EHS ENVIRONMENTAL HEALTH AND SAFETY

Lab Chatter

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Muster Points: Where to go… by Peter Nagle

A muster point is a place of gathering in the event of an emergency. During lab inspections, we have been asking lab personnel if they know where their buildings' muster points are located in case of an evacuation. It is important to know where your buildings' muster points are, not only for your safety, but for the safety of others as well.

Muster points serve several essential purposes in emergencies. First, they prevent mass chaos. In an emergency people tend to panic and scatter in all directions. In the mayhem, they'll push others aside and ultimately cause mass confusion, even among those who know what they are doing. Secondly, they clear the area quickly and allow emergency personnel to respond in a timely manner. Thirdly, muster points make it easier to account for all personnel, whereas if everyone scattered, it would be impossible to do an accurate roll call and allow emergency personnel to quickly determine if anyone is missing.

It is important to know where your buildings' muster points are located. If you do not know where your buildings muster points are, you can contact EH&S or Security. The muster points are also listed in pages 23-25 of the Clery Report which is published annually and distributed to the UNE community by the UNE Department of Safety and Security. To view the 2014 Clery report, click on the link below.

http://www.une.edu/pdfs/annual-security-report-and-annual-fire-safety-report

Protect Yourself: The importance of PPE by Jessica Tyre

The use of personal protective equipment (PPE) is required in specific work areas for the protection of workers from various occupational hazards. PPE is not a substitute for adequate engineering or administrative controls. PPE typically includes: gloves, lab coats, coveralls, eye protection, hearing protection, respirators, etc. Chapter 18 of the UNE Safety Manual covers the selection, care, and use of personal protective equipment at UNE, and applies to all personnel, contractors, and subcontractors. Employees who fail to wear the appropriate PPE outlined in their job description will be subject to disciplinary action by their supervisor or department head. All required PPE is provided by the employer at no cost to the employee and will be replaced, repaired, or replenished as needed.

If you are not sure what some of the hazards might be for a substance you are working with, you can always consult the Safety Data Sheet for that substance for PPE recommendations and guidance. In many lab settings, gloves and safety glasses are required at a minimum. Additional items such as lab coats or gowns may be needed depending on the work being performed. If you are using any equipment that requires hearing protection (such as ear plugs or ear muffs) or any type of respiratory protection, you are required to contact the Environmental Health and Safety Department to be included in the Hearing Conservation Program or Respiratory Protection Program. PPE is the last line of defense between you and an injury, illness, or potential chemical/biological exposures. Work smart, work safe!

Safety Spotlight

Our November Safety Spotlight is on:

Safety Data Sheets

You can find more information on this topic in the following locations:

- **UNE Safety Manual in Chapter 17_Hazard Communication**
- **OSHA website: https://www.osha.gov.**

The Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)), revised in 2012, requires that the chemical manufacturer, distributor, or importer provide Safety Data Sheets (SDSs), formerly Material Safety Data Sheets (MSDSs), for each hazardous chemical to downstream users to communicate information on these hazards. The information contained in the SDS is largely the same as the MSDS, except now the SDSs are required to be presented in a consistent, user-friendly, 16-section format.

Sections 1 through 8 contain general information about the chemical, identification, hazards, composition, safe handling practices and emergency control measures (e.g., firefighting). This information should be helpful to those that need to get the information quickly.

Sections 9 through 11 and 16 contain other technical and scientific information, such as physical and chemical properties, stability and reactivity information, toxicological information, exposure control information, and other information including the date of preparation or last revision. The SDS must also state that no applicable information was found when the preparer does not find relevant information for any required element.

The SDS must also contain Sections 12 through 15, to be consistent with the UN Globally Harmonized System of Classification and Labeling of Chemicals (GHS), but OSHA will not enforce the content of these sections because they concern matters handled by other agencies.

Section 1- Identification: Product identifier used on the label, manufacturer info, chemical use, etc.
Section 2- Hazard classification of chemical: (e.g. flammable liquid), signal word, hazard statement, etc.
Section 3- Composition/Info on Ingredients: Substance information, mixture information, trade secret, etc.
Section 4- First Aid Measures: describes initial care that should be given by untrained responders if exposed.
Section 5- Fire Fighting Measures: Recommendations for fighting a fire caused by the chemical.
Section 6- Accidental Release Measures: Appropriate response to spills, leaks, or releases, etc.
Section 7- Handling and Storage: Guidance on the safe handling practices and conditions for safe storage.
Section 8- Exposure Controls/PPE: Indicates exposure limits, engineering controls, and PPE that can be used.
Section 9- Physical & Chemical Properties: Identifies physical & chemical properties of substance or mixture.
Section 10- Stability and Reactivity: describes reactivity hazards and the chemical stability information.
Section 11- Toxicological Information: toxicological & health effects info or indicates data is not available
Section 12- Ecological Info *(not required)*: Evaluate environmental impact if it were released to environment.
Section 13- Disposal Considerations *(not required)*: Proper disposal, recycling or reclamation of the chemical.
Section 14- Transportation Info: Classification information for shipping and transporting hazardous chemical.
Section 15- Regulatory Info: Identifies the safety, health, & environmental regulations specific for the product
Section 16- Other Info: indicates when the SDS was prepared or when the last known revision was made.

For more detailed information, please visit: *https://www.osha.gov/Publications/OSHA3514.html*

Laboratory Safety Training for Student Employees

by Peter Nagle

As many of you know, all graduate or work study students are required to take the UNE Blackboard Training prior to working in a lab. The reason for this is that the OSHA Laboratory Standard requires any employee working in a laboratory where hazardous chemicals are present to be provided with training to ensure that they are apprised of the chemical hazards present in their work area. The OSHA Laboratory Standard defines employee as an individual employed in a laboratory workplace who may be exposed to hazardous chemicals in the course of his or her assignments. "Employed" is the key word here. Since many of our work study and graduate students are remunerated for their work in labs where hazardous chemicals are present, regulators would not differentiate between our definitions of work study student and employee in a laboratory setting. They would identify them both as employees. For this reason, UNE is required to train all paid personnel working in a laboratory setting and document that training. OSHA requires the following topics to be covered:

- Methods, observations and monitoring that may be used to detect the presence or release of hazardous chemicals
- The physical and health hazards of chemicals in the work area
- The measures employees can take to protect themselves from these hazards which include:
    - Engineering controls
    - Administrative controls
    - Housekeeping practices
    - Personal Protection Equipment (PPE)

UNE accomplishes this by requiring anyone who will be working in a laboratory to complete the Blackboard Laboratory Core training which includes:

- Hazard Communication (HAZCOM)
- Lab Safety
- Personal Protection Equipment (PPE)
- Hazardous Waste
- Radiation (if Applicable)
- Blood Borne Pathogens
- Fire Safety

Additionally all employees shall be trained on the applicable details of the Chemical Hygiene Plan. This is achieved by the Principle Investigators (PIs) as they perform on-the-job training for their personnel. The training, for example, could be working with cryogenics, which is covered in the UNE Chemical Hygiene Plan or a procedure that is specific to and written for a specific lab. Between the Blackboard Training and on-the-job training UNE complies with the OSHA requirement to train its laboratory employees.

What is Ergonomics?

by Ronnie Souza

Working safely begins with looking at the physical arrangement of your work space and the design of the tools you use. This draws from the science of ergonomics which strives to fit the work to the body, rather than forcing the body to conform to the work. The goal is to enhance human performance while improving health, comfort, safety and job satisfaction.

There is risk in the very nature of extended computer use. After sitting for a few hours, you get up and discover how stiff your body is. While you work you probably stretched your neck or rubbed your hands and wrists a little. Perhaps even worse, you felt some tingling in your fingers. But you are so busy or having such a good time or driven by a deadline so that you barely notice these small discomforts. Besides, they clear up as soon as you move around a little. And if they persist the next day, a couple of aspirin will do the trick, won't they? After all, we can't be seriously injured while we're sitting down, can we?

Here are a few ergonomic "tips" to consider:

1) Sitting places pressure on the spine and is not a neutral posture. It means you should stand up whenever you get the chance.

2) When the chin is dropped or raised, muscles have to work harder to support the head - no small task since it weighs on average about 15 pounds. This is why your monitor should not be too low or too high.

3) If you never make contact with the chair back, your trunk works harder to balance you. You will tend to slump back to make contact since it feels like a relief, even though it is "bad" posture. No back contact also means your trunk muscles work harder as you raise and use your arms. Think of the physics of what is going on as the loads increase when you lift your arms. This is why your keyboard should not be too high.

4) If your feet are not clearly in contact with a firm surface, then either your legs become a load on the spine, or you will stretch your ankles and legs to make contact (or get into weird postures like putting your foot on a wastebasket). It is better that you reach the floor. Footrests limit postural variety, so are best used as a last resort.

5) If the seat pan is tilted too far forward, you may feel you are sliding out of the chair, or just might not like the chair because it is adjusted wrong. Too much forward tilt also makes the legs do more work. At the same time, don't tilt too far back, because bringing the knees higher than your thighs starts to rotate the pelvis back and round out the spine. That reduces its structural stability, so muscles do more work.

6) Armrests that are too thin tend to require muscular efforts to keep the arms on them. Too hard and they can compress nerves, especially at the elbow. Too low and they encourage you to slump, though more often lean to one side. Too wide and you extend the arms out from the shoulders, too close and you do the same to avoid them as you work. Too high and they push up on the shoulders which push down in reaction (muscles always offer equal and opposite response, like Newton's law).

Where to start to get help?

At the first signs of discomfort, inform the Human Resources Department and complete an Accident Investigation Form. Human Resources will contact the Environmental Health & Safety Office to arrange for an ergonomic assessment of your workstation.

Chemical Hygiene Officer

What is a CHO? by Jessica Tyre

CHO stands for **Chemical Hygiene Officer**. There are a few different individuals that have taken on this role in various colleges and lab buildings on both UNE campuses. They are responsible for chemical hygiene in College laboratories. They provide guidance and counsel to: Laboratory Supervisors, Technicians, Department Chairs, and EHS, pertaining to matters of chemical safety within their College. They are knowledgeable of the types of experiments being conducted in laboratories and make safety recommendations to the department faculty/staff and the EHS Director. CHOs conduct and keep a record of annual training for laboratory and student personnel on chemical hygiene topics, serve as a role model to co-workers and provide continuing support for the implementation and enforcement of UNE's Chemical Hygiene Plan.

Other duties include:

-Making sure that the required levels of PPE and equipment are available and in working order

-Verifying that EHS receives copies of SDS sheets for all chemicals received and that an SDS binder is maintained in the labs/stockrooms for all chemicals in inventory

-Providing the Lab Supervisors and/or Department Chairs with concerns and recommendations for upgrading the level of lab safety, and supplying PI's with chemical safety procedures when planning, presenting, and conducting a laboratory session

-Coordinating the development and implementation of written safety procedures for all laboratories

-Identifying situations of noncompliance where individuals are at risk for over-exposure to chemicals and biohazards and seeking advice and guidance of EHS in to provide corrective action

-Closing noncompliant laboratories as authorized by EHS

-Providing regular, non-scheduled, chemical hygiene inspections, including emergency equipment in laboratories

-Remaining current on legal requirements concerning regulated substances

-Looking to improve the chemical hygiene plan as needed

-Periodically checking on designated Satellite Hazardous Waste Accumulation Areas (SAA's) to confirm that weekly inspections are taking place and are logged

-Working to assist EHS in coordinating hazardous waste disposal in accordance with Federal and State regulations attend required training

We are currently in the process of recruiting a few more CHOs and will be posting a list of these individuals in a future issue of EHS Lab Chatter.
Stay tuned!!

****Also, Please note that the UNE Chemical Hygiene Plan can now be found on the EHS website in Word format for you to adapt to your laboratory.****

EHS Website:
www.une.edu/campus/ehs

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Hazard Communication Standard Final Rule

by Ronnie Souza

New changes to the Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard are bringing the United States into alignment with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), further improving safety and health protections for America's workers. The Hazard Communication Standard in 1983 gave workers the 'right to know,' but the new Globally Harmonized System gives workers the 'right to understand.'

The new hazard communication standard still requires chemical manufacturers and importers to evaluate the chemicals they produce or import and provide hazard information to employers and workers by putting labels on containers and preparing safety data sheets. However, the old standard allowed chemical manufacturers and importers to convey hazard information on labels and material safety data sheets in whatever format they chose. The modified standard provides a single set of harmonized criteria for classifying chemicals according to their health and physical hazards and specifies hazard communication elements for labeling and Safety Data Sheets.

Major changes to the Hazard Communication Standard:

- **Hazard classification:** Chemical manufacturers and importers are required to determine the hazards of the chemicals they produce or import. Hazard classification under the new, updated standard provides specific criteria to address health and physical hazards as well as classification of chemical mixtures.

- **Labels:** Chemical manufacturers and importers must provide a label that includes a signal word, pictogram, hazard statement, and precautionary statement for each hazard class and category.

- **Safety Data Sheets:** The new format requires 16 specific sections, ensuring consistency in presentation of important protection information.