
The Waste-Paper

The Hazardous Waste Disposal Monthly Update

Volume 6 Issue 5

May 2004

Leaving Princeton?

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 they are labeled correctly.
- Determine which chemicals are needed for future projects and which are not.
- Dispose of unneeded chemicals. If there are materials for disposal after May 24th, 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.

Expecting Summer Help?

Summer is fast approaching and many lab groups will be taking on summer research help – usually high school or college students and teachers. Before enticing the next generation of Nobel Laureates with all that Princeton has to offer, consider the following:

High School Students

Whether paid or unpaid, NJ child labor laws restrict the type of work that individuals under the age of 18 may do. Children 15 and under are prohibited from conducting any type of work in most research laboratories. For those who are 16 or 17, the Principal Investigator must complete a proposal and submit it to EHS for approval. The forms and a description of the process are available on the web at

<http://web.princeton.edu/sites/ehs/hsstudents/hsstudents.htm> .

Others

Anyone working in a research laboratory (paid or unpaid) **must** attend Laboratory Safety Training offered by EHS. Similar training from other organizations is not a substitute for this requirement. Open Laboratory Safety Training sessions are offered at least once per month. The schedule is on the EHS web site at

<http://web.princeton.edu/sites/ehs/Training/calendar.htm>.

Please contact Kelly States at 258-2648 or kstates@princeton.edu to enroll or to schedule additional sessions.

This Month's Waste Disposal Drop-Off: Wednesday, May 26, 2004

Lewis Thomas loading dock

- collection room open from 1:00 - 4:30 PM
- Coordinators: [Michael Fredericks](#) (8-1351) or [Mary Zikos](#) (x8-4095)

Jadwin Hall room 124 (Physics only)

- Do not drop off waste before Wednesday
- Coordinator: [Joe Horvath](#) (x8-4364)

E-Quad room 7 (E-Quad and Bowen)

- collection room open from 2:00 - 3:00 PM
- Coordinators: [Joe Laskow](#) (8-4739) and [Joe Palmer](#)

Frick loading dock (Chemistry, Psychology, Visual Arts)

- collection room open from 1:00 - 2:00 PM
- Coordinator: [Kevin Wilkes](#) (x8-3920)

EHS HAZARDOUS WASTE CONTACTS

Main Office	8-5294
Steve Elwood (Chemical & Radioactive Waste)	8-6271
Marcia Leach (Waste-Paper)	8-5296
Don Robasser (Biohazardous Waste)	8-6256
EHS Web Page http://www.princeton.edu/ehs	

Waste Minimization Tip:**Mercury Alternatives**

Princeton University can proudly proclaim that University Health Services at McCosh is a mercury-free facility. They have done an outstanding job replacing their mercury-containing equipment with environmentally-friendly alternatives. Similar alternatives are available to our campus laboratories. The most common uses of mercury in laboratories are thermometers and manometers.

Differential manometers

Some manometers use water or calibrated oils instead of mercury. Pressure transducers or electronic pressure gauges may also work as an alternative to a conventional manometer.

Thermometers

There is a wide selection of mercury-free thermometers available. Non-mercury liquid alternatives include spirit thermometers (filled with petroleum-based mineral spirits) and alcohol-based thermometers. Their temperature ranges may be more limited than a mercury thermometer and, in some cases, the thread breaks a bit more easily than a mercury thermometer, but their accuracy is comparable. (If the thread breaks on a spirit or alcohol thermometer, the simplest method for repair is to use a centrifuge to force the liquid down the cavity.)

When used to measure temperature of liquids, it is important to choose the correct temperature range and depth (e.g., total immersion vs. partial immersion), since their accuracy depends on being immersed to the correct depth (as opposed to mercury, which has better thermal conductivity).



In addition to thermometers with mercury-alternative liquids, long stem digital thermometers are available with probes resistant to acids, bases, solvents and most laboratory chemicals and provide a certificate indicating traceability to NIST standards. They read in both °F and °C, with ranges from -58 to 302°F and -50 to 150°C . Digital thermometers have excellent accuracy.



Where a mercury thermometer is the only option, armor cases (pictured at left), which protect against breakage without affecting accuracy, or Teflon-coated mercury thermometers are recommended. These are particularly useful in high temperature ovens, oil baths and autoclaves, where cleaning up a mercury spill can be challenging.

Thermometer Exchange

EHS will exchange most mercury thermometers with comparable non-mercury alternatives at no cost. If interested, send an e-mail to Steve Elwood at selwood@princeton.edu with the specification of the thermometer(s) for replacement. EHS will send your mercury thermometer for reclamation.