

SAFETY NEWSLETTER

Department of Chemistry, Queen's University Spring 2016

It's springtime! With all of that spring cleaning you're doing in the lab, why not set up your garbage and waste containers in a manner that's very clear even to new students? Also, take the opportunity to check for common hazards in the lab. Here is some information to help you.

1. Segregating Non-Chemical Garbage and Waste – It's important to have CLEARLY marked bins for disposal of the various kinds of garbage, so new students can figure out what waste goes into which bin. Here are the kinds of garbage bins you should have.

Sharps: Put needles, razor blades, knives, and other sharps in the special red plastic bins. Label the bin either “Chemically-Contaminated Sharps” or “Biologically-contaminated Sharps”. Deface any biological symbols if they're not relevant.



Broken glass: Broken glass, thermometers (NOT containing mercury), empty vials, but NO disposable pipettes, vials containing chemicals, or barcoded chemical containers.

Disposable pipettes: Collect in a plastic or other hard non-leaking container, label clearly as “Chemically-contaminated pasteur pipettes”, seal when full, and dispose as chemical waste.

Syringe barrels & plungers: Plastic syringe barrels & plungers (NOT including needles) can be placed in either the sharps bin or a dedicated clear plastic bag. The bag must not contain glass syringes or needles. Send the full bag for disposal as hazardous waste.

Batteries: Use the special bin on the 1st floor. If the battery is leaking, seal it in a bag.

Cardboard and paper waste: Put in the appropriate recycle bins in the hallways.

Garbage: Normal garbage. No chemicals, sharps, needles, glass, chemical containers, syringe barrels & plungers, food containers, or drink containers are allowed.

2. Segregating Chemical Waste. Don't forget to clearly label contents.

Flammable solvent waste: Solvents and liquid or dissolved organic compounds, even if they contain halogens. Use the 10 or 20 L red safety cans available from Fisher. Make sure the flame arrestor is still inside the opening (see photo); if it's missing, buy a new one from Science Stores.

Aqueous waste: List all known components. Measure and label the pH before disposal. If you have a lot of aqueous waste then get a 20 L reusable waste container from EH&S.



Solid waste: Silica gel, column packing agents, drying agents (no volatile solvent content), contaminated gloves, paper towels. Collect in plastic or glass jugs, list all known components on a label, and send off as hazardous waste.

Oil waste: Pump & bath oil. Use empty 4 L bottles. Label & send off as hazardous waste.

Chemical containers: Barcoded bottles of containers should be sent as hazardous waste using the Chemical Waste Disposal form if they're not empty. However, if they're empty, then use the “Empty Containers and Contaminated Debris” form; you can put several empty bottles

together (e.g. write "8 empty bottles" in the form). Don't remove or deface the labels. If you have a large number of vials containing similar materials, they can be bagged and labelled together.

Empty 4 L bottles of solvent can be reused as containers for compatible waste but you must change the label (don't deface or remove the barcode).

Aerosol spray cans and gas lecture bottles, even if empty, must be sent off as hazardous waste using the Chemical Waste form. Don't remove or deface the label.

If you have a particularly dangerous material such as PCBs or expired peroxide-formers, clearly inform EH&S of this situation when you fill out the form.

Mercury, asbestos, PCBs, and X-ray film should not be combined with other materials. Send them off as hazardous waste. Contact EH&S directly if you have PCB's for disposal.






Biohazard waste and radioactive waste: If you're working with such materials, obtain training about how to collect and dispose of such waste.

3. Most common violations

What kind of safety violations and problems are most often identified during chemical safety inspections? Here are the top 6, in decreasing order of frequency. Check your lab for these problems frequently.

- Expired peroxide-former (especially ethers, secondary alcohols, monomers)
- Open waste container (keep it capped unless you're actively using it)
- Unlabelled container (label falling off, illegible, or, for waste bottles, the label wasn't changed to indicate what it now contains)
- Incompatible chemical storage (e.g. oxidizing acids stored with organic acids)
- Mess, obstruction or trip hazard
- Inadequately secured gas cylinder or horizontal lecture bottle

4. New labels now available from Science Stores (Buy them and use them!)

 <p>Date Received: _____ Date Opened: _____ Disposal Date: _____</p>  <p>WARNING PEROXIDE FORMER</p> <p>This material will form explosive peroxides during storage and must be disposed of by the date shown above.</p>	 <p>C.A.S / GEM: _____ Date: _____</p> <p>Chem Name: _____</p>  <p>Signal Word: Danger or Warning First Aid: Move victim to fresh air. Call 911 or emergency medical service. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve. Remove and isolate contaminated clothing and shoes. In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes. Keep victim warm and quiet. Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.</p>	 <p>Date Opened: _____</p> <p>Lab Use Only Not for Human Consumption</p>
<p>Stick this label on any bottle of a peroxide former. Fill in the dates and discard by the disposal date (3 or 12 months after receipt). See the April 2015 newsletter for a list of common peroxide-formers.</p>	<p>Stick this label on any containers of chemicals made in a lab. Fill in the chemical's name, the date of synthesis, and Chem Abstract number (if it has one). Cross out the warning symbols that do not apply.</p>	<p>Stick this label on containers of food or drink that are being brought into the lab for research purposes.</p>

Questions or Concerns about Safety?: If you have any safety concerns or questions, please bring them to the attention of the Safety Committee Chair (currently Philip Jessop, jessop@queensu.ca) or Heather Drouillard (Department Manager, Heather.Drouillard@chem.queensu.ca). Suggestions for the newsletter always welcome.