SAFETY NEWSLETTER
Department of Chemistry, Queen's University
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1. Lab Coats - Lab coats can be made of many different materials. The safest material depends greatly on what you are doing in the lab. The recommendations below are based upon literature on the web. Fire resistance tests do not include tests with flammable chemicals splashed onto the coat. Cotton/polyester and cotton are available in Science Stores. Snap closures, rather than buttons, are recommended because the lab coat can be removed much more quickly in an emergency. Use a chemical splash apron when using acids or other corrosive materials.

Polyester/cotton blends: Lightweight and breathable. Probably better than cotton against corrosive materials, but burns readily. Not recommended for labs with flammable materials. Better for clinical settings.

Cotton: Lightweight and breathable. Better than poly/cotton against fire, but not recommended against corrosive liquids. Use a chemical splash apron in addition if using corrosive liquids. Appropriate for use in labs with light use of flammable liquids.

Cotton+flame retardant: Lightweight and breathable. Better than poly/cotton and cotton against fire, but not recommended against corrosive liquids. Use a chemical splash apron in addition if using corrosive liquids. For labs with heavier use of flammable liquids. Some retardants may wash out in the laundry; check with the manufacturer.

Nomex: Heavier but still somewhat breathable; can be hot in the summer. Best protection against fire. Resistant to acid and most solvents. Decomposes if exposed to chlorine bleach.

REMINDER – Personal Protective wear, including lab coats, are required to be worn at all times in areas where skin contamination hazards exist.

2. Reusing bottles and other containers from Chernoff

Once they have been used to contain chemicals or have been in a chemistry lab, do not re-use bottles or other containers to store food or beverages.

3. Hazardous cleaning solutions

Certain cleaning solutions are particularly hazardous and must be handled carefully or, preferably, avoided. There are hazards associated with using oxidizing/acids baths, and as such, approval must be obtained by your Lab Supervisor before undertaking the preparation (or use) of any hazardous cleaning solution. Do some research of your own on the hazards and safest protocols. Post a highly visible sign at the fume hood. Notify nearby workers. Don't work alone.

- <u>Aqua regia</u> (mix of HCl and HNO_3 acids). Useful for removing heavy metals from glassware. Add nitric to hydrochloric, never the reverse. Never make more than you need. Never remove it from a fume hood. Place a splash shield or a sash between you and the aqua regia. Never let the aqua regia contact any organic liquids or organic material. Don't store aqua regia or cap the container; it may overpressurize its container. If you made too much, neutralize it in ice with $NaHCO_3$ solution.

- <u>Piranha solution</u> (mix of H_2SO_4 and H_2O_2). Always add peroxide to sulfuric, never the reverse. Add the peroxide slowly, because the reaction is exothermic. Never remove it from a fume hood. Place a splash shield or a sash between you and the piranha solution. Don't store it; it

may overpressurize its container. Never let the piranha solution contact any organic liquids or organic material (especially not acetone!). If you made too much, dilute it tenfold with water and send for disposal.

The following cleaning solutions should never be used: acetone/hexane mixes or acetone and hexane in any order (severe neurotoxicity), chromate cleaning solution (carcinogenic, use NOCHROMIX instead), and nitric acid/organic solvent mixes (explosive).

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.*