

Laboratories

Health, Safety and the Environment

A Monthly Newsletter from Carnegie Mellon's Chemical Hygiene Officer

October 2008

Training Topic of the Month:

All new laboratory employees must receive Laboratory Safety training from EH&S as a requirement of the OSHA Laboratory Standard. While there is no OSHA requirement for refresher training in lab safety, we feel that regular review of lab safety topics is essential to a safe work place. Monthly reading of this newsletter will provide such a review. This month's topic is "**Chemical Exposure Limits and Medical Activities**".

In olden times (say the 1500's), Paracelsus stated "the dose makes the poison." [see inset box to the right] This means that for most hazardous materials, the level to which one is exposed determines whether a chemical will cause harm.

How do we know what a "safe" or an "unsafe" level for a chemical exposure is?

One way is to look at the OSHA Permissible Exposure Limit (**PEL**). This value indicates an airborne level of a contaminant, below which no harm is expected to healthy workers, if exposed at that level for an eight-hour work shift. As you might expect, less hazardous materials have fairly high PELs while the more hazardous ones have lower PELs. If a PEL has been established for a chemical, that PEL is given on the MSDS for the material. Under the OSHA Laboratory Standard, we are required to keep all exposure levels below the PEL.

While air tests may be taken to determine the airborne level of a chemical to which one is



exposed, we seldom do this testing in laboratories. At Carnegie Mellon, scores of people work with scores of chemicals, all in different ways. To perform air monitoring for all

these combinations would not be possible. Nevertheless, we are confident that you will have

exposures below the PELs if you are working **properly** with a chemical. That is, working with volatile chemicals while using a fume hood, proper handling practices and appropriate protective equipment. We DO perform air monitoring in certain circumstances, such as with very hazardous materials. **If you are concerned about the airborne levels of materials you work with, contact EH&S and we can discuss whether air monitoring is indicated.**

The full Paracelsus quote:

Alle Ding' sind Gift und nichts ohn' Gift; allein die Dosis macht, das ein Ding kein Gift ist. "All things are poison and nothing (is) without poison; only the dose makes that a thing is no poison."

The OSHA Lab Standard requires us to offer "medical consultations" to lab employees in certain circumstances. This consultation involves a discussion with a physician about the situation that produced a possible overexposure. The physician then decides whether further action is needed, testing or treatment, for example. This medical activity is confidential between you and the physician; the employer (Carnegie Mellon) will only get a physician's report of recommendations to follow. Medical consultation will be offered to you in these circumstances:

- ✓ If you develop signs or symptoms associated with overexposure to a chemical
- ✓ If an air test shows you are exposed over the PEL
- ✓ If you were involved in a significant spill or leak of a chemical material

Laboratory Safety and Hazardous Waste Training

October 17, 2008

9:30 AM to Noon

FMS Building, 3rd fl

November 20, 2008

9:30 AM to Noon

To be announced

To register, go to: http://ehs-alert.fms.bap.cmu.edu/EHSWebSite/Training/ClassDescriptons/training_laboratory_safety.htm

If you believe you meet any of these three criteria, please contact the CHO, Mark Banister at markb2@andrew.cmu.edu as soon as possible.

He will arrange for the appropriate medical activities. Do not go to the doctor on your own for a possible over-exposure at your lab!

Environmental Topic of the Month: Mercury

As most of you are aware, mercury is one of the most hazardous materials we find in the laboratory—hazardous to people in the lab and also very harmful to the environment. For many years we here at EH&S have tried to encourage our labs to turn in mercury thermometers and other mercury containing devices that can easily be replaced with non-mercury items. Over the years, we have certainly removed a great deal of mercury from our campus, though we still have a lot to address.

Please look through your lab equipment and identify any mercury containing items that you do not use. Put in a request for a hazardous waste pick-up for those items. They will be removed safely and the mercury recycled.

If you absolutely must have mercury-containing devices for critical uses, please be sure that you have a mercury spill response kit. Various options are available commercially. If you would like some advice on selecting spill response materials for mercury, please contact me at markb2@andrew.cmu.edu.

Small-scale Spill Response Kits

Speaking of response kits, one of the most common deficiencies found in our laboratory inspections is the lack of a suitable spill kit for small scale spills. I would like you to check to make sure that you have a spill response kit in your laboratory that contains response items which address both the types of hazards you have in your lab (i.e., acids, bases, solvent and/or mercury) as well as the amount that might be involved in a spill, typically the size of your largest container of the material.

If you have responded to a spill recently, you may have forgotten to replace some of the supplies used up. **Now is the time to do this!**

Information on cleaning up a small scale chemical spill is available from EH&S as is guidance for the preparation of a suitable spill response kit. For your convenience, repackaged kits are available from the various scientific supply stores.

Hazardous Waste Pick-up Schedule		
Mellon Institute	Oct 7,21 & Nov 4, 18	9:30 AM to 11:30 AM
Wean and Doherty Halls	Oct 7,21 & Nov 4, 18	12:30 PM to 3:30 PM
All other main campus locations	Oct 8 & Nov 5	9:30 AM to 11:30 AM
PTC	Oct 8 & Nov 5	12:30 PM to 3:30 PM
Penn Ave., Robotics Consortium	November 19	
Computers	Oct 2 & Nov 6	
To request a waste pick-up or receive waste labels or tags, go to: http://ehs-alert.fms.bap.cmu.edu/EHSWebSite/Waste_Recycling/HazardousWaste.htm		