

# ENVIRONMENTAL HEALTH AND SAFETY

THE UNIVERSITY OF  
MEMPHIS

Volume 20, Number 1

January 17, 2014

## Chemists Bulk Up, Turn Green, Save Green

With financial support from the Green Fee, the Chemistry Department purchased reusable solvent waste collection containers for use in several labs. These containers encourage better collection and management methods for liquid hazardous wastes.

By collecting compatible wastes in reusable containers that are then emptied into 55 gallon drums and comingled with other compatible lab wastes (a process called bulking), chemists are reducing the amount of waste shipped for disposal, increasing the amount of recycled waste, and achieving a significant reduction in disposal costs when compared to shipping wastes in multiple small containers called lab packs.

Thanks to all of you who manage wastes wisely and help reduce costs!

*What are you doing to reduce hazardous waste volume in your lab, shop, or studio?*

### Surge Protector Fire Hazard Abated

We appreciate all of you who took time to check for recalled APC surge protectors across campus, especially the LSPs who made a concerted effort to ferret out these potentially hazardous devices.

We understand that at least 100 recalled units were found and free replacements ordered from APC. Removing these potentially defective units from service reduced risks to personnel and facilities.

### Are You Using the Right Glove?

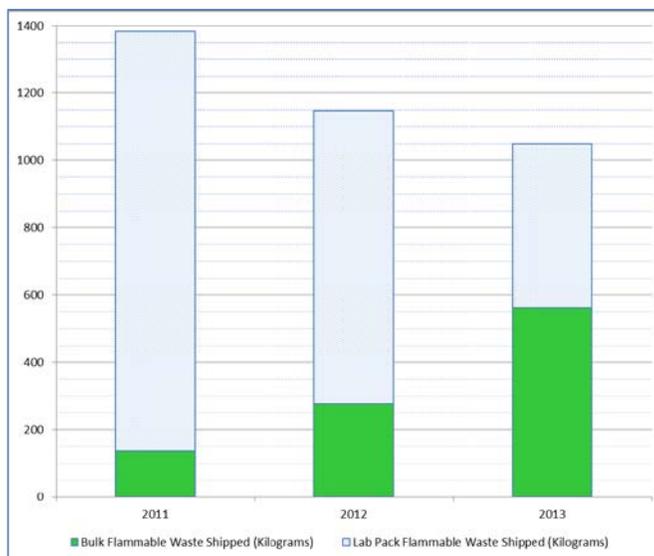
Whether you are working around the house, creating a work of art, or performing a laboratory procedure, gloves can literally be a lifesaver. Unfortunately, there is no one type of glove that protects you from everything.

The nitrile glove, for example, is a favorite in the laboratory; however, nitrile is not recommended for extended protection against such common chemicals as acetone, aniline, benzene, methylene chloride, nitric acid, concentrated sulfuric acid, and tetrahydrofuran.

Before putting on a pair of protective gloves, take time to think about how

they will be used and check the manufacturer's specifications and compatibility chart to confirm applicability for the job.

*Always wear the right glove for the job – and the left one, too!*



Bulk flammable liquid wastes (green) increased as lab packs (blue) and total mass decreased through bulking in Chemistry

### Inside this Issue

MIT Fined for Air Pollution Violations .....	Page 2
Death Results from Dow Lab Fire .....	Page 2
Global Mercury Reduction Efforts .....	Page 3
Radioactive Diapers Create Stink .....	Page 3
Isocyanate Safety an OSHA Priority .....	Page 4
Do As I Say, Not As I Do? .....	Page 4

## Arresting Sparks and Checking Valves

If your lab, shop, or studio has a torch supplied from cylinders of flammable gas (e.g., acetylene) and oxygen, please ensure that each of the supply lines is equipped with a spark arresting check valve.

Take time to examine the area between the torch valves and the hoses to see what device, if any, is placed in the lines, and make sure that the correct device is in place to prevent a dangerous flashback. Flashbacks occur when a flame travels back into a hose, causing a popping or squealing sound due to an explosion inside the hose, a phenomenon that has the potential to cause serious injury. If in doubt about the device attached to your torch, contact your gas supplier to make sure that you have the correct device installed in your system. [Thanks to Susan Fiscor of the University of Tennessee for first publicizing this issue.]



Combination spark arrestor and check valve for acetylene (red) and oxygen (green) supply lines

## MIT Fined for Air Pollution Violations

In an October, 2013, news release, the Massachusetts Department of Environmental Protection (MassDEP) announced that it “penalized the Massachusetts Institute of Technology (MIT) \$15,000 for air quality violations that occurred during 2010 and 2011.” The violations were detected after MassDEP reviewed reports submitted by MIT and inspected MIT’s central utility plant housing boilers, a combustion turbine, and an emergency generator. MassDEP also noted conducting “campus-wide inspections of emergency generators and boilers, focusing on their locations, exhaust stacks and emission records.”

In addition to the penalty, MIT will implement a training program for employees involved in monitoring air emissions and make upgrades to equipment identified by MassDEP. This is not MIT’s first costly regulatory experience, having paid hundreds of thousands in EPA and DOT fines since 2001.

## Death Results from Dow Lab Fire

A 51 year old Dow Chemical employee died as the result of a North Andover, Massachusetts, laboratory fire. *Chemical and Engineering News* reported that the fire was initiated when trimethylindium, a pyrophoric material, was exposed to air.

Circumstances surrounding the fire are unclear; however, it was noted that the employee may have been working alone in the lab. Investigators have yet to determine whether this tragedy was caused by mechanical failure or human error.

The U of M Laboratory Chemical Hygiene Program addresses working alone with hazardous chemicals in labs, often requiring written approval from the department chair and implementation of special procedures.

## OSHA Standards Not Adequately Protective

The Occupational Safety and Health Administration (OSHA) has acknowledged that its chemical “exposure standards are out-of-date and inadequately protective.”

In addition to releasing a tool to help employers select less hazardous chemicals, OSHA released Annotated Permissible Exposure Limits (PELs) that allow voluntarily adoption of more protective workplace exposure limits incorporating new scientific data, industrial experience, and technological developments since the original PELs were issued over 40 years ago.

The annotated PEL tables provide a side-by-side comparison of OSHA PELs, California PELs, National Institute for Occupational Safety and Health recommended exposure limits, and American Conference of Governmental Industrial Hygienists threshold limit values. The tables are available at <http://www.osha.gov/dsg/annotated-pels/index.html>.

## International Mercury Reduction Efforts

Late last year the U.S. signed the Minamata Convention in an effort to reduce global environmental contamination by mercury. A neurotoxin that is persistent in the environment and bioaccumulative, most mercury discharged into the environment currently comes from small-scale gold mining operations and emissions from coal-fired power plants.

*Think about how your use of electricity impacts global mercury pollution, and read about the people of Minamata.*

On another front, the World Health Organization is working with other groups to promote elimination of mercury from medical devices like thermometers and sphygmomanometers (i.e., blood pressure measuring devices) by 2020.

EH&S initiated a mercury reduction program on campus many years ago, greatly decreasing our inventory of mercury-containing devices. If you have mercury-containing devices that you would like to replace with less hazardous alternatives, just call us.

*Don't purchase mercury-containing equipment!*

## New Biological Safety Cabinet Videos

Biological safety cabinets and fume hoods seem simple enough, but work practices can either enhance their effectiveness or undermine their ability to protect laboratory personnel.

In addition to our on-line fume hood safety presentation, we have added a web link to several new biological safety cabinet videos from Nuair. Just click on the "Training" tab of the EH&S web site, scroll down to "On-line Training," click on the appropriate link, and have fun.

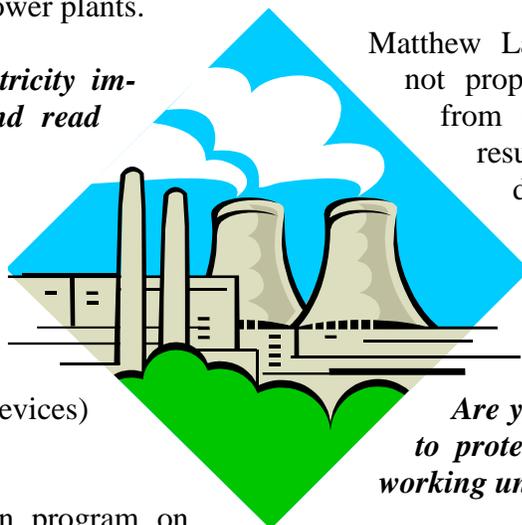
*Is everyone in your laboratory familiar with proper operation and use of the biological safety cabinet and/or fume hood?*

## Prison Sentence for Company Official, Violations Led to Worker's Death

The 41 year old former president and owner of Port Arthur Chemical and Environmental Services pled guilty in federal court and was sentenced to 12 months in prison and fined for crimes that resulted in the death of an employee.

Matthew Lawrence Bowman admitted to not properly protecting his employees from exposure to hydrogen sulfide, resulting in the death of a truck driver. He also admitted directing employees to falsify transportation documents to conceal the presence of the chemical.

*Are you taking the appropriate steps to protect all employees and students working under your supervision?*



## Radioactive Diapers Create Stink in Austria

FoxNews.com reported in January that Austrian hazmat personnel investigated the contents of a dump truck that triggered radiation alarms at an incinerator, finding several adult diapers that were contaminated with radioactive iodine. Someone at a medical facility apparently forgot that hot diapers from radioiodine dosed patients should be "aged" to let the radioisotope decay before disposal.

### Sources of Assistance

Director, EH&S .....	678-4672
Radiation Safety Officer .....	678-4672
Hazardous Materials Specialist .....	678-2044
Laboratory Safety Specialist .....	678-2740
Fax .....	678-4673
Emergency (Fire, Police, Ambulance, after hours Chemical/Radiological)	678-4357
EH&S Web Page ...	<a href="http://ehs.memphis.edu">http://ehs.memphis.edu</a>

## Isocyanate Safety an OSHA Priority

Isocyanates, found in some paints, varnishes, auto body repair products, and insulating products, are the subject of an OSHA emphasis program. Isocyanates are linked to occupational asthma and irritation of the eyes, nose, throat, and skin. Deaths are known to have occurred due to exposure.

Take a look at labels and Safety Data Sheets for products that you use, being particularly observant for the word urethane and chemical names ending in isocyanate or diisocyanate – especially if the product has a Part A and a Part B. If you find any of those clues, you may need to take special precautions when using the product or substitute a less hazardous product. Contact EH&S if you need more guidance on a particular product.

## Do As I Say, Not As I Do?

The National Highway Traffic Safety Administration (NHTSA) released a new *National Survey of Speeding Attitudes and Behavior* in December, 2013. While 91% of the survey respondents agreed with the statement that “everyone should obey the speed limits because it’s the law,” a good number of those respondents apparently felt that “everyone” meant everyone except them.

NHTSA’s report showed the following:

- More than 25% of respondents indicated that “speeding is something that I do without thinking” and “I enjoy the feeling of driving fast.”
- Twenty percent indicated that “I try to get where I am going as fast as I can.”
- Sixteen percent indicated that “driving over the speed limit is not dangerous for skilled drivers.”
- Drivers aged 16 to 20 years, the ones with the least experience, admitted to speeding more than any other age group, and 11% in this age group reported a speed-related crash within the past five years.

***“Better to be safe 100 times than dead once”***

## Chemical Safety Data in Your Hands

In addition to EH&S making Safety Data Sheets (SDS) available via any web-enabled device connected to the University network, Fisher Chemical now includes SDS links on its container labels. Just scan the QR code on the Fisher label, and the SDS can be displayed on your smart phone or tablet.



Scanning the QR Code at left retrieves a Safety Data Sheet (SDS) on an iPhone

***Are you reading the Safety Data Sheets for new chemicals before working with the chemicals?***

## Save Time, Keep Your Inventory Current

If you are using Chematix to manage your chemical inventory, please remember the following:

- Delete chemicals from the database as soon as they are used up,
- Update container locations in the database when they are moved, and
- Update the user list as personnel turnover.

Regular updating saves you time by reducing the number of labor intensive physical inventories and ensuring that unauthorized personnel do not have easy access to view or modify your inventory.

### Environmental Health & Safety Staff

Alton Simpson, Director

Katherine Shorter, Laboratory Safety Specialist

Erik Tyge, Hazardous Materials Specialist

Ann Marie Cowles, Senior Admin. Secretary

THE UNIVERSITY OF  
**MEMPHIS**

Environmental Health and Safety  
216 Browning Hall  
Memphis, TN 38152-3340

The University of Memphis is one of 45 institutions in the Tennessee Board of Regents System, the sixth largest system of higher education in the nation. It is an Equal Opportunity/Affirmative Action university committed to education of a non-racially identifiable student body. NL1314-24-02/50