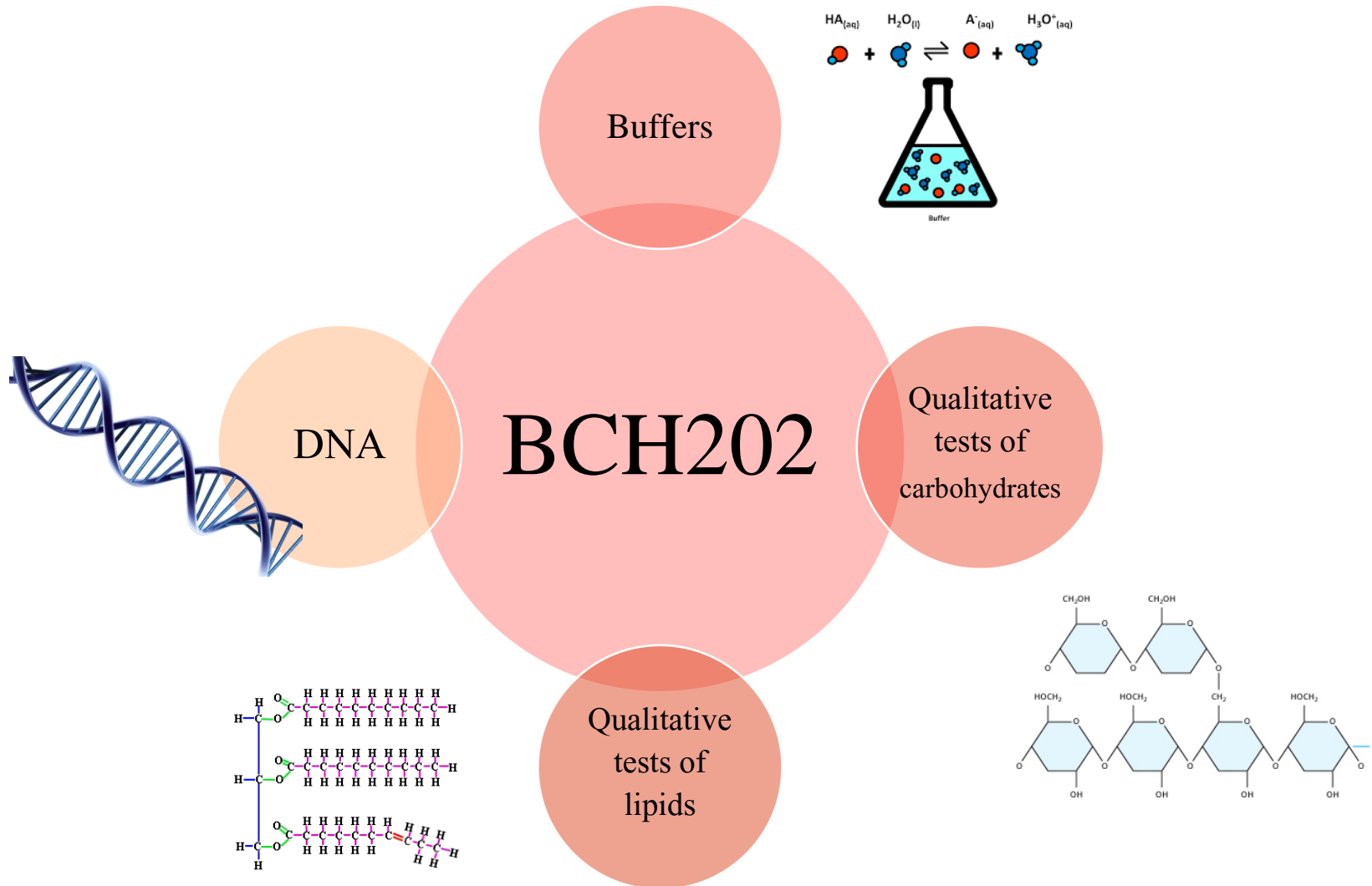


Introduction and lab safety

Outline:

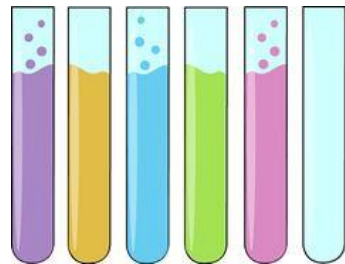


Types of assay:

Assays

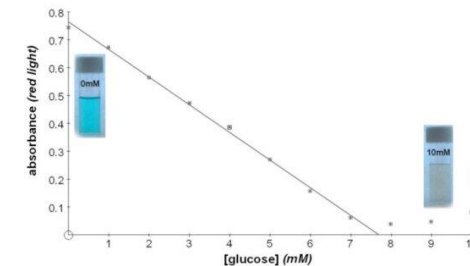
Qualitative assays

Determine if specific substance is there or not, by color or some other quality.



Quantitative assays

Determine the concentration of a substance.



Writing a Report:

1. **Cover page:** Title, course code, student name.
2. **Introduction:** In this part you a background that will help to understand your topic.
3. **Objectives:** you will write it by your own words.
4. **Materials and method:** As in the lab sheet.
5. **Results:** You should report all your results that you got from your experiments. Any tables, figures or calculation.
6. **Discussion:** You must write a description and reasons for why you got your results.
7. **References.**



References:

Example:

The disease begins as a benign adenomatous polyp, which develops into an advanced adenoma with high-grade dysplasia and then progresses to an invasive cancer ⁽¹⁾.

Like other cancers, colorectal cancers arise through a multistep process in which genetic and epigenetic alterations accumulate in a sequential order ⁽²⁾.

References:

1. Markowitz SD, Bertagnolli MM. Molecular origins of cancer: Molecular basis of colorectal cancer. N Engl J Med 2009;361: 2449-60.
2. Pancione M, Remo A, Colantuoni V. Genetic and epigenetic events generate multiple pathways in colorectal cancer progression. Patholog Res Int 2012; 509348:11.

Legend of tables and figures:

Table number

Table legend



Table 2. Effects of Lipofundin 20% on hepatic lipid peroxidation biomarkers.

Biomarkers	Control group	Lipofundin group
MDA ($\mu\text{mol/L/mgPr}$)	3.89 ± 0.75	$7.63 \pm 0.31^*$
TH ($\mu\text{mol/L/mgPr}$)	35.27 ± 4.22	$67.32 \pm 5.89^*$
PP ($\mu\text{mol/L of MDA/mg Pr}$)	5.06 ± 0.48	$9.74 \pm 0.42^*$

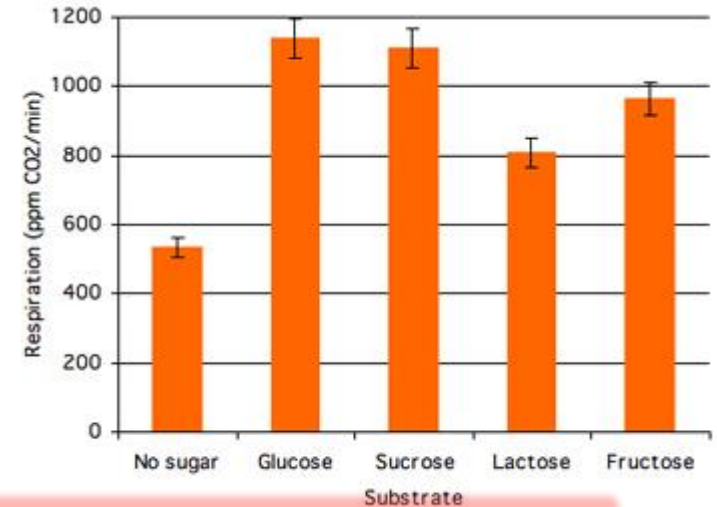


Figure 1. The Effect of Substrate on Yeast Respiration.

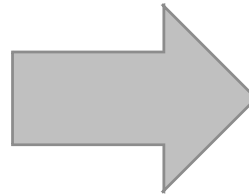
Figure number

Figure legend

Justify the text:

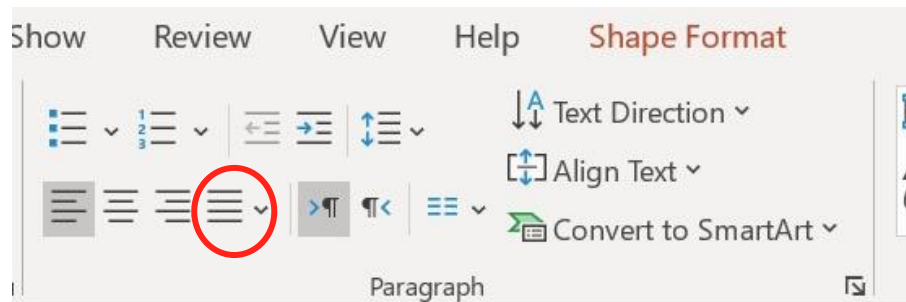
Example:

It's consist of glass electrode which contain a very thin bulb, blown onto a hard glass tube which is sensitive to pH. The bulb contains a solution of hydrochloric acid and is connected to a platinum lead via silver -silver chloride electrode which is reversible with respect to hydrogen ions.



It's consist of glass electrode which contain a very thin bulb, blown onto a hard glass tube which is sensitive to pH. The bulb contains a solution of hydrochloric acid and is connected to a platinum lead via silver -silver chloride electrode which is reversible with respect to hydrogen ions.

How?



Font and size text:

Font: Times New Roman.

Size:

-Subtitle: 14 pt.

-Body: 12 pt.

General Laboratory Safety

Safe working protects:

- You.
- Other lab workers and visitors.
- Your work.



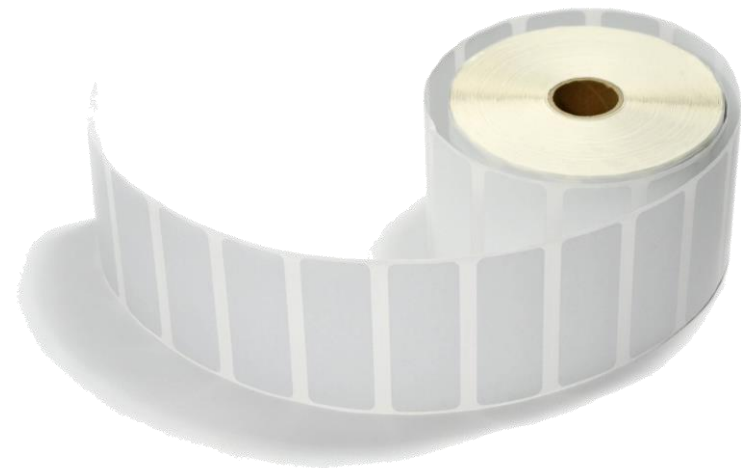
General consideration:

- Never **eat, drink** or chew gum in the lab.
- Do **not** taste , smell or touch any chemical.
- Tell your instructor about any accident .
- Tie your hair before doing an experiment.
- Closed-toed shoes should be worn at all times.
- Wash your **hands** with soap after an experiment.
- You must know all exits in your lab, eye washer, and fire extinguisher, first aid kit.
- Do **not** touch any electrical sources .



Before starting :

- Before start working, be sure to **label** the glassware.
- Glassware should be **clean** before using.



After work:

- After finishing the experiment turn off all the equipment, clean your work bench.
- **Glassware must be cleaned and kept back at the proper place.**



Personal Protective Equipment :



Place your bag in the correct area.



Lab coat should be worn all the time in the lab.

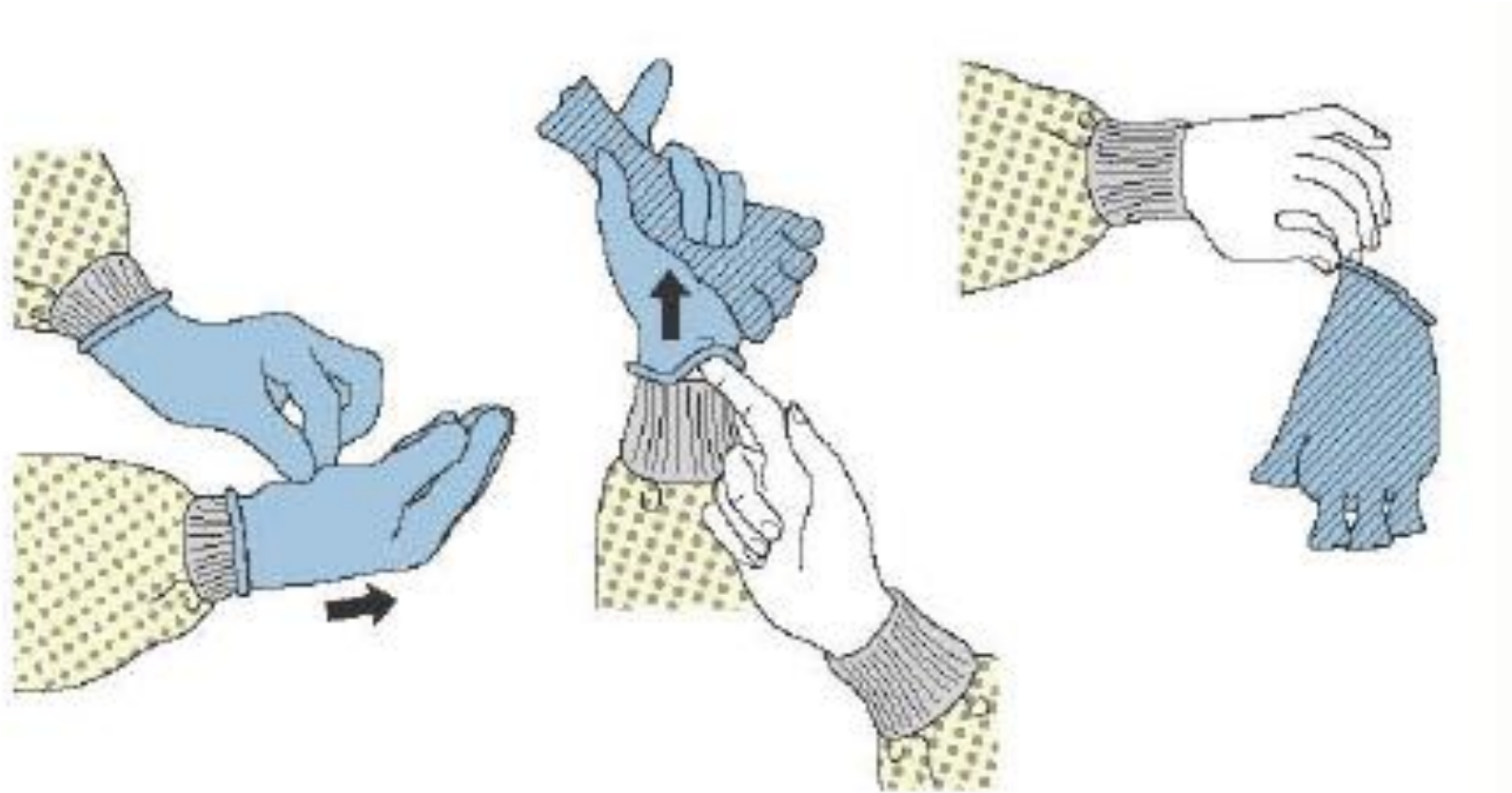


Protective gloves should be worn when handling hazardous materials.



Protective glasses should be worn when using hazard chemicals.

How to remove gloves?



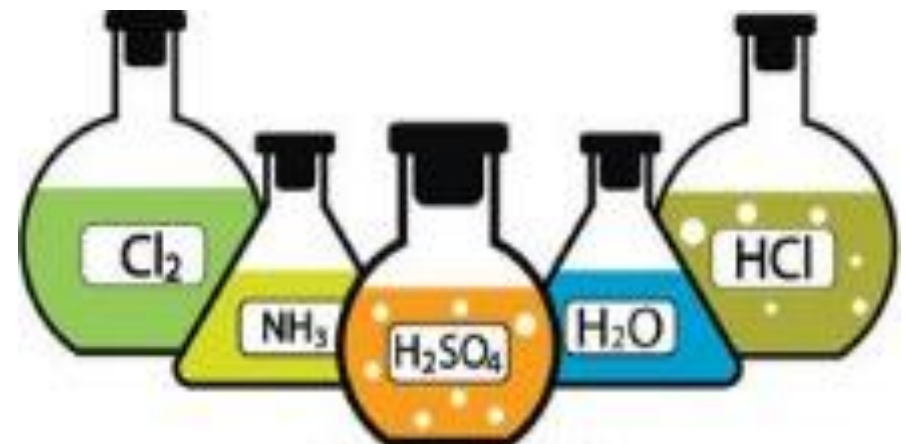
Dealing with chemicals:

- Consider all chemicals to be hazardous.
- Know what chemicals you are using and notice the **hazard symbols**.
- Carefully **read the label** twice before taking anything from a bottle.
- **Never point** a test tube that you are heating at yourself or your neighbour.
- You must work at the **hood** when dealing with a chemical with fumes.
- If chemicals come into **contact with your skin** or eyes, **flush** immediately with water and consult with your instructor.



Dealing with chemicals cont':

- Always pour acids into water. If you pour water into acid, the heat of reaction will cause the water to explode into steam.
- Do not forget to **label your tubes** before starting the lab.
- **Close** all chemical bottles after finishing
- Dispose chemicals properly.
- **Don't use the same pipette for different chemicals without washing them.**



Hazard symbols

العلامات الإرشادية للمواد الكيميائية



مادة سامة

Toxic



مادة كاوية وحارقة

Corrosive



مادة قابلة للاشتعال

Flammable



مادة متفجرة

Explosive



مادة مؤكسدة

Oxidizing



مادة مهيجة

Irritating



مادة مشعة

Radioactive



مادة ضارة للبيئة

Environmental hazard



مادة ضارة

Harmful

علامات تحذيرية للمواد الكيميائية
Chemical Warning Signs

Information about chemicals:

- **Material Safety Data Sheet (MSDS)** is a document that contains **information** on the potential hazards (health, fire, reactivity and environmental) and **how to work** safely with the chemical product. It also contains information on **the use, storage, handling and emergency** procedures all related to the hazards of the material.



Health	2
Fire	3
Reactivity	0
Personal Protection	E

Material Safety Data Sheet Ethyl alcohol 200 Proof MSDS

Section 1: Chemical Product and Company Identification

Product Name: Ethyl alcohol 200 Proof

Catalog Codes: SLE2248, SLE1357

CAS#: 64-17-5

RTECS: KQ6300000

TSCA: TSCA 8(b) inventory: Ethyl alcohol 200 Proof

CI#: Not applicable.

Synonym: Ethanol; Absolute Ethanol; Alcohol; Ethanol 200 proof; Ethyl Alcohol, Anhydrous; Ethanol, undenatured; Dehydrated Alcohol; Alcohol

Chemical Name: Ethyl Alcohol

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

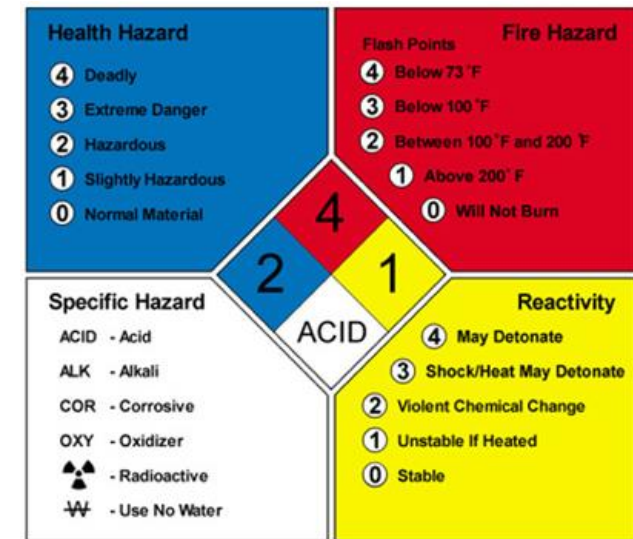
US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

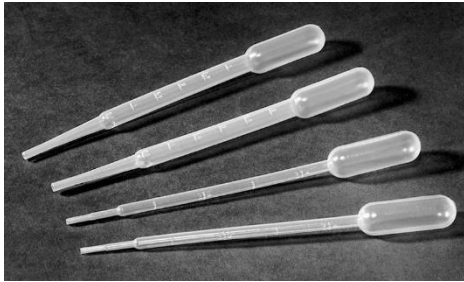
For non-emergency assistance, call: 1-281-441-4400



(HMIS)

General glassware and instrument

Glassware:



Pasteur pipette



Test tubes



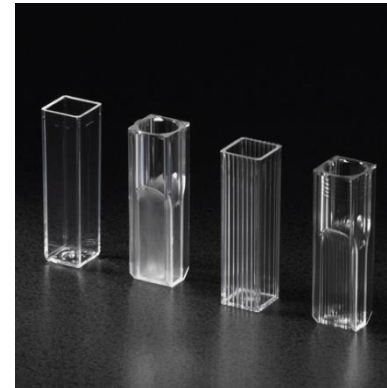
Pipette



Pipette pump

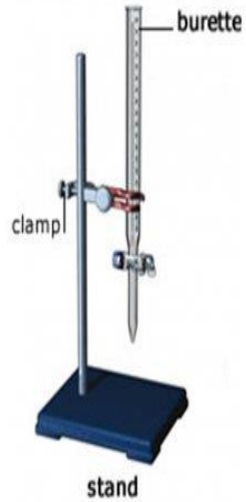


Conical flask



Cuvette

Glassware:



Burette



Reagent bottle



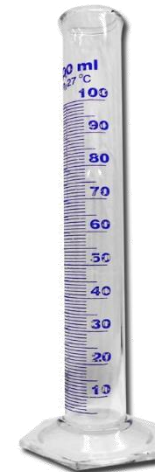
Beaker



Wash bottle



Volumetric flask



Measuring cylinder

instruments:



Water bath



Spectrophotometer



Electronic balance



pH meter

Homework:

Search for MSDS of H_2SO_4 :

- What you will do in case of eye contact?
- What you will do in case of skin contact ?
- Is it flammable?
- Health Management Information Systems (HMIS).