Poon Group Laboratory Safety Guidelines

Attention to lab safety is the most important skill that any bench chemist can acquire. Your health, even your life, depends on your adherence to safe laboratory practice. The following major accidents have happened to people I personally know. None of these researchers were deliberately being unsafe or horsing around, but in almost every case, the accident could have been avoided.

- a student spilled approx. 100 mL of conc. sulfuric acid on his pants,
- a student had piranha solution (30% H2O2, 70% H2SO4) splash on his face (fortunately he had his goggles on),
- a student had an NMR tube explode while he was looking into it (in this case, the student was not wearing goggles and had glass shards embedded in his eye),
- a large scale reaction exploded when a student moved the glass shield of a fume hood,
- a broken piece of glassware sliced through a professor's hand, requiring several stitches,
- a rotovap imploded when a student squirted acetone on the condensing vessel (he wanted to remove the frost that had developed so he could see what was happening inside),
- a syringe needle went straight through a professor's finger as he was trying to place the safety cap on it,
- a lab was flooded when the tubing came off a condenser during an overnight reflux reaction.

Fortunately, all of the people mentioned above survived their accidents and none were permanently disabled. Many incidents have been reported; however, where chemists have not been so lucky (please read the attached article on one such case, which happened to a graduate from the Claremont Colleges). In order to avoid accidents such as these, every researcher in this group should always have an eye toward safety when working in the lab. There are many resources available that detail laboratory safety. One such resource is called the Laboratory Safety Manual (URL: http://web.princeton.edu/sites/ehs/labsafetymanual/TOC.htm from the Princeton Univ.). It is a long read, but I guarantee that you will benefit from reading it. Dr. Poon has established the following 5 golden rules of safety for the group. All students in the group must memorize and abide by these 5 rules at all times. A violation of any of these rules will result in a reduction in your thesis or independent study grade and/or expulsion from the research group.

The 5 Golden Rules for Safety in the Poon Group

1. *Avoid exposure to all chemicals.* Never allow chemicals to come in contact with skin or other organs of the body. Follow this rule by:
    - Wearing safety goggles and flame resistant lab coats whenever you are doing research or in the presence of anyone doing research (eyeglass wearers must wear safety goggles over their glasses).
    - Wearing gloves when handling chemicals.
    - Wearing appropriate clothing and shoes.
    - Working in the hood with all potentially harmful chemicals.

2. *Never work in the lab unless a JSD professor is around when you are doing so* ***and*** *unless he or she has been informed that you are conducting research.*

3. *Get approval or supervision from Dr. Poon when doing any procedure for the first time.* If you don't know, ask.

4. *Be prepared for accidents.* Know the location and operation of all safety devices such as eyewashes, showers, fire blankets, fire extinguishers, first aid kits, exits, etc.

5. *It is **your** responsibility to see that any unsafe situation is addressed immediately by informing Dr. Poon or another JSD professor.*

Waste Disposal

The rules for waste disposal are without exception. Fortunately, there are only a few major rules and they are very easy to follow:

1. Nothing goes down the drain except for water, ethanol, and aqueous acids and bases (after lots of dilution), and nontoxic salt solutions. Solid, nontoxic salts can go in the trash.
2. All other liquids go into one of three waste bottles that can be found under the northwestern-most hood (be sure to write down exactly what and how much went into the bottle). Solid waste is dissolved in the appropriate minimal amount of solvent and placed in the appropriate bottle. **Warning: look before you pour to avoid overflowing the bottle.**

   Aqueous Toxic Waste: Solutions containing chromium and other toxic, heavy metals.

   Organic Nonhalogenated Waste: As it's name implies.

   Organic Halogenated Waste: Anything that contains F, Cl, Br, or I.
3. When in doubt, ask Dr. Poon.

Laboratory Safety Acknowledgment

This is to certify that I have read the "Poon Group Laboratory Safety Guidelines" and have been given ongoing verbal instructions concerning safety procedures. I realize that failure to observe these instructions could result in serious injury to others and myself, and I acknowledge my responsibility towards the care to be used in handling all materials and equipment.

In order to avoid damage to equipment and injuries to others and myself, I promise to observe and obey these rules at all times.

If I neglect these safety rules I understand I may be removed from the laboratory and disallowed from working on my research project.

_____	_____	_____
Signature	Name (printed)	Date