

Laboratories

Health, Safety and the Environment

A Monthly Newsletter from Carnegie Mellon's Chemical Hygiene Officer

September 2009

Training Topic of the Month

All new laboratory employees must received 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 "**Particularly Hazardous Substances**".

Among the most common areas of deficiency found in the EH&S laboratory inspections are those items associated with the use of Particularly Hazardous Substances (PHS). The OSHA Laboratory Safety Standard requires that special attention be given to workers who use PHSs. They are defined by OSHA as:

- **"Select" carcinogens: materials with STRONG evidence of carcinogenicity**, like chloroform, chromic acid, benzene, formaldehyde, methylene chloride
- **Materials of high acute toxicity**, like cyanide or hydrofluoric acid
- **Reproductive hazards, mutagens or teratogens**, like lead or ethidium bromide
- **Explosive or highly reactive materials**, like sodium azide, picric acid or ethyl ether.
- **Unknowns similar to the above items**

The following steps must be taken for the proper handling of PHS; they are part of our Chemical Hygiene Plan, as implemented by the Laboratory Safety Committee and are enforceable by OSHA.

1. Identify all PHS materials in your area. There is a fairly comprehensive list of PHS items on the EH&S web site which should help you out. Check out <http://ehs-alert.fms.bap.cmu.edu/pdf/cmuphstable.pdf>

2. For each PHS in use, the laboratory must prepare a Standard Operating Procedure (SOP), outlining *in detail* the way the lab will use the PHS material. The procedure will include the following items:

- Identifying health hazard information
- Outlining storage and handling information
- Identifying protective equipment and engineering controls
- Specifying a designated area for the use of the material
- Describing the decontamination and waste management aspects of the material's use
- Identifying the steps to be taken in the event of an emergency (first aid, fire, spill)

The format for the SOP has been prepared by the Laboratory Safety Committee and is available at <http://ehs-alert.fms.bap.cmu.edu/pdf/PHSformblank.pdf> Contact Michael Fouch (mfouch@andrew.cmu.edu) if you have any questions about procedure preparation.

3. Finally, each person using the PHS must be approved by the laboratory PI to do so, and must read the SOP and sign off on its requirements.

We ask that all laboratories send EH&S a copy of the final procedure and also to make it available in the laboratory for reference by lab personnel and EH&S.

Laboratory Safety and Hazardous Waste Training

September 2,, 2009	9:30 AM to Noon	FMSB 3 rd fl conf rm	September 18, 2009	9:30 AM to Noon	FMSB 3 rd fl conf rm
October 7, 2009	9:30 AM to Noon	FMSB 3 rd fl conf rm	October 23, 2009	9:30 AM to Noon	FMSB 3 rd fl conf rm

To register, go to <http://www.cmu.edu/ehs/training/index.html> and click on "Lab Safety and Hazardous Waste.

To find the FMS Building, go to: http://www.cmu.edu/homeimages/campus-map/CMU_MapBW_8x11.pdf (we are building #8)

Environmental Topic of the Month: Hazardous Waste Disposal

In last month's newsletter, we talked about the requirements for laboratory accumulation of hazardous wastes. This month, will talk about the process to have the materials removed from the lab and their ultimate disposal.

Here is the procedure to request a waste pick-up:

Go to the EH&S web site: <http://www.cmu.edu/ehs/> and select "**hazardous waste pick-up request**" from the "**helpful link**" menu. After you log in, you will see the requirements for pick-up along with a link to the schedule and request form. Select the Request form and follow the instructions. You will need to identify in

general terms the amount and type of waste you have. This allows us to be sure we have the personnel and equipment necessary for transporting your waste.

When the wastes are picked up, they are taken to one of two "accumulation areas" on campus where they are segregated by compatibility and held until the contractor removes them from campus. We currently can hold materials up to 180 days before we MUST transport them from campus, though most go much sooner than that; we typically have a shipment from campus once per month.

Many people are interested in where their waste ends up:

Organic solvents and oil usually go for "fuels blending", which means that they will be used with other fuels for processes like cement kilns and steel production. These solvents are carefully integrated into the fuels stream to prevent non-compliance with the processes' air emissions requirements. Certain organic materials can also be distilled to provide commercial product for another use.

Acidic and basic wastes (barring other hazards present) are used in neutralization processes, often rendering other hazardous waste streams non-hazardous. Other wet wastes may be filtered, precipitated or otherwise treated to allow water to go back to the environment and solids to be recycled or land filled as non-hazardous material.

Metal wastes are generally sent for recycling activity, so that the spent metallic element can have a future re-use.

It is the University's goal to have as little material as possible go into landfills, and we are pretty good at accomplishing this.

Special PHS Information: PERCHLORIC ACID

If you use perchloric acid in your laboratory, please review these guideless for its safe use. Misuse of perchloric acid can produce very serious problems! Check out this link:

<https://ehs-alert.fms.bap.cmu.edu/pdf/Guidelines%20for%20Using%20Perchloric%20Acid.pdf>

Hazardous Waste Pick-up Schedule

Mellon Institute	Sep 1,15,29 Oct 13,27	9:30 AM to 11:30 AM
Wean and Doherty Halls	Sep 1,15,29 Oct 13,27	12:30 PM to 3:30 PM
All other main campus locations	Sep 2, 30 Oct 14	9:30 AM to 11:30 AM
PTC	Sep 2, 30 Oct 14	12:30 PM to 3:30 PM
Penn Ave., Robotics Consortium	October 28	
Computers	Sep 3, Oct 1, 5	

To request a waste pick-up or receive waste labels, secondary containment or tags, go to:

<http://www.cmu.edu/ehs/chemical/waste/index.html>