potentially contaminated gloves outside the laboratory is not appropriate. Other protective equipment, such as lab coats, shoe covers, masks, and head covers, must be removed when leaving the lab if potentially contaminated.

Modified from Lab Notes, October '99, Indiana University

EPA & Colleges

Recently, the Environmental Protection Agency (EPA) has pushed to inspect colleges and universities for hazardous materials and hazardous waste regulation compliance. The EPA has inspected major universities such as Stanford, USC, UCLA, Boston University, Harvard, and Yale. Individual departments, laboratories and research areas have been penalized for the improper use, handling, storage, and disposal of hazardous materials. Citations have ranged from \$50,000 to \$1 million. An inspection by a federal, state, or local regulatory agency can happen at any time. You should be prepared to answer questions concerning the use of hazardous materials in your area. The Environmental Safety Division can help assess your particular liabilities.

The following are the most common violations cited:

- ◆ open containers of hazardous materials
- ◆ unmarked, unlabeled, improperly labeled hazardous materials
- ◆ improper storage of chemicals
- ◆ no annual hazardous waste management training
- ◆ inadequate/outdated Material Safety Data Sheets
- ◆ inadequate/outdated chemical inventories
- ◆ improper disposal of hazardous waste
- ◆ storage of more than one quart of acutely hazardous waste in a laboratory
- ◆ hazardous waste stored in the laboratory for more than 90 days
- ◆ cluttered/unsafe work areas and lack of aisle space

Danger—Organic Peroxides Present By Wes Kolar

Organic peroxides are potentially explosive solids that form in many common organic liquids. These shock, heat, or friction sensitive compounds usually form upon exposure of the host organic liquid to air, heat, light, or contamination. The relative danger associated with a peroxide-forming chemical depends on the rate of peroxide formation, the stability of the peroxide, and the volatility of the host chemical. Obviously the most dangerous chemicals are those which quickly form high levels of relatively unstable peroxides.

The peroxide-level considered to be dangerous varies from chemical to chemical and with the stability of the peroxide formed. In some instances, a concentration as low as 100 ppm of organic peroxide is considered to constitute a potentially dangerous mixture.¹ Peroxide levels are fairly simple to test, but for obvious reasons testing should only be carried out by a qualified professional.

Volatile peroxide-forming chemicals are generally more dangerous than non-volatile ones, as evaporation of the host reagent results in the concentration of any peroxides that are present. For this reason, the distillation of peroxide-forming solvents (anhydrous ether, THF, etc.) must not be carried out until peroxide levels have been determined by an expert. Explosive levels of peroxides may also be formed by evaporation of a solvent under the cap of a bottle and around the threads. When employing peroxide-forming chemicals, care should be taken to wipe off the cap before it is placed back on the bottle. Alternatively, the cap can be rinsed with water in order to dissolve any peroxides present.

Peroxide-forming chemicals are typically divided into three groups, A, B, and C; the classification depends upon the nature of formation of the peroxide species. Group A contains chemicals that may form explosive levels of peroxides even in the absence of solvent evaporation. Group A peroxide-forming reagents are clearly the most dangerous of the three groups as explosive levels may be obtained without such human assistance as leaving a cap off of a container. In some instances with group A peroxide-forming chemicals, explosive levels have been reached over time even though the bottle had never been opened. Fortunately, only a few group A peroxide-forming chemicals are known to exist. The group A reagents most commonly encountered on the University of Georgia campus are sodium amide, isopropyl ether, and potassium metal. As with all chemicals employed in the laboratory, group A peroxide-forming chemicals should be dated upon receipt and upon opening. They should be stored away from heat and light, and should be kept for no longer than three months after they are opened.

Group B consists of chemicals that may form explosive levels of peroxides as a result of concentration due to evaporation of the host reagent. Several common organic solvents fall into group B including diethyl (anhydrous) ether, tetrahydrofuran (THF), 1,4 dioxane (para dioxane), cyclohexene, and 2-propanol (isopropyl alcohol). Group B peroxide-forming chemicals should be stored away from heat and light and should be kept in a lab for no longer than twelve months after they are opened.

Group C consists of monomers that may polymerize violently or explosively as a result of the presence of peroxides. Common group C peroxide-forming chemicals include butadiene, styrene, vinyl chloride, and tetrafluoroethylene. As with group B, group C peroxide-forming chemicals should be stored for no longer than twelve months after they are opened.

If you find old or outdated peroxide-forming chemicals in your laboratory, please contact the Hazardous Materials Treatment Facility (HMTF) at (706) 369-5706. Disposal procedures are generally simple and free of charge. Materials suspected of containing peroxides should not be moved, disturbed, or opened until the dangers can be properly assessed. Additional information on peroxide-forming chemicals can be obtained through HMTF, or through the laboratory safety group of the Environmental Safety Division at (706) 542-5801. The references listed below are excellent sources for reviewing the dangers associated with peroxide-forming chemicals.

References:

- ¹ Kelly, R. J.; "Review of Safety Guidelines for Peroxidizable Organic Chemicals"; Chemical Health and Safety, September/October, 1996, pp. 28 - 36.
- ² Wray, T. K.; "Danger: Peroxidizable Chemicals"; Hazmat World, November, 1992, pp. 48 - 49.
- ³ Jackson, H. L.; McCormack, W. B.; Rondestvedt, C. S.; Smeltz, K. D.; Viele, I. E.; "Control of Peroxidizable Compounds"; Journal of Chemical Education, March 1970, pp. A175 - A188.

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WE'RE ON THE WEB
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Kudos:

Thanks go to Dr. George Majetich for his assistance with the peroxide article.

Thanks go to Dr. Elizabeth Reitz for going above and beyond the hazardous waste management training requirements by sending her undergraduate class through the training.

Thanks go to Dr. John Wunderlich and his lab staff for outstanding labs and chemical inventories.

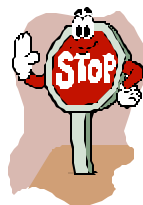
Thanks go to Thomas Wray of Professional Environmental Trainers Association for his outstanding seminar.

Congratulations to Mike Stover on his new title of Program Specialist.

Congratulations to Maria Kuhn on her new title of Program Specialist and the birth of her second daughter Madalyn Elizabeth.

Congratulations to Amy Andrews for being chosen to participate in Leadership Athens.

Mark it on Your Calendar !



Back by popular demand, the Environmental Safety Division will continue taking applications for the AAA Driver Improvement Program. Completion of this six-hour course by drivers who have committed no traffic offenses and have filed no claims based on fault against an insurer for the previous three years could qualify the participants for a 10% discount on his or her automobile insurance. You should check with your insurance company to see if they offer a discount. The course is limited to ten people, so sign up now! The six-hour course will be taught in two, three-hour sessions in the CCRC auditorium on Riverbend Road. The course is offered at no charge to UGA employees; however, employees' spouses and children are not eligible. Sign up on-line at www.esd.uga.edu or by calling 542-0113. Classes will start at 9 a.m. and end at noon on the following dates:

July 27 & 28

August 24 & 25

September 28 & 29

October 26 & 27

November 30 & December 1



The secretaries of ESD enjoy a break from phones and paper work at the secretaries luncheon. We know there is one day designated to honor you guys, but we appreciate you all year round! Thank you for everything!!

Front L-R: Judy Harper, Romeaser Lewellen, Marge Massey; back L-R: Amy Andrews, Joi Boyd



Remember the sunscreen and safety!

Have a great summer!!