# FIRST PROFESSIONAL SPOT TEST

B.U.K LEVEL 400 2016/17

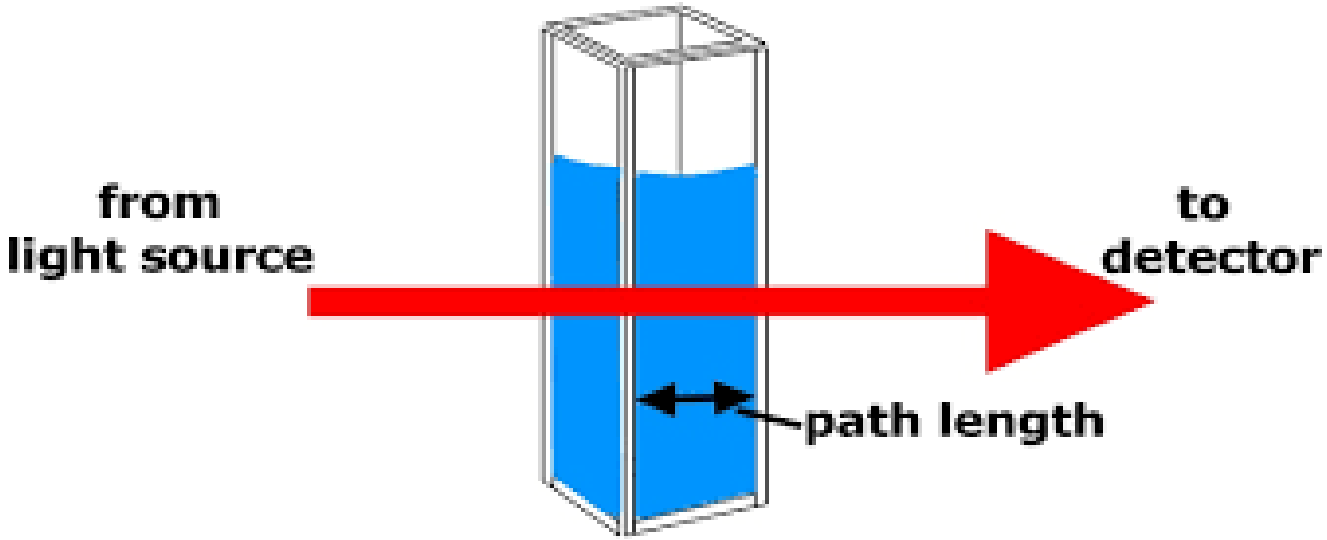
# NOTE

**The time for each spot identification is 30seconds**

# SPOT A = CUVETTE

**Path length** is defined as the distance that light travels through a sample in an analytical cell.

Cuvette is used to hold samples for spectroscopic analysis

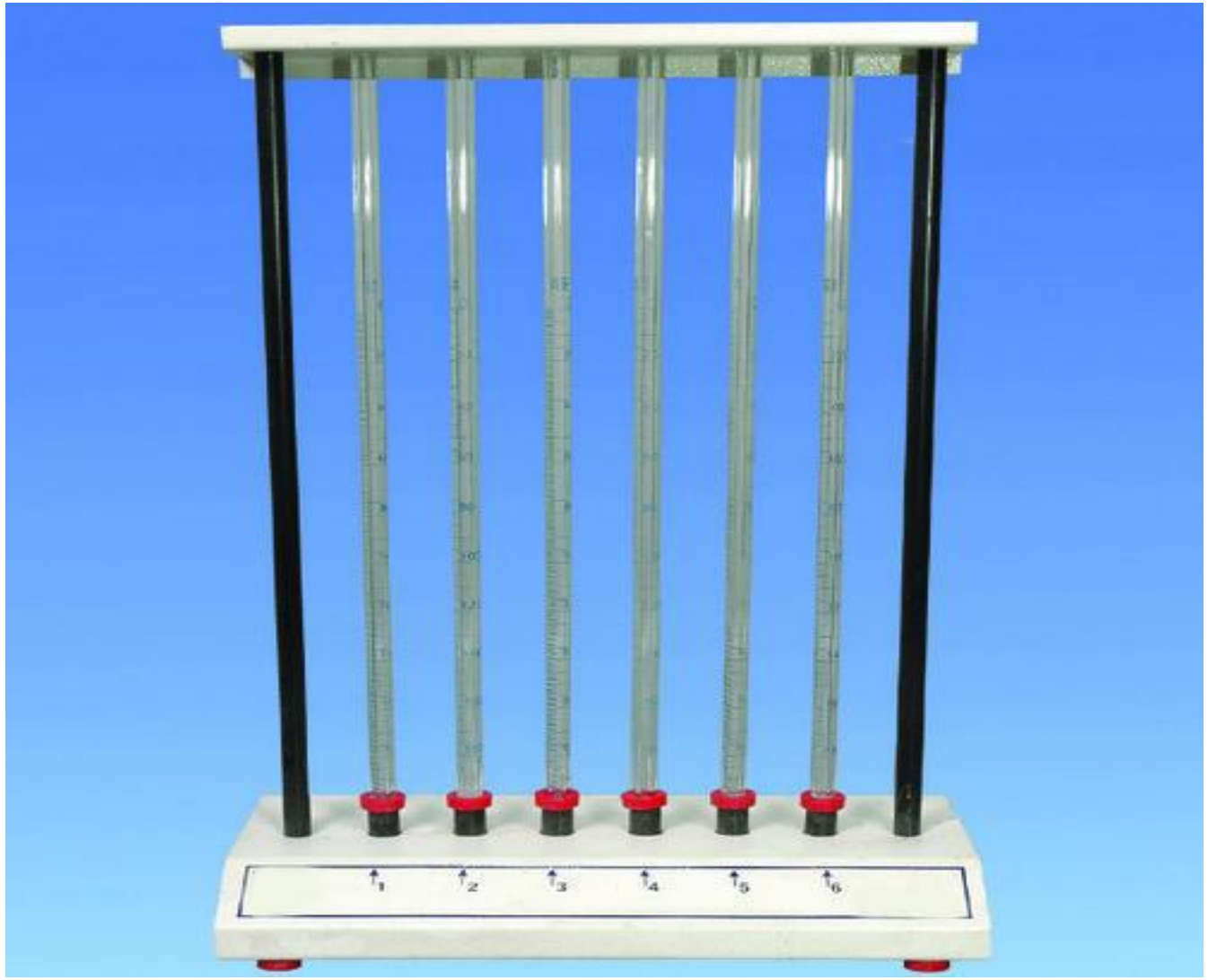


# SPOT B = WAVELENGTH SELECTOR FILTER

**Used in the colorimeter to select wavelength which the solute absorbs the most, in order to maximize accuracy**

# SPOT C = WESTEGREN STAND WITH WESTEGREN TUBE

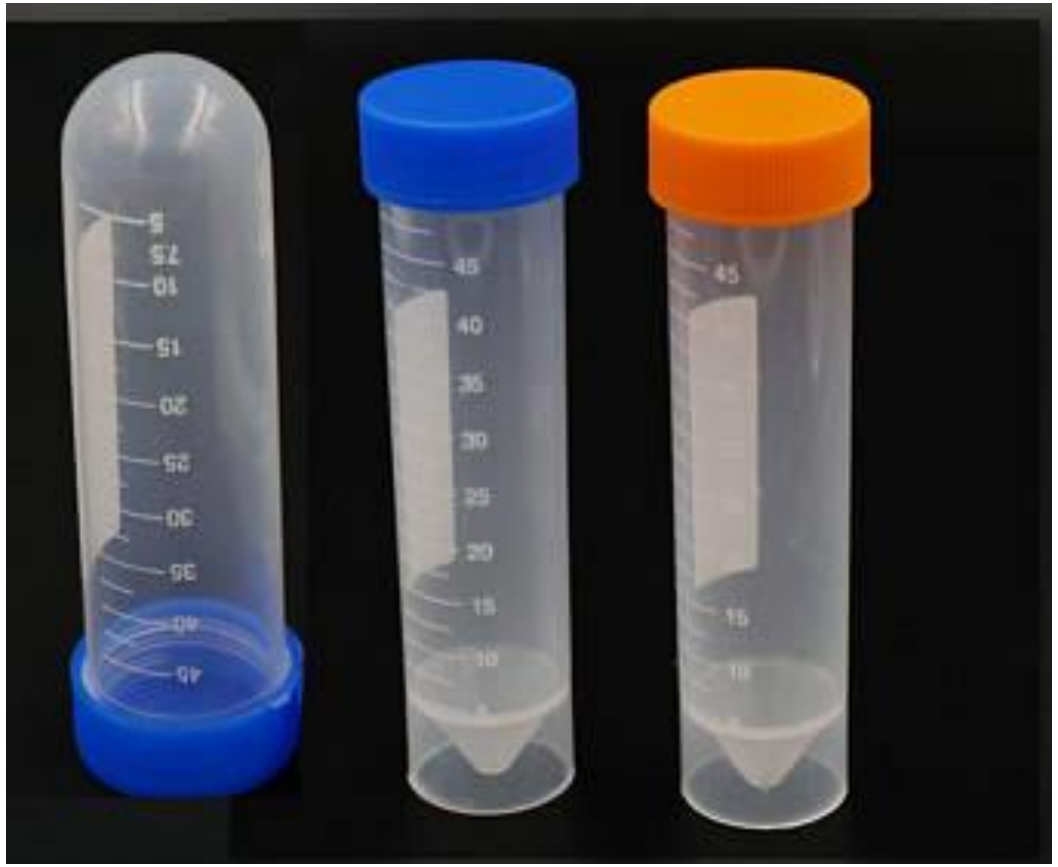
It is used for ESR estimation



# SPOT D

## BLUE TOP = lithium Heparin container

## YELLOW TOP = Fluoride oxalate container



- **Sodium heparin** = For serum/chemistry (urea and electrolytes)

- **Fluoride oxalate** = Use for glucose estimation

# SPOT E = HEMOGLOBIN PIPETTE WITH TUBING

# SPOT F = WIRE LOOP

used to inoculate test samples into culture media for bacterial or fungal culture (for streaking inoculum unto agar plates)

# SPOT G = LABORATORY INCUBATOR

**are mainly used for growing microbial cultures**

# SPOT H = ASCARIS LUMBRICOIDES


**Definitive host is man**

# SPOT I = BOUINS FLUID

- It is **composed** of picric acid, acetic acid and formaldehyde in an aqueous solution.
- It is especially good for gastrointestinal tract biopsies because this fixative allows crisper and better nuclear staining than 10% neutral-buffered formalin
- It is prepared as follows:

-Picric acid, saturated aqueous solution - 75ml;
-Formalin, 40% aqueous solution - 25ml;

-Glacial Acetic acid, l - 5ml.

# SPOT J = SAPA
# (Saturated Alcoholic Picric Acid)

**Constituents**

- Picric acid
- Alcohol (e.g Ethanol)

NOTE

- Picric acid solution is a saturated alcoholic formulation for use as a background stain in where it will produce a yellow background or as a fixative, it is often used in conjunction with **Trichrome stains** because its use as fixative or in the staining protocol can very much enhance the stain picture obtained from the trichrome stain (stains erythrocyte).

# OTHER POSSIBLE SPOTS

# SPECTROPHOTOMETER

It is used to measure the intensity of light absorbed after it passes through a sample solution

# CUVETTE HOLDER

It is designed to accommodate(hold) standard micro and macro cuvettes within the spectrophotometer.

# COLORIMETER

**It is used for measuring transmittance and absorbance of light passing through a sample solution**

# FLAME PHOTOMETER

**It is used to determine the concentration of certain metal ions – Na, K, Cl & Ca**

# HOT AIR OVEN


Hot air oven is usually used for heating, drying & sterilizing items

# AUTOCLAVE

It is used to sterilize equipment and supplies by subjecting them to high-pressure saturated steam at 121oC for 15-20 min depending on the size of the load and the contents.

# HEMATOCRIT CENTRIFUGE

**It is used for determination of volume fractions of erythrocytes in blood (PCV) and also for separation of micro blood and solutions**

# LABORATORY CENTRIFUGE

It is used to separate blood components

# DIGITAL WATER BATH


- It is use to incubate samples in water at constant temperature over a long period of time

# ELECTROPHORESIS MACHINE


- It is used to separate macromolecules either nucleic acids or proteins on the basis of size, electric charge and other physical properties.

# ELECTROPHORESIS TANK

- **It is where the electrophoresis buffer is poured.**

# ELECTROPHORESIS MACHINE WITH ELECTROPHORESIS TANK ON TOP

# WEIGHING MACHINE

- It is used to measure the weight of an item.

# HOT PLATE


- It is for Heat drying glass slides (or other glass wares)

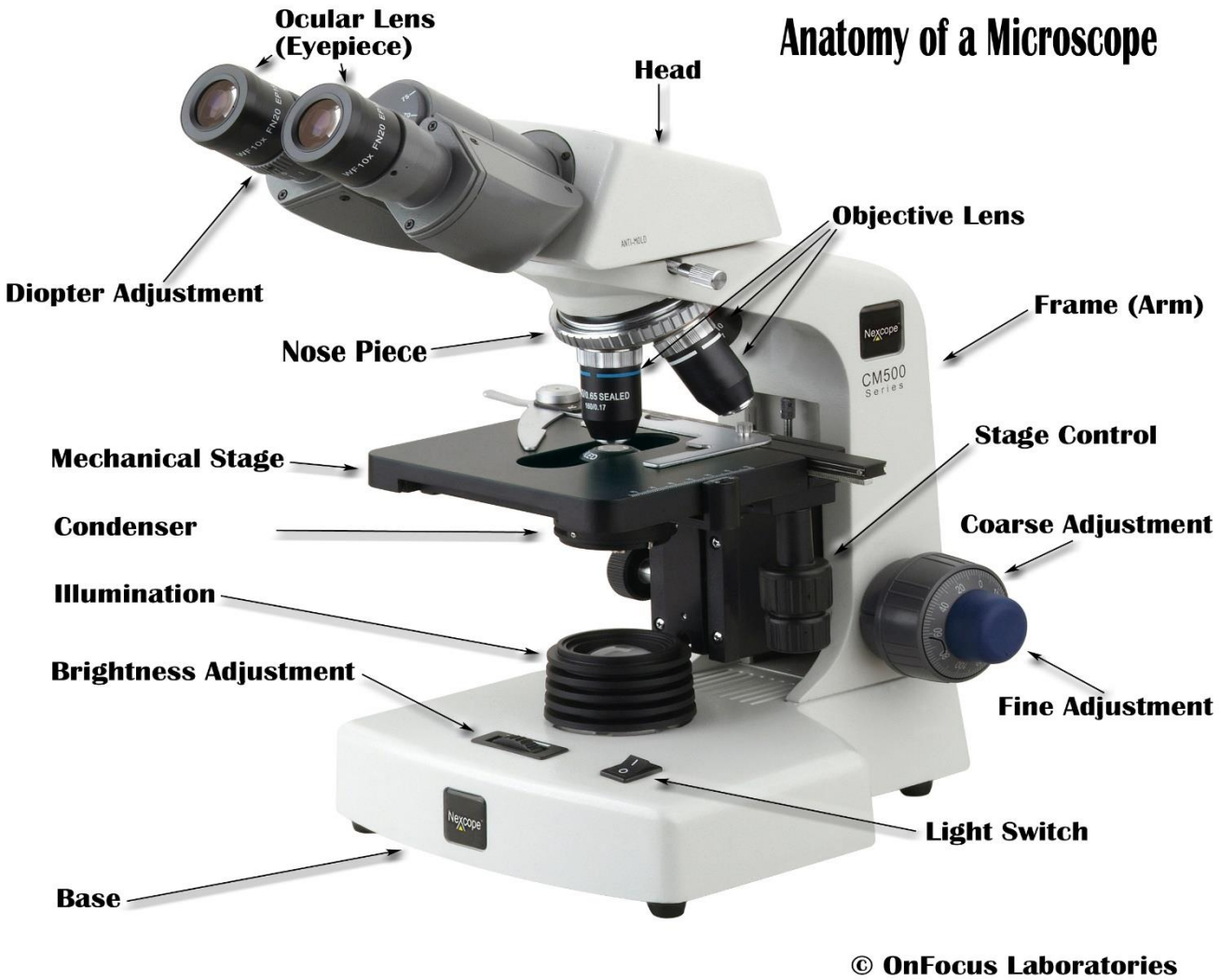
# MAGNETIC STIRRER WITH BEAKER ON TOP


It is used for stirring heated liquid automatically

# HOT PLATE AND STIRRER


It is used for heating and automatic stirring

# MICROSCOPE


Anatomy of a Microscope
Ocular Lens (Eyepiece)
Head
Objective Lens
Diopter Adjustment
Frame (Arm)
Nose Piece
Mechanical Stage
Stage Control
Condenser
Coarse Adjustment
Illumination
Brightness Adjustment
Fine Adjustment
Light Switch
Base
CM500
Series
© OnFocus Laboratories

# OBJECTIVE LENS


- It relays a real image of the object to the eyepiece

# EYE PIECE


For magnifying the primary image produced by the objective lens

# 4X OBJECTIVE LENS


For scanning parasites

# 10x OBJECTIVE LENS (Yellow)


For focusing wet preparations

# 40x OBJECTIVES (Blue)


For viewing wet slides and focusing stained slides

# 100x OBJECTIVE LENS (white)


For viewing stained slides

# CONDENSER


For supplying the object with a cone of light correct size and formular

# IRIS DIAPHRAGM

For  regulating the angle of cone of light entering the condenser

# PLAIN CONTAINER

For storing blood samples for serology

# LITHIUM HEPARIN CONTAINER

For storing blood for renal function test

# FLUORIDE OXALATE CONTAINER

For storing blood for glucose test

# EDTA CONTAINER


For storing blood samples for lab test

# VACUTAINERS

## PLASTIC TUBE TOP COLOR AND ORDER OF DRAW –

Draw Blood Culture bottles first, then proceed with blood tube order of draw (1-12) below:

| | | | |
|---|---|---|---|
| 1.  | **LIGHT BLUE top plastic tube**<br>PT, PTT, Fibrinogen, Fibrin D-Dimer, other Coagulation Testing<br>**Note:** invert gently 3 - 4 times | 7.  | **BRIGHT GREEN top**<br>**(SODIUM HEPARIN)**<br>**plastic non-gel tube**<br>Mycobacteriology (AFB) Blood Culture, HLA-B27, Chromosome Studies |
| 2.  | **GOLD gel plastic tube**<br>Most Chemistry tests & Immunology Tests, Hepatitis Tests, Serologies (Do not use for Troponin, BNP) | 8.  | **LAVENDER top plastic tube**<br>Hematology: CBC, Platelet, Sed. Rate<br>Chemistry: CD4, CD8, G6PD, Hemoglobin A1C & Hemoglobin Variants |
| 3.  | **RED top plastic tube**<br>For tests requiring serum<br>**Note:** contains clot activator | 9.  | **WHITE top plastic tube (PPT)**<br>Hepatitis and HIV Viral Loads, BNP |
| 4.  | **ROYAL BLUE top plastic tube**<br>Copper, Zinc, Trace Elements | 10.  | **PINK top plastic tube for Blood Bank ONLY.** |
| 5.  | **LIGHT GREEN top**<br>**(LITHIUM HEPARIN)**<br>**gel plastic tube**<br>Troponin, Metabolic Panels, Lipid, Liver Panels, Ammonia (ice), HIV Rapid Anti-body | 11.  | **TAN top plastic tube**<br>Lead |
| 6.  | **DARK GREEN top**<br>**(LITHIUM HEPARIN)**<br>**plastic non-gel tube**<br>Ionized Calcium (not part of blood gas), Ammonia (ice) | 12.  | **GRAY top plastic tube**<br>Glucose, Lactate (Lactic Acid) on ice |

**"IMPORTANT":** Please follow the correct order of draw as numbered above and thoroughly mix all specimens (except Light Blue top) by inversion 8 - 10 times.

# PLAIN VACUITAINER


It is used in serum/chemistry and serology tests

# GEL ACTIVATOR


**It is used in serum/chemistry, immunology, Hepatitis test**

# THROMBIN


It is used for stat serum/chemistry testing

# EDTA VACUITAINER (PURPLE)


It is used in plasma/ Haematology -FBC

# EDTA VACUITAINER (PINK)


**It is used in plasma/blood bank only – cross matching**

# SODIUM/LITHIUM HEPARIN VACUITANER

It is used in plasma/chemistry tests –urea & electrolytes

# ROYAL BLUE TOP VACUITAINER


It is used for trace metal elements(-Cu, Zn) analysis & Toxicology

# TAN


It is used for lead determinations.

# SODIUM CITRATE VACUITANER


It is used in plasma/coagulation tests

# ESR VACUITAINER

It is used in plasma/ ESR –Haematology tests

# FLUORIDE OXALATE VACUITANER

It is used in plasma/glucose testing/Lactic acid, blood alcohol

# LIGHT YELLOW VACUITAINER


**Acid-citrate- dextrose (ACD): It is Used for used blood bank studies, HLA phenotyping, and paternity testing . Or SPS in serum microbiology/culture**

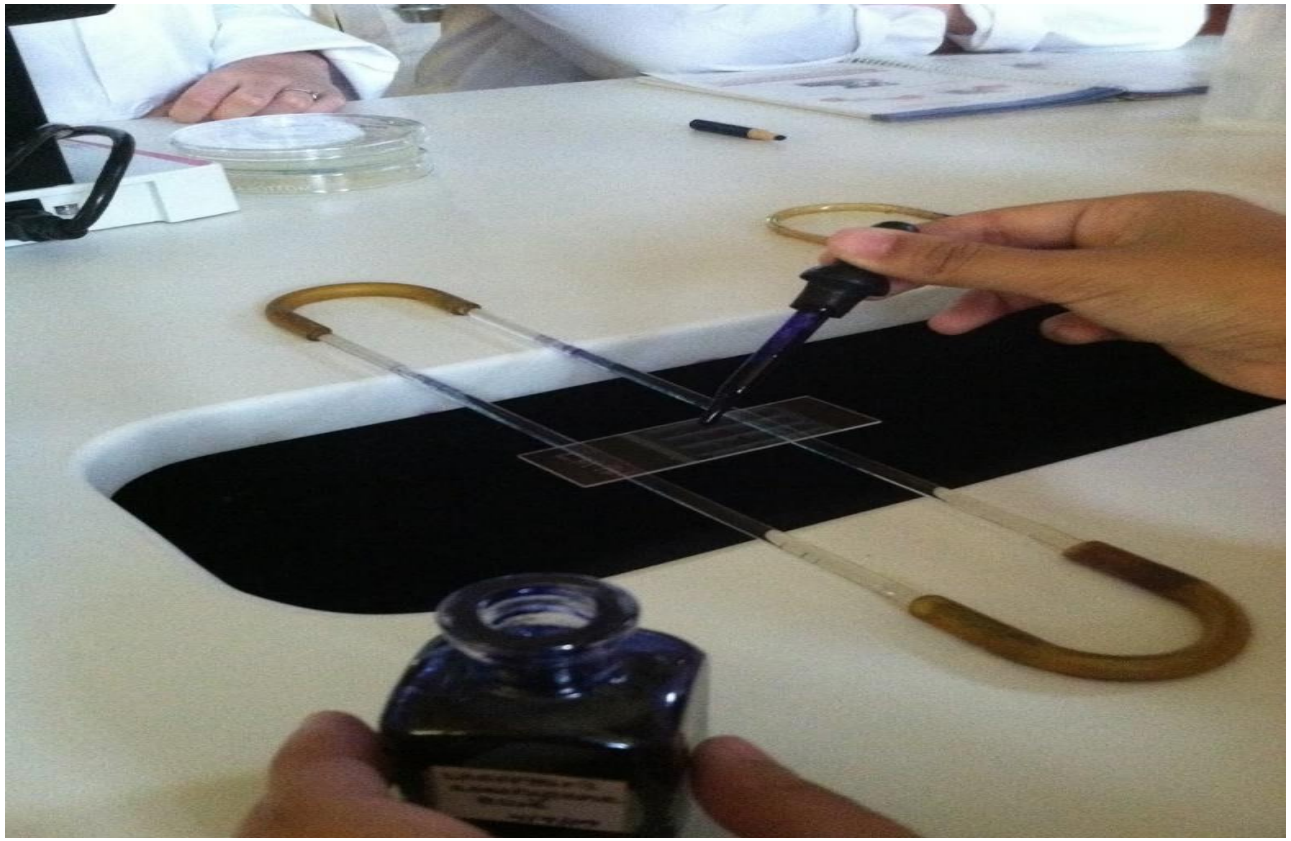
# WHITE TOP VACUITAINER

**It is used for hepatitis and HIV viral load, BNP**

# SLIDE STAINING RACK

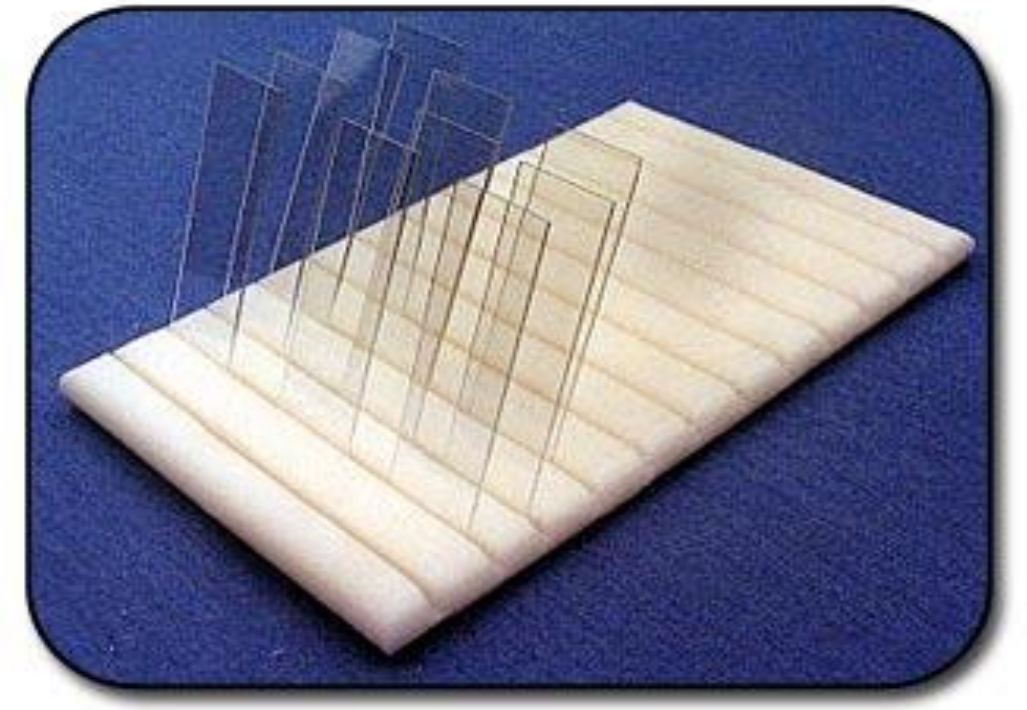
- It is used for the simultaneous **staining** of microscope slides

# STAINING RACK



- It is used for the simultaneous **staining** microscope slides

# DRYING RACK (WITH SLIDES)

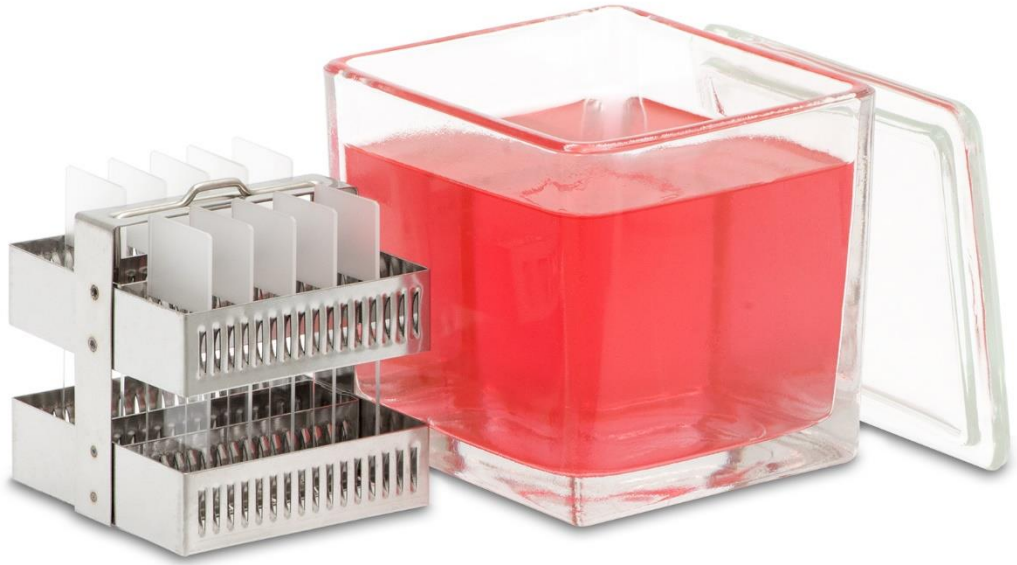


- It is used for draining slides in a laboratory

# STAINING DISH

**staining dishes** are **used** to **stain** cells and tissues on microscope slides.

# GLASS STAINING JAR WITH DIP STAINING RACK (SIDE)



# DIP STAINING RACK

- It is used for the simultaneous **staining** microscope slides by dipping vertically in a staining dish.

# COPLIN JAR

- **Staining jars** are **used** to **stain** cells and tissues on microscope slides

# TEST TUBE

- *Test tubes* are used to hold, mix, and heat chemical experiments. They are used as homes for microorganisms when people want to culture (grow) them.

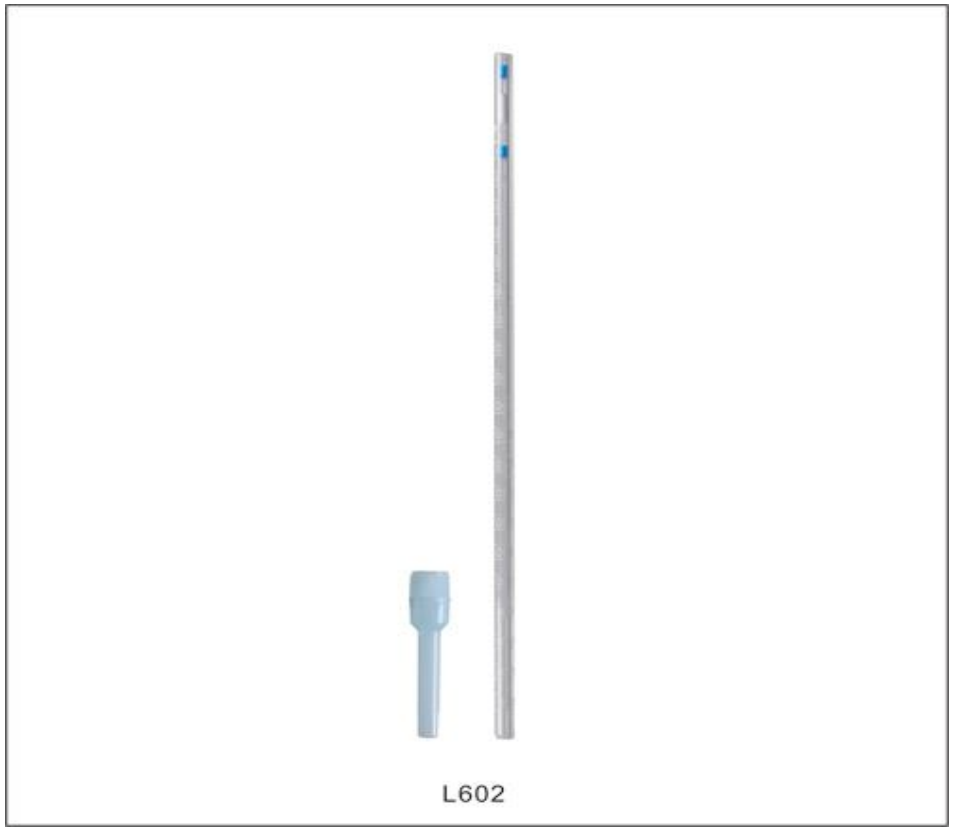
# CENTRIFUGE TUBE

For spinning urine samples

# WESTEGREN TUBE ON A CUP

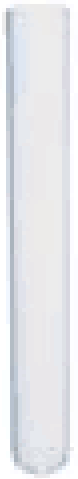
For ESR estimation

# WESTEGREN CUP AND TUBE




For ESR estimation

# DURHAM TUBE



For detecting gas production in sugar fermentation media by microorganisms

(the tube is placed in an inverted fashion so that gases produced get trapped in it and do not float away to the surface)

# BIJOU BOTTLE

**For carrying out biochemical tests**

# McCartney BOTTLE

McCartney is used for simultaneous solid and liquid cultures.

# TEST TUBE BRUSH

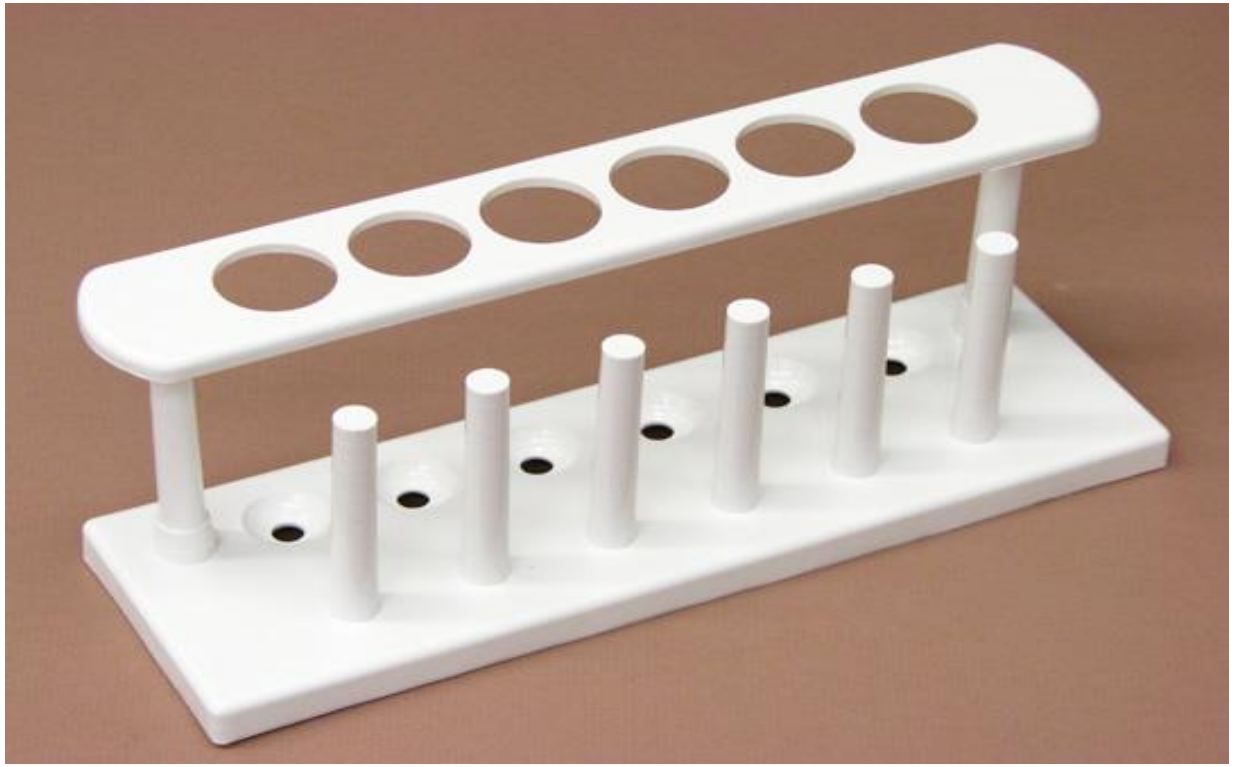
**For washing test tubes**

# TEST TUBE HOLDER

**For carrying test tubes**

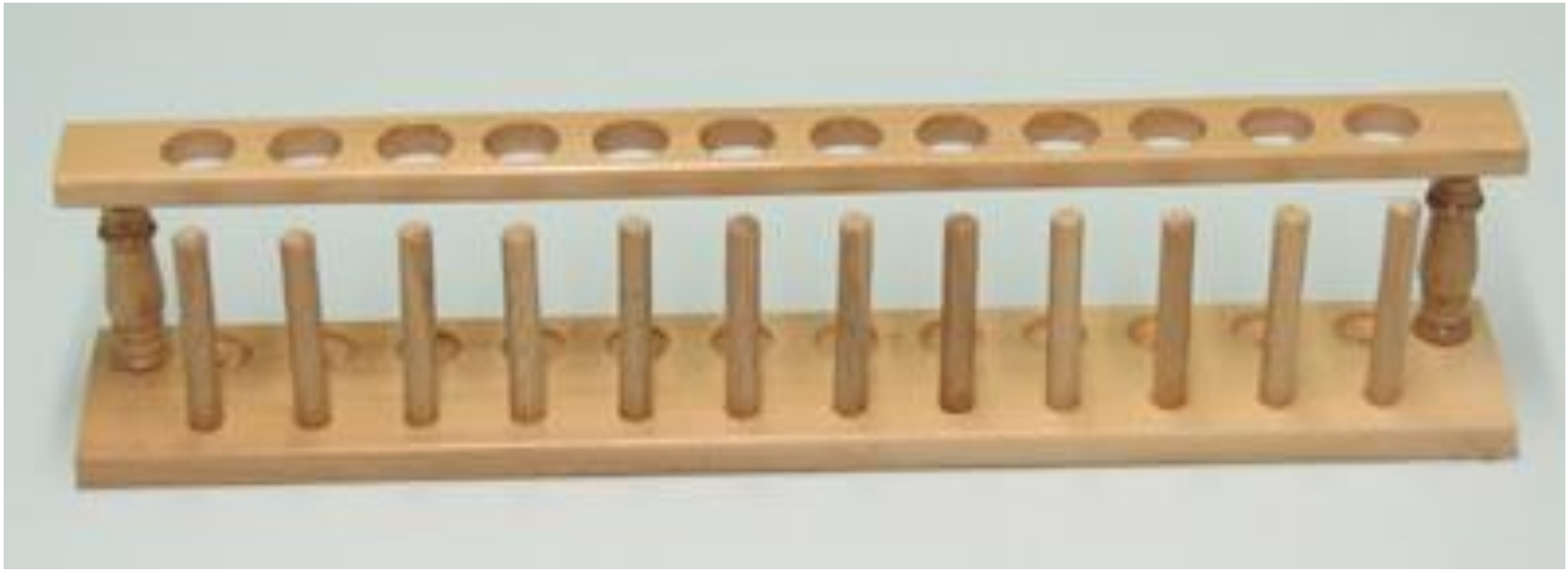
# TEST TUBE HOLDER WITH TEST TUBE

# TEST TUBE RACK (plastic)



It is used to **hold** upright **multiple** test tubes at the same time

# TEST TUBE RACK (WOODEN)



It is used to **hold** upright **multiple** test tubes at the same time

# TEST TUBE RACK (Metal)

It is used to **hold** upright **multiple** test tubes at the same time

# AUTOMATIC PIPETTE


used in transferring measured volume of liquid or solution

# MULTI CHANNEL PIPETTE

It is used in pipetting various samples at a time which increases output

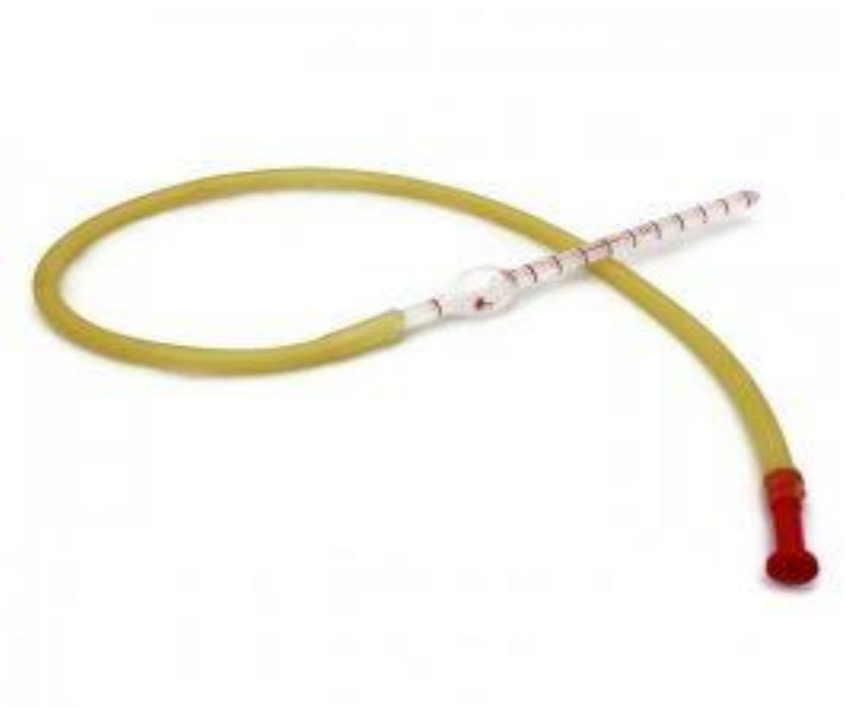
# AUTOMATIC PIPETTE TIP

**It is used to avoids cross contamination of pipettes**

# PASTEUR PIPETTE

used in transferring small volume of liquid or solution

# RBC PIPETTE



use for dilution of blood with RBC diluting fluid to count the number of red blood cells

# WBC PIPETTE

use for dilution of blood with WBC diluting fluid to count the number of white blood cells

# DIFFERENCES BETWEEN RBC AND WBC PIPETTE

| | RBC pipette | WBC pipette |
|---|---|---|
| 1) | It has a red bead | It has a white bead |
| 2) | It has graduations upto mark 101 | It has graduations upto mark 11 |
| 3) | Size of bulb is larger | Size of bulb is smaller |
| 4) | Size of lumen is smaller | Size of lumen is larger |

# GLASS PIPETTE


For pipetting and dispensing a variable volume of aqueous liquid. E.g  during titration

# PIPETTE FILLER

it is Use to safely fill glass and plastic pipettes.

# PIPETTE FILLER

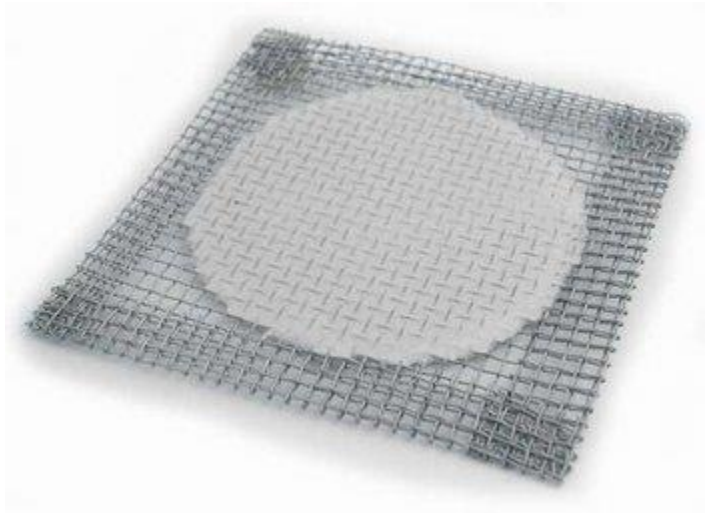
- it is Use to safely fill glass and plastic pipettes.

# TRIPOD STAND

**For placing objects for heating**

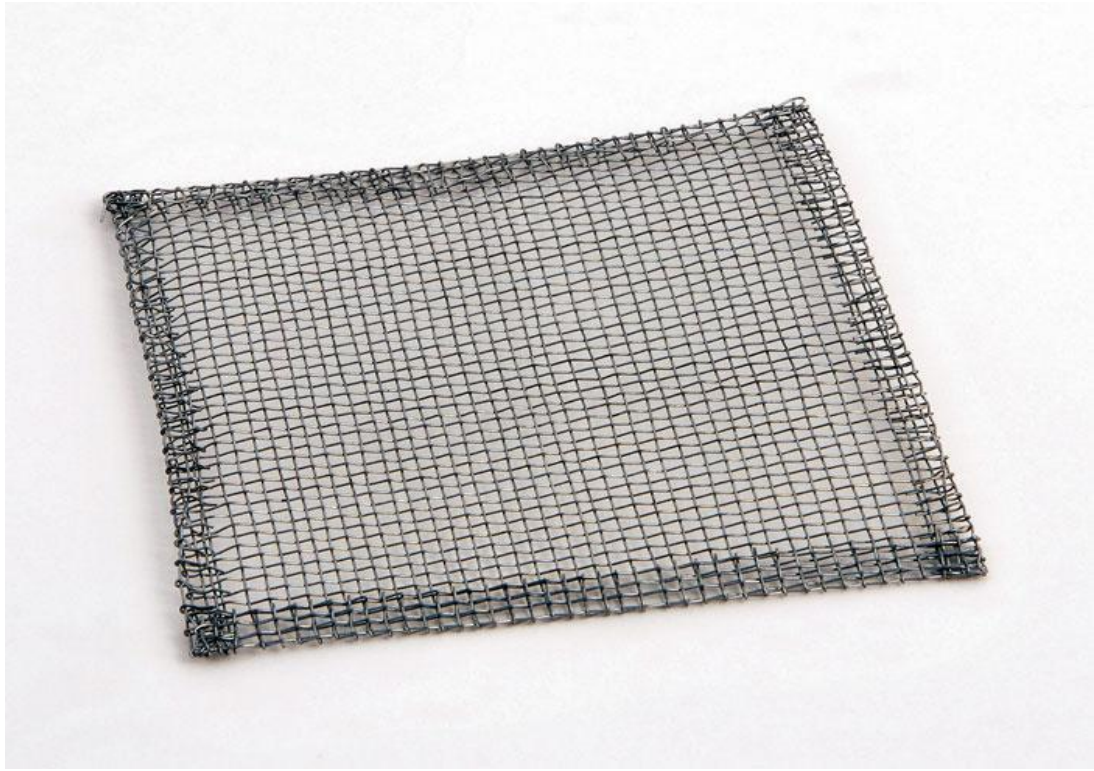
# WIRE GAUZE

Wire gauze with filter



- **It is used to support the beakers or other glassware or flasks during heating**

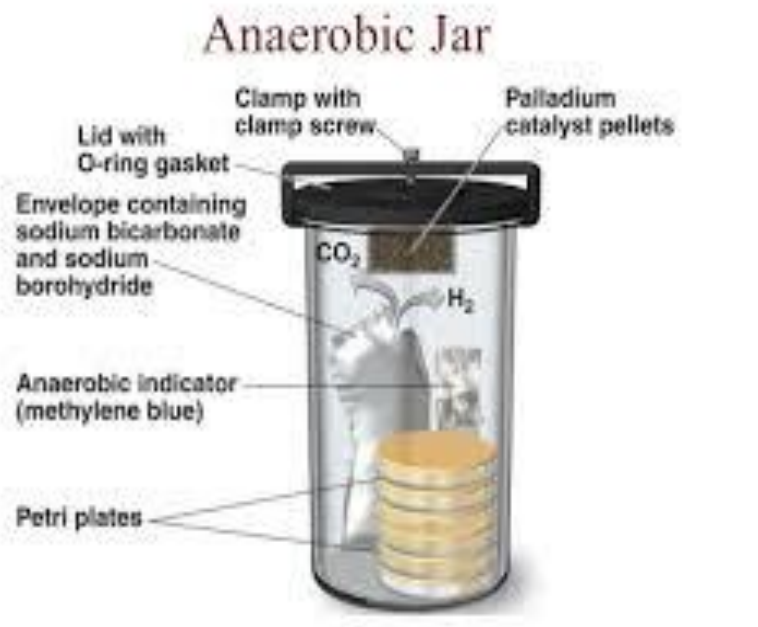
- Wire gauze without filter



# TRIPOD STAND WITH WIRE GAUZE

- It is used to support or hold the flasks and beakers during heating and the wire gauze protects them from direct heating

# ANAEROBIC JAR


For culturing of anaerobic organism

# WASH BOTTLE

**For rinsing test tubes, cuvettes**

# TISSUE FLOATING BATH

It is used to stretch sections and removes wrinkles & folds

# VORTEX MIXER


It is used to mix small vials of liquid

# BLOOD MIXER


It is used for complete mixing of blood prior to testing

# NEUBAEUR CHAMBER


For manual counting of Wbc, Rbc, platelets and semen analysis on the microscope

# COMPARATOR

- It is used for matching the colour of acid haematin formed in the haemoglobinometer tube.

# SAHLI’s HEMOGLOBINOMETER

- Or Haemometer

**L-R:**
Pipette
Sahli’s Standard
Hemometer Tube
Stirring Rod
Dropper

- It is **used** to determine the hemoglobin content of the blood

# ANALYTICAL BALANCE


It is used for accurate weighing of samples and precipitates mass in the sub-milligram range

# DISTILLER

It is used to produce high quality water through distillation

# DEIONIZER

It is used to remove mineral salts from water by ion exchange resins

# MICROTOME KNIFE

**It is used to cut thin sections of tissue and trimming**

# CANNISTER

It is used for culturing anaerobic organisms/sterilizing and drying plates in autoclave or hot air oven