OSEH Occupational Safety & Environmental Health

UPDATE

www.oseh.umich.edu

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Chemical Reactivity Worksheet

Anyone involved with chemical handling and mixing must be aware of potential reaction hazards. Recent events in laboratories across campus have highlighted the need for increased awareness of what can happen when chemical reactions occur - especially in closed containers. In one incident, two glass bottles containing cupric sulfate & ammonium persulfate were packaged as waste and awaiting pick up when they "unexpectedly burst". However, a quick check of the two chemicals involved indicates:

"Heat generation by chemical reaction, may cause pressurization" and "Combination liberates gaseous products, at least one of which is toxic; causes pressurization".

This example illustrates that this reaction was not "unexpected". Had the researchers been aware of what would occur when the chemicals were combined in a single container this event could have been avoided by simply not tightly capping the container until the reaction had finished.

A quick and simple tool is the "Chemical Reactivity" worksheet developed by NOAA. The chemical reactivity worksheet is a free database of reactivity information for more than 6,000 chemicals. By entering the chemicals of interest you quickly find out what dangers could arise when they are mixed. You can also determine whether a chemical reacts with air, water, or other materials.

There are some known limitations to the worksheet. If more than two chemicals are entered, the worksheet predicts the reactivity between all possible pairs of those chemicals. However, there may be instances where three or more chemicals can react together in ways the worksheet cannot predict. Also, there may be instances where two chemicals will not react when initially mixed but if left standing over time can form explosive peroxides.

The worksheet was developed by the Chemical Reactivity Team at the Office of Response and Restoration, National Ocean Service, NOAA. The latest version (1.9), released on April 6, 2007, is not compatible with the latest Macintosh operating system (OS X 10.4 Tiger). For more information and to download the program:

http://response.restoration.noaa.gov/chemaids/react.html

OSEH laboratory safety staff are available to answer your questions on reactivity hazards, especially if the NOAA program cannot help. Please call at 3-6973.

View the 2007 Safety Coordinator Conference Presentations Online at:

http://www.oseh.umich.edu/osehnewsletter.html

The Role of a Chemical Hygiene Officer (CHO) in Your Laboratory

Most laboratories have a customized chemical hygiene plan (CHP) but does your lab have a chemical hygiene officer (CHO)? Yes, the principal investigator is the CHO unless the PI has specifically designated another qualified person to fill this role. MIOSHA standard Part 431 Hazardous Work in Laboratories requires each lab using chemicals to develop a chemical hygiene plan (CHP) ***and*** designate a chemical hygiene officer (CHO). By definition, the CHO is the following: an employee designated by the employer who is qualified by training or experience to provide technical guidance in the development and implementation of the provisions of the chemical hygiene plan.

What are the responsibilities of the CHO?

- Enforcing safe work practices and overseeing day-to-day safety in the lab.
- Consulting with OSEH as necessary for assistance with matters of health and safety.
- Keeping all group members informed of the results of any inspections or monitoring results issued by OSEH.
- Investigating accidents and reporting as appropriate for your department.

For more information about the MIOSHA standard, visit our website:

http://www.oseh.umich.edu/mioshast.html

How do you get started?

1. The principal investigator can designate a qualified employee as the CHO.
   - Review CHP with new CHO.
   - Review above responsibilities with CHO.
2. The CHO could keep the CHP most easily maintained by organizing a team to develop a safety program that encompasses all elements of the CHP.
3. Team members can be assigned one or more components of the CHP (listed below) for which they are responsible.

- Standard Operating Procedures (SOPs)
- Employee training requirements
- Chemical inventory
- Personal protective equipment requirements
- Material safety data sheets
- Provisions for working with particularly hazardous substances
- Inspections and exposure monitoring records
- Disposal of waste materials
- Biological hazards
- Radiological hazards
- Laboratory animals
- Emergency plans
- Incidents, injuries and corrective actions
- Housekeeping inspections

If you have any questions, please feel free to call your OSEH Representative.

Jessica Herrst 647-9213	Medical Campus
Rhonda Sarkisian 936-3039	Central Campus
Kathi Lyon/Lisa Stowe 764-3078/647-5334	North Campus

Asbestos on Campus

Asbestos was commonly used in many building products, especially in buildings built before the 1980's. Materials that commonly contain asbestos include pipe insulation, floor tile, caulks, sealants, trowelled-on plaster, wallboard, fire doors, fume hood linings and lab countertops. As long as these materials are in good shape their risk to health is minimal. However if these materials become damaged and release fibers into the air, they can present a health risk in the form of lung cancer, mesothelioma and asbestosis. Symptoms of disease manifest themselves 10-50 years after exposure.

In order to safely manage asbestos containing materials, the University has had an asbestos management program in place for many years. This program follows the Environmental Protection Agency recommended philosophy of managing asbestos in place. Key aspects of the University's program include surveys to determine which building products contain asbestos, training of trades and building services personnel who are the most likely personnel to contact asbestos, and finally oversight of the asbestos repair and abatement (when needed) process. Only OSEH approved abatement contractors can work on campus. Abatement contractors typically conduct asbestos removal during large construction and renovation projects. The University also has a staff of licensed and trained individuals to conduct maintenance and repair related activities on a day to day basis. OSEH also has several consultants that assist with survey work, air monitoring during abatement activities and oversight of abatement contractors. When abatement activities are conducted, every effort is made to notify individuals in adjacent work areas. In addition signs are required by law to identify the "regulated area" or the area within which removal or repair activities are taking place.

In summary, asbestos is still present in some building materials on campus. If you suspect there is damaged asbestos in your work area or would like a material tested prior to disturbing it, contact OSEH at 7-1142.

For more information about Asbestos, visit our website:

http://www.oseh.umich.edu/topics_asbestos.html

Additional information is also available at www.epa.gov and www.osha.gov , search asbestos.

What is mold?

Molds are fungi that are found virtually everywhere, indoors and outdoors. In situations where mold growth is occurring, it may present a health hazard to occupants. Individual susceptibility, age, general health status and concurrent exposures to other irritants all factor into whether or not any particular person will have symptoms from exposure to molds. In general, there is agreement that removal of building materials supporting mold growth is prudent and should be done as soon as possible.

At the 2007 Safety Coordinator Conference a presentation was given which discussed mold and health effects associated with exposure, several mold remediation projects that have occurred on campus and techniques employed for mold investigations. The main focus was to provide strategies for the prevention of mold growth through prompt attention to water intrusions into buildings.

You can view the presentation at http://www.oseh.umich.edu/osehnewsletter.html

Are Your Radioactive Materials and Radioactive Waste Secured?

If not…we could receive a violation from the Nuclear Regulatory Commission!

In the past few months, Radiation Safety Service (RSS) / OSEH has been notified that unsecured radioactive material or radioactive waste had been identified in unattended laboratories or in laboratories whose doors had been left open or unlocked after-hours.

On at least one occasion, a University employee notified the Nuclear Regulatory Commission (NRC) directly to express his concerns, which prompted the NRC to contact RSS/OSEH for follow-up action. The NRC will undoubtedly follow-up on this situation during their next inspection at the U-M.

Please be reminded that all radioactive material users are **required** to ensure that radioactive materials and radioactive waste drums and jugs are secured from unauthorized use or removal, or that a lab member is in attendance of any unsecured radioactive material. Security of radioactive materials continues to be a primary concern to the NRC and Michigan Department of Environmental Quality (MDEQ). You are encouraged to question unknown individuals in your laboratory facilities.

A primary cause for leaving unsecured radioactive material unattended or in an unlocked laboratory is individuals rushing off to attend lab meetings. Leaving radioactive materials or radioactive waste in an unattended or unlocked lab during the day or after-hours is unacceptable.

Radioactive materials and radioactive waste may be secured by any of several effective means:

* locking an outer lab door,

* locking the door to an 'inner' lab room that's dedicated to radioactive material work or storage,

* using a cable lock or lockable box or lockable cabinet for the radioactive waste, or

* securing radioactive material in a locked cabinet, locked refrigerator, locked freezer, etc within a large open lab setting, like BSRB, LSI, or MSRB.

While locking an outer laboratory door is always the first consideration that comes to mind when securing radioactive materials, there are other alternatives. If the radioactive materials are secured within the lab (ex: locked refrigerator/freezer, cabinet, etc), then it is not necessary to lock laboratory doors or remain in attendance.

Immediately notify RSS/OSEH (764-4420) or the U-M Department of Public Safety (DPS) at 763-1131 or 911 on a campus phone if your radioactive material has been vandalized, is unaccounted for, or you suspect that it has been stolen.

We thank you for your vigilance! It will save us from receiving a violation!

Two New Employees Join OSEH's Environmental Stewardship Program

Megan Lazar who formally worked for OSEH's Environmental and Hazardous Materials Management Program has now transferred into the Environmental Stewardship Program and is the Pollution Prevention Specialist. This position became available as Kevin Ferrell completed his MBA and pursued a position in Washington D.C. Megan will be managing the fluorescent light bulb recycling program, the consumer electronic recycling program, mercury elimination program, and the chemical redistribution program. Megan will also be focusing on the development of new projects aimed at reducing chemical waste from teaching and research laboratories, along with other waste minimization programs across campus. Megan is excited about her new role and is an asset to the program. Megan can be reached through e-mail (meglazar@umich.edu) or contacted directly at 936-5238 to discuss P2 opportunities.

Ken Keeler is also a new addition to the Environmental Stewardship Program. Ken has transferred into ES after working eleven years with the OSEH Environmental Laboratory. Ken has assumed a newly created position focused on collection and management of operational related data and the development of an annual Environmental Report for the University. Ken will also be managing the University's Environmental Stewardship website as well as developing new environmental sustainability projects across campus. We are excited to have Ken take on this new role for OSEH, he can be reached via e-mail (KKeeler@umich.edu) or contacted directly at 936-6663.

To learn more about Megan or Ken visit our website:

Megan: http://www.oseh.umich.edu/lazar.html

Ken: http://www.oseh.umich.edu/keeler.html

Thoughts from the Director

By Terry Alexander

You may have already heard about some of the exciting organizational changes within the OSEH department. These were all effective July 1 and may create some changes when you are looking for a particular service. The Fire Safety Services and Emergency Preparedness Planning are moving from DPS to OSEH. Operational emergency functions within DPS and communications procedures are to remain unchanged.

What this means within OSEH is that we will have a new program area called "Fire Safety Services" reporting to Ian Steinman. Along with Ian will be Duane Lee, Greg Masters, Chris Brennan, Ron Heemstra, and Debbie Pipkin. Debbie will also be providing administrative support to Andy Berki's group. Fire Safety really is a strong fit for OSEH with further alignment of campus safety functions, and I fully expect good synergy between what we have been doing as individual departments and what we can now accomplish with every one within OSEH picking up some role in identifying fire safety issues.

The emergency planning function will be formalized under Andy Berki with a renaming of his program to "Environmental Stewardship & Emergency Planning." Jim Smiley will report to me but will be taking operational direction from Andy on the emergency planning aspects, as we have been doing for the last year in an informal sense. Nancy Evanski from DPS will be joining Andy's program to continue working with the emergency planning aspects. Operationally, DPS still maintains their role as incident command and other operational aspects remain unchanged - we will just be absorbing the planning and preparedness aspects. This fits well with the Business Continuity planning OSEH has been so heavily involved in over the last year, and we will continue our planning efforts on a campus wide basis with the planning group that Dr. Winfield has been leading - with a possible shift in emphasis from strictly infectious hazards toward an all hazards approach. You will be hearing more about this in the future.

I find this to be an exciting realignment of two very important programs within F&O. The emergency planning aspect is a good match since we have been doing this already for the last year with Barr Engineering and our deep role in the business continuity planning. DPS also has a very strong push to meet the challenges of the Virginia Tech incident and this will allow them to move forward with more focus on campus security preparedness. I believe this will bring our two departments closer together as we figure out the synergies needed to continue moving UM forward.

If you have any questions on these realignments, please feel free to give me a shout.

Contact Information

Ann Arbor Campus:
Occupational Safety & Environmental Health
1239 Kipke Drive
Ann Arbor, MI 48109-1010
(734) 647-1143

Dearborn Campus:
Campus Safety & Security
CSS
Dearborn, MI 48128
(313) 593-5333

Flint Campus:
Env. Health & Safety
204 University Pavilion
Flint, MI 48502
(810) 766-6763