

ALMUSTAQBAL UNIVERSITY

College of Engineering and Engineering Techniques

Biomedical Engineering Department

Stage : Second year students

Subject : Chemistry 1 - Lecture 1(practical)

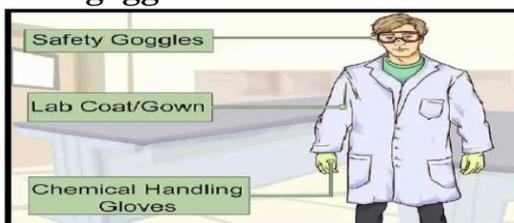
Lecturer: Assistant professor Dr. SADIQ . J. BAQIR



LAB SAFETY

The safety rules listed below is to be followed in the chemical Laboratory:

- 1. A Lab coat and goggles (or other approved eye protection) must be worn at all times when chemicals are being used in the lab. If you wear glasses, you must wear goggles over them.**



- 2. Close-toed shoes must be worn in the lab. open-toed shoes are not allowed.**

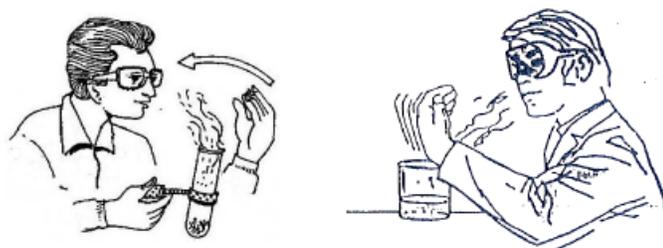


3. Food or drinks are not allowed in the lab. Also, you should not place candy, gum, etc. in your mouth while in the lab.



4. Never taste any chemical.

5. Never smell directly any chemical ; instead, use your cupped hand, to waft the odor to your nose .



Wafting vapors towards one's nose

Wafting vapors towards one's nose

6. Many of the chemicals used in the labs are poisonous. Poisons can easily enter the body via three routes: inhalation, ingestion, or absorption.

7. All electrical devices should be plugged in with a dry hand only.

8. Do not pipet solutions by mouth. Rubber pipet bulbs are provided at each lab .

9. Do not put flammable liquids near an open flame.

10. Do not sit on the lab benches.

11. Do not pour any chemicals into the sink without authorization from the instructor. Used liquids /chemicals should be disposed off in a proper way as per the procedure precisely.

12. Always have a first-aid kit ready in the laboratory.



13. Each one in the Lab. should become familiar with the location and operation of the eye wash and safety shower in the lab. If you get any chemical in your eyes, IMMEDIATELY rinse your eyes in the eye wash.

(Please assist any student to the eye wash station since he/she may not be able to find it in an emergency).

If hazardous chemicals are splashed onto a large area of clothing, get to the safety shower as quickly as possible.



Typical eyewash



Approved eye protections



A safety shower

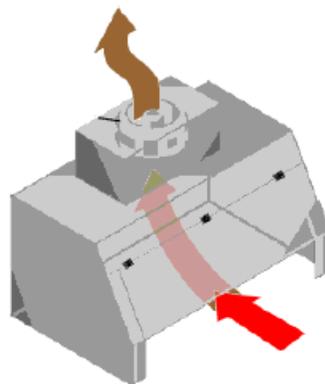
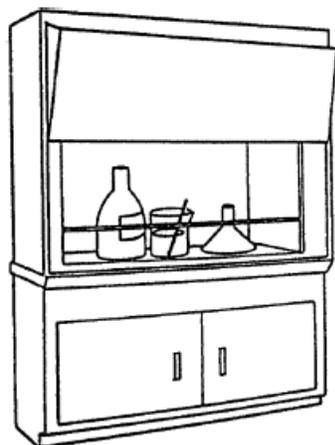
14. You should also make yourself familiar with the location of the exits (including the emergency exit).

- 15. Bags, back packs, coats, etc. should be moved to the area designated by your instructor to prevent chemicals being spilled on them. The only items that need to be kept at the lab bench are those that will be used during the lab.**
- 16. When holding or heating a test tube, never point it toward yourself or anyone else, make certain that the open end of the tube is directed away from the students.**



Beware of spattering

- 17. When diluting acids, always add the acid to water. This will allow heat to dissipate more easily .**
- 18. If you break glassware Never dispose of the broken glassware in the trash can. Always dispose of broken glass in the broken glass containers.**
- 19. Not all chemicals can be disposed of by placing in the trash can or pouring down the drain. You would follow the instructions for the disposal of chemicals.**
- 20. An MSDS (Material Safety Data Sheet) is available for each of the chemicals used in your labs. It is your right to review these sheets .**
- 21. If you spill chemicals during the lab, clean them up immediately.**
- 22. Perform in the hood any reactions involving irritating or dangerous chemicals . Exhaust hoods have fans to exhaust fumes out of the hood and away from the user.**



Fume hood found in the laboratory

Fume hood found in the laboratory

23. The work tables and working space must be kept neat, dry and clean always before, during and after experiment.

24 . After completing your lab, clean all glassware and place it back into their designated place. Wipe down your lab bench and leave the lab ready for the next group of students.

25. Fire buckets containing sand and water or fire extinguishers should always be available in the lab in easily accessible places.

26. When fire originates, all gas and electricity must be cut off from the main source immediately.

27. In case of emergency, do not get panicky and be brave enough to handle the situation. It is important to know the correct way to act and must know the location of safety equipment, which available in the lab, including the fire extinguisher, eyewash station and fire blanket and know how to use them.





Notes on the proper use of Chemicals

1. Only open one reagent container at a time and replace the lid or stopper on bottles immediately after use lest they should be interchanged.
2. Do not lay lids or stoppers down since they can become contaminated or they could contaminate the lab bench.
3. When dispensing from a large container, it may be useful to pour into a small beaker first. **DO NOT** pour un used chemicals back into the dispensing bottle.
4. When dispensing solids, do not interchange spatulas.
5. When using a balance, never weigh directly onto the pan . Use weighing paper or weigh into a container such as a beaker. Clean the balance after use.