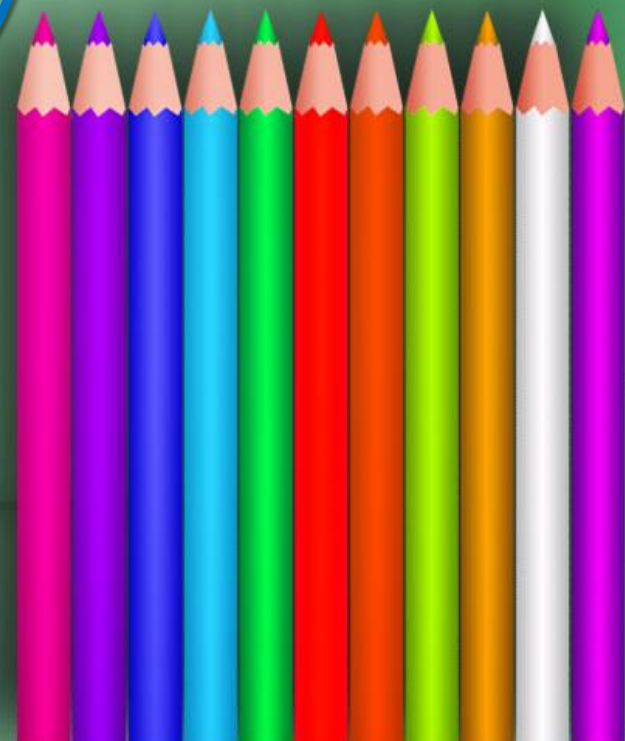




CHEMISTRY LABORATORY REQUIERMENT & SAFTY

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Ms.c Applied Chemistry

2017



Instruments used in Chemistry laboratory

❑ Balance



❑ Fume hood



☐ Hot plate / stir plate



☐ pH meter



☐ Centerviuqe



☐ Oven

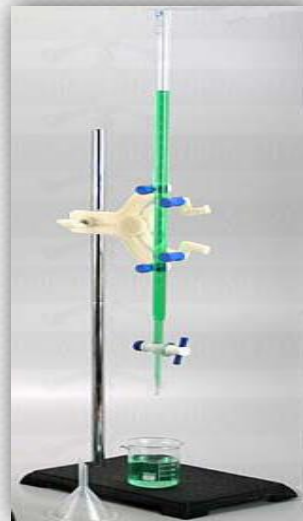
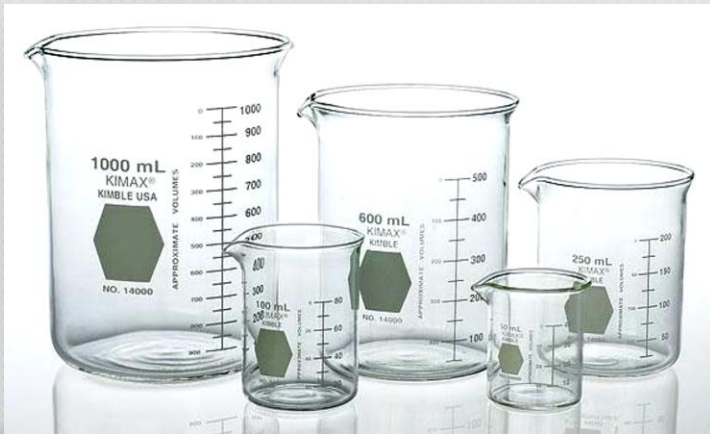


☐ Spectrophotometer



Tools and glasses

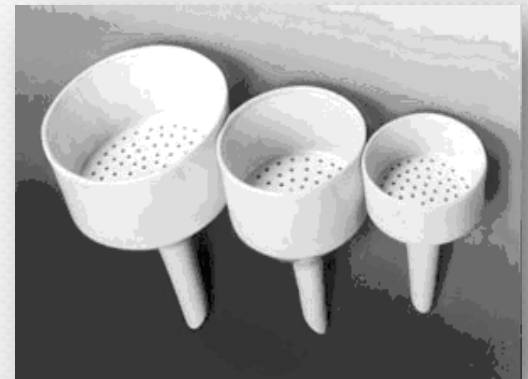
- Beaker
- Burets, Burette stands And clamps



- Conical flask



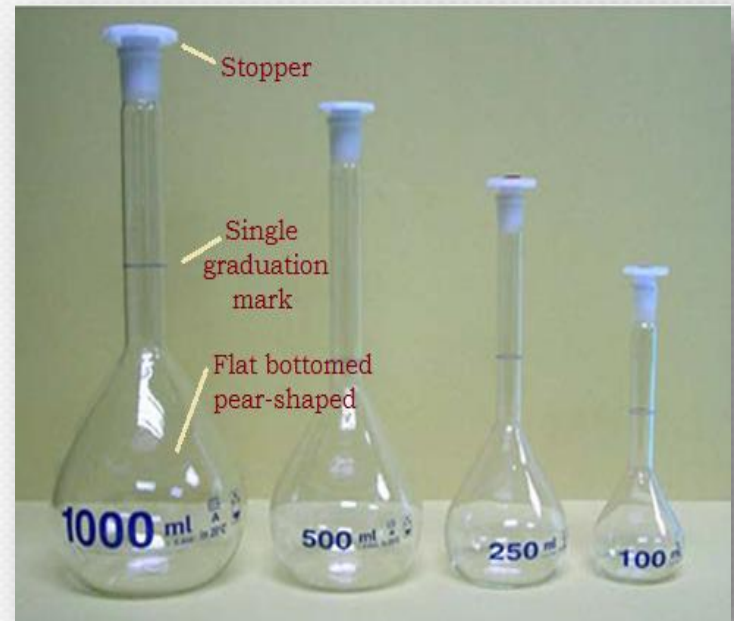
- Funnel



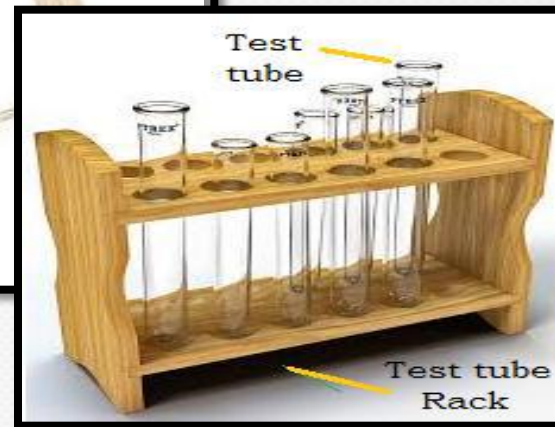
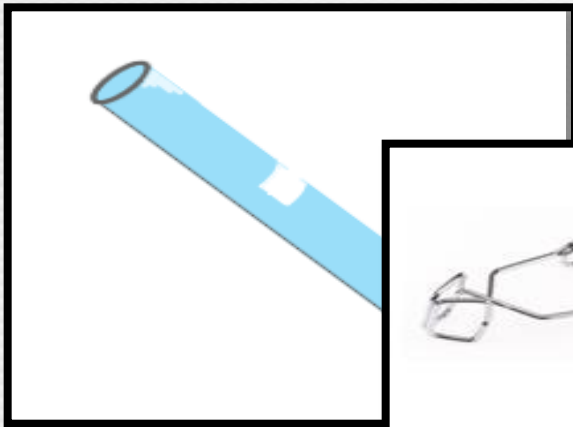
- Cylinder



- Volumetric flask



- Test tube



- Volumetric pipet



(a)



(b)

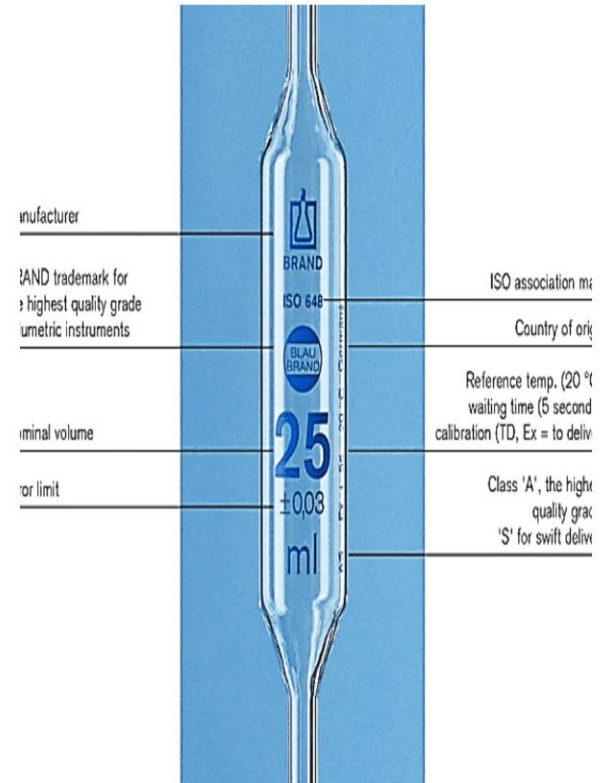


(c)

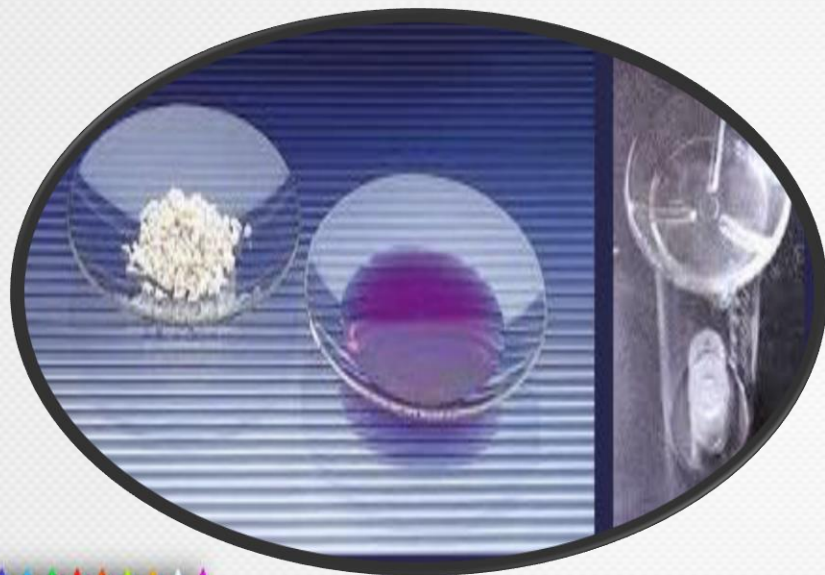


(d)

- (a) Volumetric, bulbe, pipette.
 (b) Graduated pipette.
 (c) Digital pipette.
 (d) Syringe.



- Watch glass



- Reflux Condenser





**Iron
Ring**



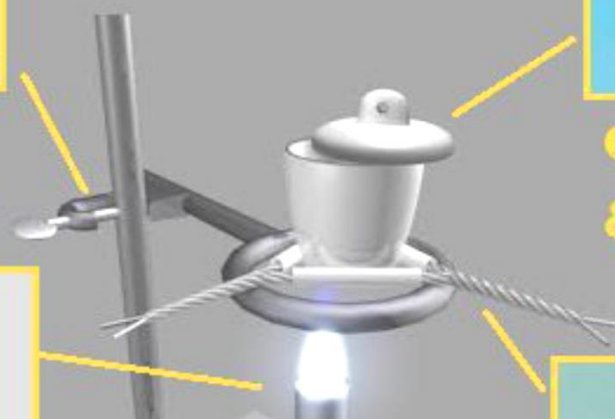
**Crucible
& cover**



**Bunsen
Burner**



**Clay
Triangle**



- Reagent bottles



- Separatory Funnel



- Desiccators:



- Dropper:



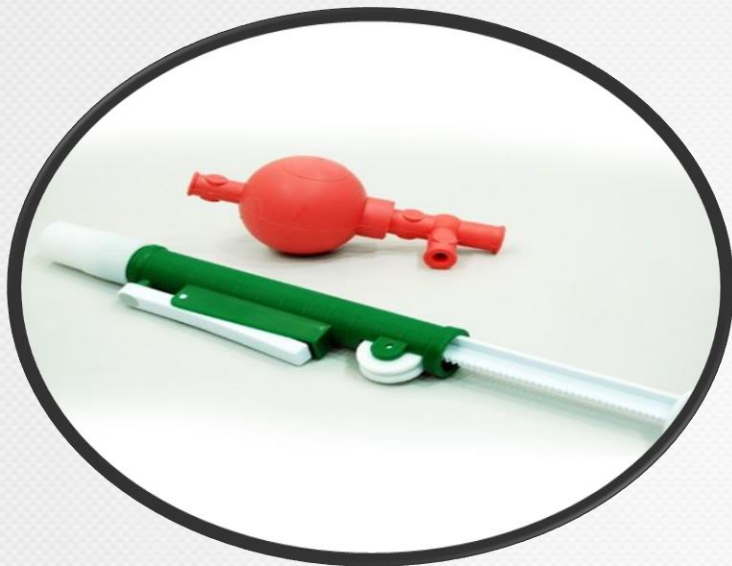
- Filter paper



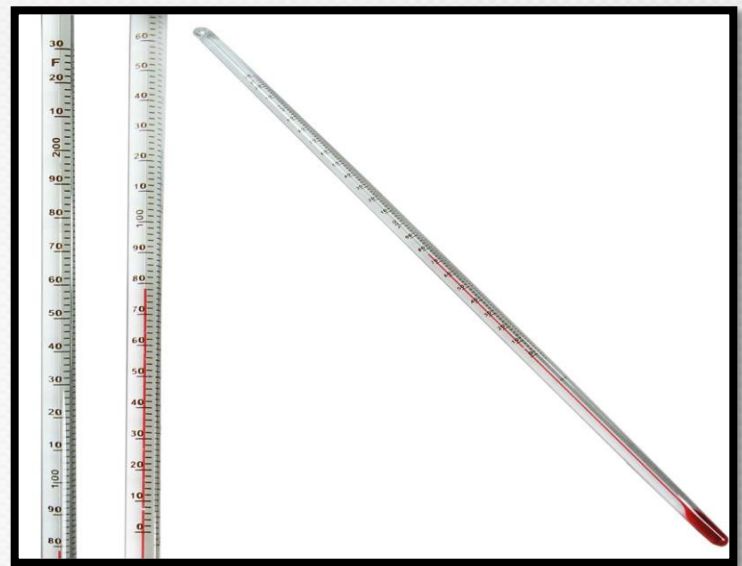
- Mortar and pestle



- Pipet bulb



- Thermometer



- Wash bottle



- Brushes



(B) Safety in lab

- Lab coat



- Gloves



- Safety glass

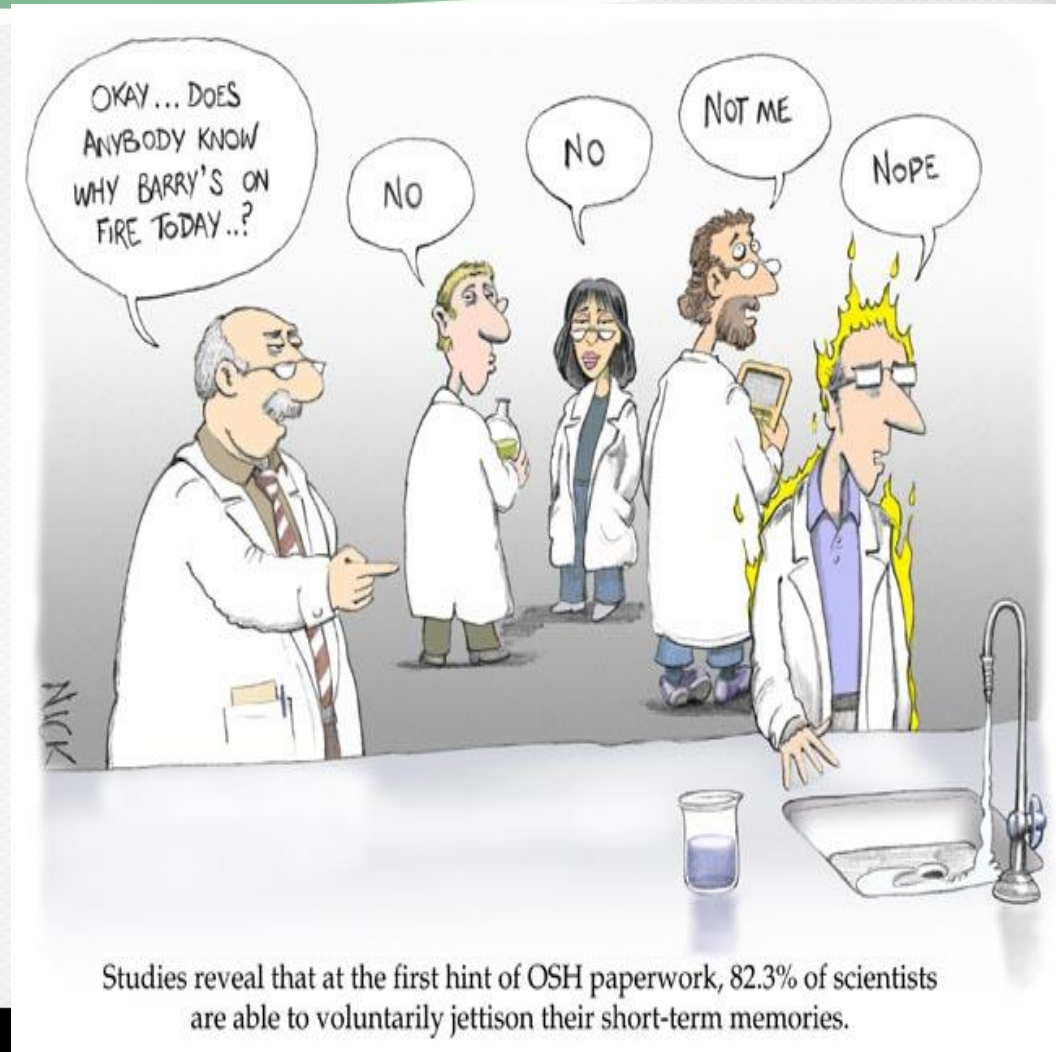


- Mask



What are the additional hazards from chemical materials?

- Toxic substances
- Solvents
- Corrosives
- Flammables
- Irritants
- Carcinogens
- Teratogens
- Mutagens
- Explosives
- Radiation and many, many more



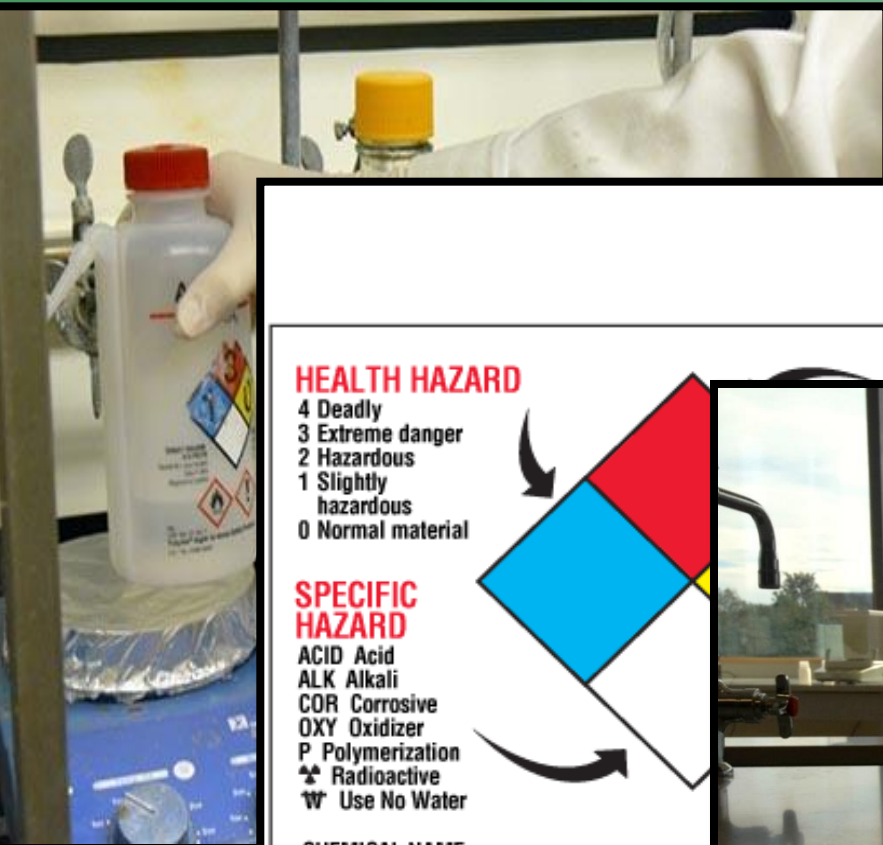
A: safe practices

- These safe practices should be followed to ensure safe working conditions:
- Don't use chipped or cracked glassware.
- When working with hazardous materials, have a second person nearby.
- Know emergency procedures
- Keep the laboratory neat and clean
- Use hazard chemicals under a fume hood
- Decontaminates as needed
- All procedures should be performed to minimize aerosol generation



Labels are important

- Read all labels twice before removing a chemical from the container



HEALTH HAZARD

- 4 Deadly
- 3 Extreme danger
- 2 Hazardous
- 1 Slightly hazardous
- 0 Normal material

SPECIFIC HAZARD

- ACID Acid
- ALK Alkali
- COR Corrosive
- OXY Oxidizer
- P Polymerization
- ☢ Radioactive
- ☞ Use No Water

CHEMICAL NAME _____



WHAT YOU NEED TO KNOW

Globally Harmonised System (GHS)

GHS stands for the Globally Harmonised System of classification and labelling of chemicals. It has been developed by the UN to standardise how information about hazards is passed to users, with the aim of avoiding different hazard information requirements on physical, health and environmental hazards for the same chemicals around the world.

For the European Union the mandatory implementation dates for 'Pure' chemical substances is 01/12/2010, and for 'Mixed' chemical substances it is 01/06/2015. During this transition period both HSID and GHS systems are permitted. When labelling substances HSID and GHS systems cannot be applied to the same box. If a manufacturer chooses the GHS system they can no longer use the HSID system.

Old HSID System to be phased out



New GHS symbols for Physical hazards



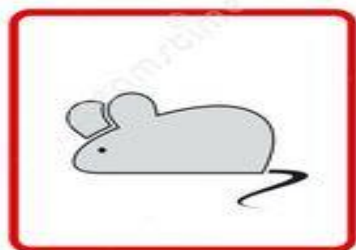
New GHS symbols for Health and Environmental hazards



CLP REGULATION

CLP Regulation (Classification, Labelling and Packaging) and is the EU's implementation of the UN Globally Harmonised System (UN GHS). The CLP Regulation came into force on 20 January 2009. It will replace the Dangerous Substances Directive (DSD) and the Dangerous Preparations Directive (DPD) in a stepwise approach during a transitional period. GHS and CLP differ because CLP is also based on the old EU legislation on classification and labelling, i.e. the Dangerous Substances Directive 67/548/EEC (DSD) and the Dangerous Preparations Directive 1999/45/EC (DPD). In addition CLP includes special labelling and packaging rules that are not part of the UN GHS, but which were brought over from the DSD and DPD. CLP legislation is legally binding in the Member States of the EU whereas GHS is not legally binding.

For further details and information on GHS and CLP regulations and the implementation schedule visit www.hse.gov.uk/ghs and http://echa.europa.eu/clp_en.asp



Animal
hazard



Sharp instrument
hazard



Heat
hazard



Glassware
hazard



Chemical
hazard



Electrical
hazard



Eye & face
hazard



Fire
hazard



Biohazard



Laser radiation
hazard



Radioactive
hazard



Explosive
hazard

Personal habits

- Don't eat, drink, smoke, chew gum or apply cosmetics or remove / insert contact lenses while in the laboratory.



- Do not store food or beverages in the lab or chemical refrigerator



Personal habits


- Don't mouth pipette.



- Wash hands before leaving laboratory or after handling contaminated material



Lab Safety

	don't touch the animals
	wear safety goggles
	wear lab coat
	wear gloves when necessary
	don't eat at your workstation
	clean up your workspace



Anyone not following the rules will be denied access to the lab room