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# The Waste-Paper

*The Hazardous Waste Disposal Monthly Update*

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## *Leaving So Soon?*

Planning to graduate or leave Princeton for greener pastures (not that we know of any)? Before you go, be sure that all of the chemicals that you have been using are either disposed of or formally assigned to another person in your lab. Do not just leave your chemicals behind assuming that someone else will use or take care of them – that is how unknown chemicals and excessive chemical storage often begins.

### **Before you leave...**

- Go through your lab with your PI or another lab worker. Look at every chemical container and be sure each is labeled in a manner that allows anyone in the lab to identify the contents.
- Determine which chemicals are needed for future projects and which are not.
- Ensure that someone has taken responsibility for each of the chemicals, including gas cylinders, left behind.
- Don't forget to check and clear out samples in refrigerators and freezers.
- Dispose of unneeded chemicals. If there are materials for disposal after May 26<sup>th</sup>, make arrangements for someone else to get rid of them at the next pickup.

If you have a whole lab's worth of chemicals to dispose of, we may be able to arrange for help from our waste contractor. Contact EHS at 8-5294 if you have any questions.



*Please bring waste down to your Collection site on Wednesday, April 25th  
Waste Pickup will be Thursday, April 26, 2007.*



## *Happy Earth Day*

*We do not inherit the earth from our ancestors, we borrow it from our children...* Those words, uttered more than 150 years ago by Chief Seattle, are a poignant reminder of the importance of being good stewards of the environment.

There are many opportunities to reduce Princeton University's environmental footprint - even in the laboratory or other chemical use areas. Everyone should be encouraged to:

- Recycle glassware, scrap metal, paper and plastic.
- Avoid using solvents for cleaning. Where that is necessary, use the least amount possible. Try quaternary ammonium compounds or ultrasonicators. Don't use solvents for drying.
- Use non-mercury thermometers, manometers, etc.
- Use Energy Star-rated equipment. Upgrade to more efficient equipment to conserve energy.
- Use oil-less diaphragm pumps instead of those that need water or oil.
- Neutralize or deactivate chemicals to minimize hazardous waste.
- Use the least toxic chemicals possible.
- Use chilled water loops rather than domestic water for cooling.
- Don't order more chemicals than you need.
- Turn off equipment when you are not using it.
- Keep fume hood sashes closed when no hands-on work is underway.
- Share unused, unopened chemicals with other labs.
- Reduce the scale of your work.
- Seal containers of volatile chemicals to avoid waste through evaporation.
- Purchase gases in returnable, refillable cylinders.
- Turn off your computers at the end of the day.
- Use low-mercury, compact fluorescent lamps instead of incandescent bulbs.

For more ideas, see the Pollution Prevention website at <http://web.princeton.edu/sites/ehs/chemwaste/p2labs.htm>. To share an idea, please contact Robin Izzo at [rmizzo@princeton.edu](mailto:rmizzo@princeton.edu).

**Watch out for the glass...**

Glassware is used every day in laboratories to conduct experiments, containerize chemicals and keep lab workers safe. Do not compromise your safety by assuming that the glassware you are using is structurally sound.



Visually inspect your glassware prior to setting up an apparatus or performing an experiment. **Look** for small cracks, particularly in bends and fittings where pressure can be leveraged on each device. Ensure the surfaces are free of chips, scratches and other defects that can lead to cracking while the equipment is in use.

Failure to inspect glass tubing, reaction vessels, columns, fittings, even test tubes can lead to an incident involving container and equipment failure. These incidents can result in chemical spills and exposures, lacerations, ruined experiments/research and damage to surrounding materials and equipment.



Lacerations from broken test tubes are one of the more prevalent injuries in our laboratories. Typically, breakage of test tubes occurs while inserting or removing stoppers. Stoppers create a seal by exerting force on the inside lip of the test tube. Inserting a stopper with excessive pressure causes the tube to break when the

force of the wedged stopper exceeds the strength of the glass. Exercise care when exerting any kind of force on glassware. Cut-resistant gloves can offer some protection against injury from broken glass.

Burns from glassware are another common problem. Keep in mind that hot glass looks the same as cool glass.

Some research experiments involve using glassware under pressure to perform reactions. Even simple flash

chromatography columns have a significant amount of pressure on the bottom of the vessel, supporting the weight of the materials inside. If your research requires pressurization, ensure the apparatus is capable of withstanding the pressure needed and use blast shields where appropriate. During the pressurization of any container, increase the load slowly if the process allows. Glass vessels under pressure are also increasingly vulnerable to breakage from impacts. Examples of catastrophic glass vessel failure can be found in the lab safety manual on the EHS webpage. <http://web.princeton.edu/sites/ehs/labsafetymanual/section11.htm>

Dispose broken or unwanted glass in an appropriate glass waste collection containers. Building Services supplies tall cardboard box receptacles for collecting broken and non-recyclable glass that is not chemically contaminated. Any glassware that is contaminated must be cleaned appropriately or disposed of as hazardous or biohazardous waste. Procedures for dealing with these general wastes can be found at: <http://web.princeton.edu/sites/ehs/biosafety/biosafetytypage/disposalchart.htm>

**Reminder – Safety Manager Breakfast**

The next Safety Manager Breakfast is scheduled for Tuesday, April 24 at 9:00 AM in the Joseph Henry Room in Jadwin Hall. Topics for discussion include:

- New Electrical Safety Requirements
- Student Safety Issues – Lessons Learned from Other Institutions
- New Emergency Notification Systems
- Alarms and Security Issues in Buildings and Labs
- Hydrofluoric Acid Safety
- Updates to Waste Disposal Procedures
- New Process for Controlled Substances Management

Please RSVP to Robin Izzo at [rmizzo@princeton.edu](mailto:rmizzo@princeton.edu).

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