SAFETY NEWSLETTER
Chemistry Department, Queen's University
April 2015

Four topics for today's newsletter.

• **A Safety class will be presented by the safety committee chair** for undergrad summer students and any postdocs or new grad students on the 11th of May, 2015, from 9:30 to 11:30 am in Chernoff room 117. This supplements rather than replaces safety training from the supervisor. Strongly recommended for new researchers!

• **Volumes of flammable liquids stored in the open lab**

Each lab can have up to 50 L of flammable liquids outside of the flammables cupboard. That's counting the *entire* volume of each container, including both the gaseous & liquid phases inside. Base baths, soxhlet extractors, and solvent stills count too.

If the base baths are putting your lab over the limit, then put the base bath rubber/plastic container inside a flammables bin, like that shown at right.

If the flammables cupboard is full, then take out bottles that don't need to be there, like DMSO, $CHCl_3$, CH_2Cl_2, DMF. Those ones aren't flammable.

• **Eyewash bottles.**

Science Stores will now carry supplemental eyewash bottles (see image at right) that you can purchase and place in your lab. These can be used for an immediate rinse of a contaminated eye, after which the injured person can go into the hallway to use the better eyewash stations there. The eyewash solutions need to be replaced every 4-6 months. These eyewash stations are not required by regulations but may allow a faster response in case of splashes to the eye.

• **Chemicals that form peroxides over time** pose a risk of explosion. Don't keep them too long. Don't open the cap of a really old bottle. Never distill to dryness. When you purchase such a chemical, write on the label the date of receipt & date of first opening.

How long can you keep a peroxide-former? It depends on what kind of chemical it is. (source: http://ehs.ucdavis.edu/snfn/safetynets/snml/sn23/SN23pdf)

Class 1: Discard within 3 months from opening, even if inhibitors are present.

Butadiene (liquid)	Chloroprene	Divinyl acetate
Isopropyl ether	Tetrafluoroethylene	Vinylidene chloride

Class 2: Discard within 12 months from opening. May become unstable if concentrated by evaporation or distillation.

Many ethers: Et_2O, glyme, diglyme, dioxane, THF, vinyl ethers
Most II° alcohols: cyclohexanol, iPrOH, 2-butanol, 2-pentanol, 1-phenylethanol, etc.
Some I° alcohols: Benzyl alcohol, 4-pentene-1-ol, 2-phenylethanol, 3-methyl-1-butanol
Some hydrocarbons: Cumene, deca- or tetra-hydronaphthalene, dicyclopentadiene
Some others: acetaldehyde, methylacetylene, diacetylene

Class 3: Chemicals that autopolymerize due to formation of peroxides. If uninhibited, discard within 5 days. Inhibited pure chemical should be discarded within 12 months. Do not store inhibited chemical under inert gas (some inhibitors require some O_2 to work).

Acrylic acid	Acrylonitrile	Butadiene gas
Chlorotrifluoroethylene	Methyl methacrylate	Styrene
Vinyl acetate	Vinyl acetylene	Vinyl chloride
Vinyl pyridine		

If you want to keep a peroxide-former longer than 3 or 12 months, test it for peroxides every 3 (or 12) months) and, if it passes the test, write the date of the test on the bottle. If it fails, call EH&S. Don't test old neglected bottles because that would require opening the cap, which may or may not be risky; just notify EH&S and tell them it's an old bottle of a peroxide-former.

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@chem.queensu.ca) or Heather Drouillard (Department Manager, Heather.Drouillard@chem.queensu.ca). *Suggestions for the newsletter always welcome.*