

Laboratory Safety Contract

The safety of yourself and your classmates is of paramount importance during laboratory. Safety regulations must always be observed as it only takes one accident to cause blindness or serious permanent injury. **Safety glasses must be worn at all times.** After the first day of lab ten points will be deducted if you come to lab without your safety glasses. If you remove your safety glasses when lab is being conducted your instructor will give you a verbal warning **once**, the second time 10 points will be deducted, and a third offense will result in your being asked to leave the lab.

In the laboratory the chemist works with many potentially dangerous substances and equipment. Yet, with constant alertness, awareness of potential hazards, and some common-sense precautions, laboratory operations can be carried out with a high degree of safety. The most general rules for safety laboratory operations are: be alert - stay alert, and take the trouble to understand what you are doing and the potential hazards associated with the operation you are performing. Some basic rules and precautions are :

1. At the onset, learn the location of the nearest eye fountain, fire blanket, safety shower, first aid-kit, broken glassware trash bin, broom and dust pan, campus (police) phone. Your instructor will update you with any other safety equipment you will need to familiarize yourself with.
2. Wear eye protection at all times. Use only eye protection authorize by your instructor. Failure to wear protective eye wear is grounds for dismissal from class.
3. Closed-toe shoes must be worn at all times while in the laboratory (**flip-flops, sandals, etc. cannot be worn**).
4. Never work alone in the laboratory - someone should be in the room with you at all times.
5. Use fume-hood when working with poisonous or offensive gases and fumes, as well as for operations involving flammable or explosive materials.
6. Never heat an organic solvent (alcohol, ether, benzene, etc.) in an open vessel over an open flame. These solvents are highly flammable, especially with an open flame - use a hot plate to heat these liquids when in an open vessel.
7. Avoid pointing the mouth of a vessel being heated toward any person, including yourself.
8. Never heat reactants of any kind in a fully closed system - be sure the system is open to the air to prevent a pressure build-up and explosion.
9. Never add anything (including water) to concentrated acid - instead **slowly** add the acid to the other substance to avoid splashing of the acid.
10. Hold glass tubes and the thermometers in a towel when pushing them through rubber stoppers.
11. Never pipet anything by **mouth** - especially toxic or corrosive substances.
12. You should immediately sweep up spill taking place on the balance.
13. Be sure to label all chemical containers correctly.
14. Do not perform any unauthorized experiments.
15. Beware of hot glass tubing - it looks cool long before it can be handled safely.
16. Never throw matches, litmus or any insoluble solids in sink. All waste must be dispose in properly marked waste container.
17. Avoid using excessive amounts of reagents - 1 to 3 mL is usually ample for test tube reactions.
18. Do not lay down the stopper of bottle. Hold stopper of bottle between fingers when using chemicals. Impurities may be picked up and thus contaminate the solution when the stopper is returned.
19. Do not heat thick glassware such as volumetric flasks, graduated cylinder, or bottles; they break easily with heat.
20. Never pour anything back into a reagent stock bottle - take out only as much as you will use.
21. Tie back long hair and refrain from wearing flowing, fluffy clothing - both are fire hazards in the laboratory.

These are by no means the only safety precautions you should take when working in the laboratory, but instead are a guide as how you can avoid some of the common hazards. It is assumed that you will take common sense precautions such as cleaning-up after a spill, not picking up red-hot objects, no horseplay in lab, etc., and these have not been included in the list above. Following these precautions and rules should give us a high degree of safety in the laboratory.

SAFETY STATEMENT

I am aware that there are hazards associated with being in a chemistry laboratory. I have been made aware of the safety equipment available in S5-209 and how it is to be used. I have also been made aware of some common hazard such as: broken glass fire, acids, bases, and the poisonous nature of most chemicals. I will always wear my safety glasses during lab. I understand that special precautions for individual experiments will appear in the lab manual in a section entitled "Safety".

(Please sign your lab manual below).

Signature

Date

Print Name

ID number

Safety Quiz

Name: _____ last _____ First _____

Fill in the blank

- 1 Pour chemicals from large reagent bottles into _____ before measuring.
- 2 Where would you work with volatile or noxious chemicals? _____
- 3 When you're done using a chemical, always make sure the cap is _____
- 4 How should thermometers or glass tubing be inserted in a rubber stoppers? _____
- 5 What should you do with long hair when working in the lab? _____
- 6 If organic solvents are to be heated name two type of heating device that can be used? _____
- 7 When should chemical substances be smelled? Describe this process. _____

Circle the correct answer (only one is correct)

- 8 If you spill anything on the balance, what will you immediately do?
a) sweep all spilled material off the balance with a small brush ?
b) get away from the balance as fast as possible. c) leave the solid for the next student to deal with
- 9 What type of foot wear should always be worn during the lab
a) flip-flops b) sandals c) close-toe shoes d) any type of footwear is permissible
- 10 When in the lab, you must wear safety goggles:
a) only when working with acids. b) at all times c) if you wear contact lenses.
- 11 At the end of the lab, you should:
a) wash your glassware b) wipe your station clean with a sponge
c) return glassware and equipment to its origin d) a, b & c
- 12 If you break glassware that does not contain any chemicals you should immediately
a) do nothing b) tell you classmate c) place the glass in the trash
d) sweep up the broken pieces of glass and place in glass-waste container.
- 13 If you spill some acid chemical on your arm, what should you do first?
a) find your instructor b) immediately rinse your arm with lots of water.
c) ignore it and keep it a secret d) finish your experiment then shower at home.

Write your answers in the back of the quiz if you run out of room.

- 14 Write the location of the following safety equipment in the laboratory and explain when it is appropriate to use these equipment (give some specific examples).
a) Eyewash:
b) Shower:
c) Fire extinguisher:
d) broken glass disposal and dustpan
e) First-Aid Kit
- 15 Safety scenario: A very confident chem-student enters an empty lab for an experiment on acids and bases. The student is wearing a shirt, shorts, and flip-flops. The student has shoulder length hair. The student begins lab work by pouring some hydrochloric acid from a reagent bottle into a beaker, the student spills a few milliliters of acid on the lab bench and continues with her experiment. A second student enters the lab, turns on a Bunsen burner in a lab bench across the room then approaches the first student lab bench and prepares to fill a beaker. This second student unknowingly gets hydrochloric acid on his hand and within a few minutes feels a burning sensation. The student immediately wipes off the liquid with paper towel. The first student ignores the second student and takes her volumetric flask back to the desk, quickly turns his/her head while walking close to another student's Bunsen burner. In a few minutes she smells burning hair and realizes it is her own.

List at least 10 safety violation from the above scenario and then suggest in details the remedy for each safety violation. (Use back of this page or extra sheet if necessary)