

HB ESTIMATION BY CYANMETHAEMOGLOBIN METHOD

Colorimeter



Voltage stabiliser

5ml dispenser



Drabkin's solution

20 µl pipette



Lancet

Accuracy of pipette to be tested against a standard pipette: expected accuracy colorimetric reading ± 0.01 OD.

Accuracy of 5ml dispenser to be tested against a standard dispenser: expected accuracy volume of ± 0.1 ml or colorimetric reading ± 0.01 OD.

Accuracy of colorimeter to be tested against a standard colorimeter: expected accuracy colorimetric reading ± 0.01 OD.

COLLECTING BLOOD FOR HB ESTIMATION

Collection of blood is very simple and easy.

However it is essential to ensure uniformity in the procedure for collection of samples and adopt appropriate quality control procedures to ensure optimal sample collection.

The following items are required for blood collection for Hb estimation

- Ether and cotton - to wipe the finger;
- Lancet for pricking finger;
- 20 μ l pipettes for blood collection;
- Filter paper for collection of blood spot and pencil to number the filter paper for identification; and
- Drabkin's solution and distilled water to rinse the pipette, and ether to dry the pipette after collection of the sample.



Items required for blood collection on filter paper for Hb estimation



If the blood sample is to be collected on the filter paper, **alcohol/spirit, should not be used for wiping the finger.** Ether should be used for wiping the finger.

Alcohol denatures proteins.

If alcohol is used for wiping finger and then blood is collected on filter paper, the blood spot will not elute fully.





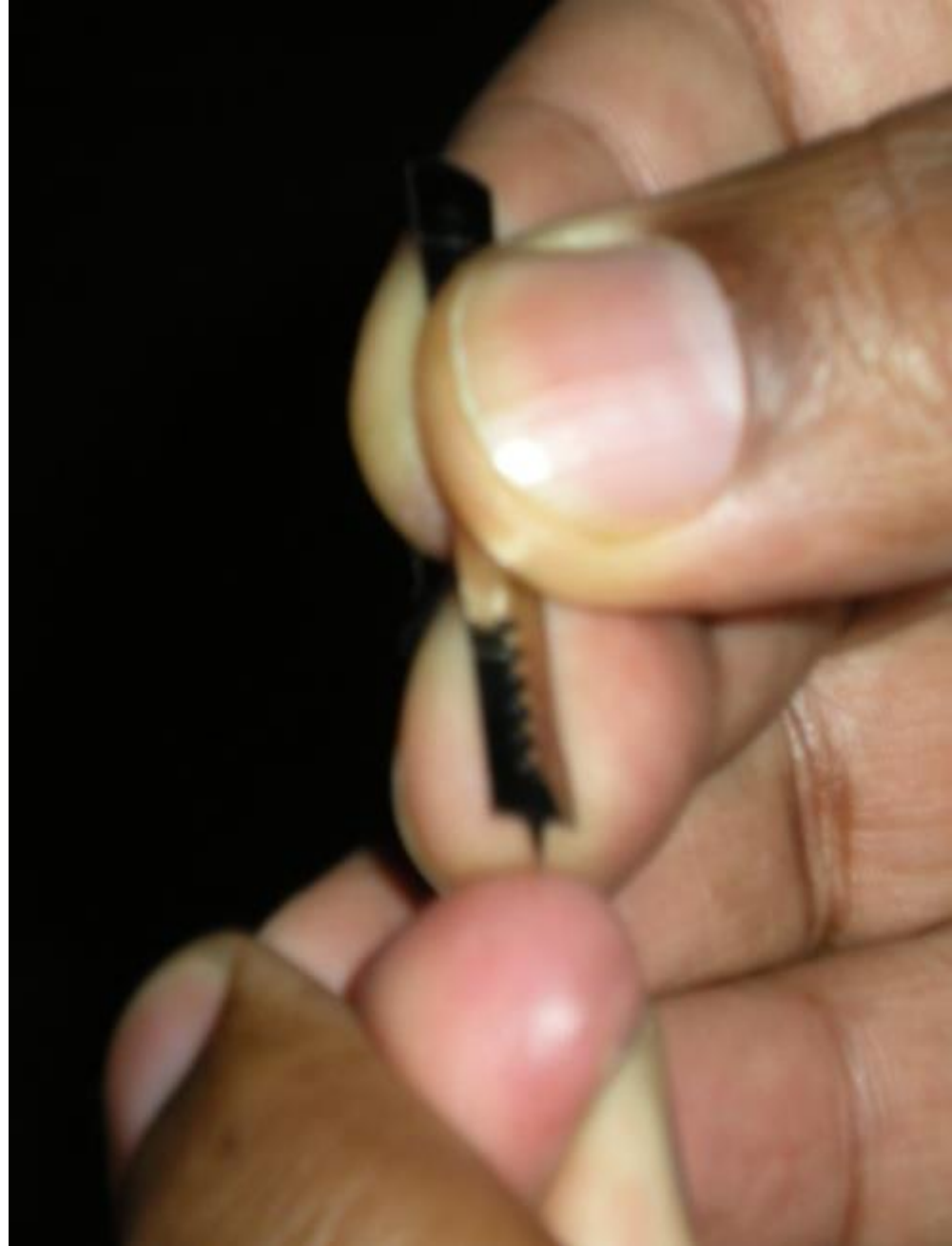
Dampen the cotton with solvent ether solution



Wipe the left middle finger tip cotton swab soaked with ether



Gently squeeze the finger tip



Prick the finger tip with the lancet

A drop of blood wells up



Wipe the drop of blood

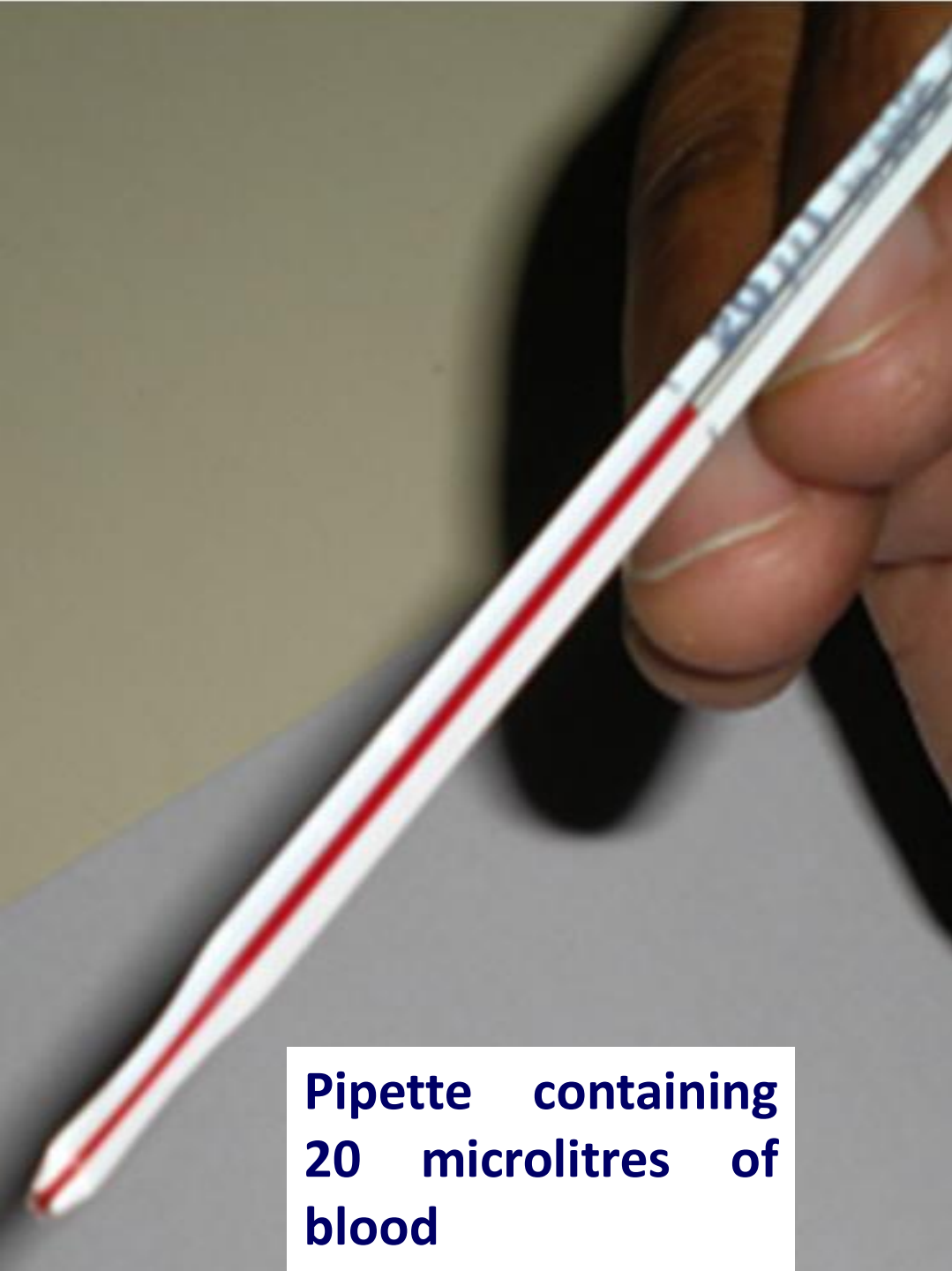




Squeeze the finger tip so that one drop of blood wells up again.



Pipette out 20 microlitres of blood from the drop of blood.



**Pipette containing
20 microlitres of
blood**

**20 μ l of blood has been
deposited on the filter
paper labeled in pencil.**



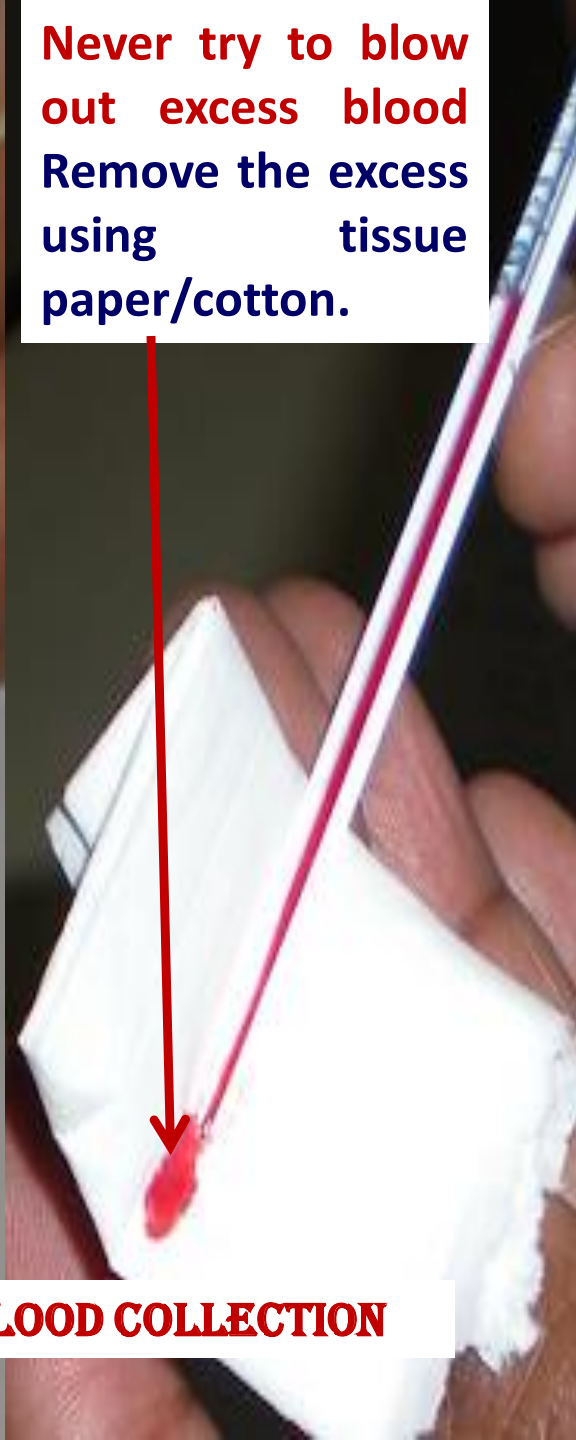


Filter paper containing dried blood spot has been inserted into the plastic ziplock envelope and sealed.

Insert filter paper containing dried blood spot into the plastic bag and seal it.



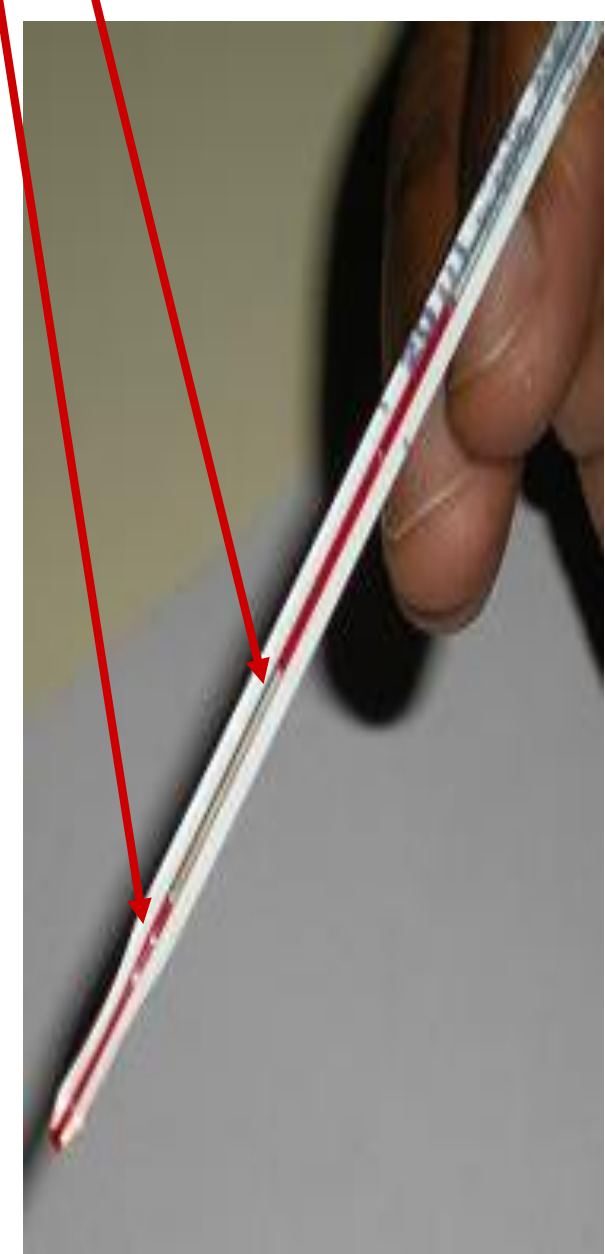
The plastic ziplock envelope comes with a sticker with spaces to enter details of identification of the person whose sample is put in the envelope.



ERRORS IN BLOOD COLLECTION

ERRORS IN BLOOD COLLECTION

AIR BUBBLES IN THE BLOOD COLUMN IN THE PIPETTE



ERRORS IN BLOOD DEPOSITION ON FILTER PAPER



Blood in the pipette not fully blown out on to the filter paper

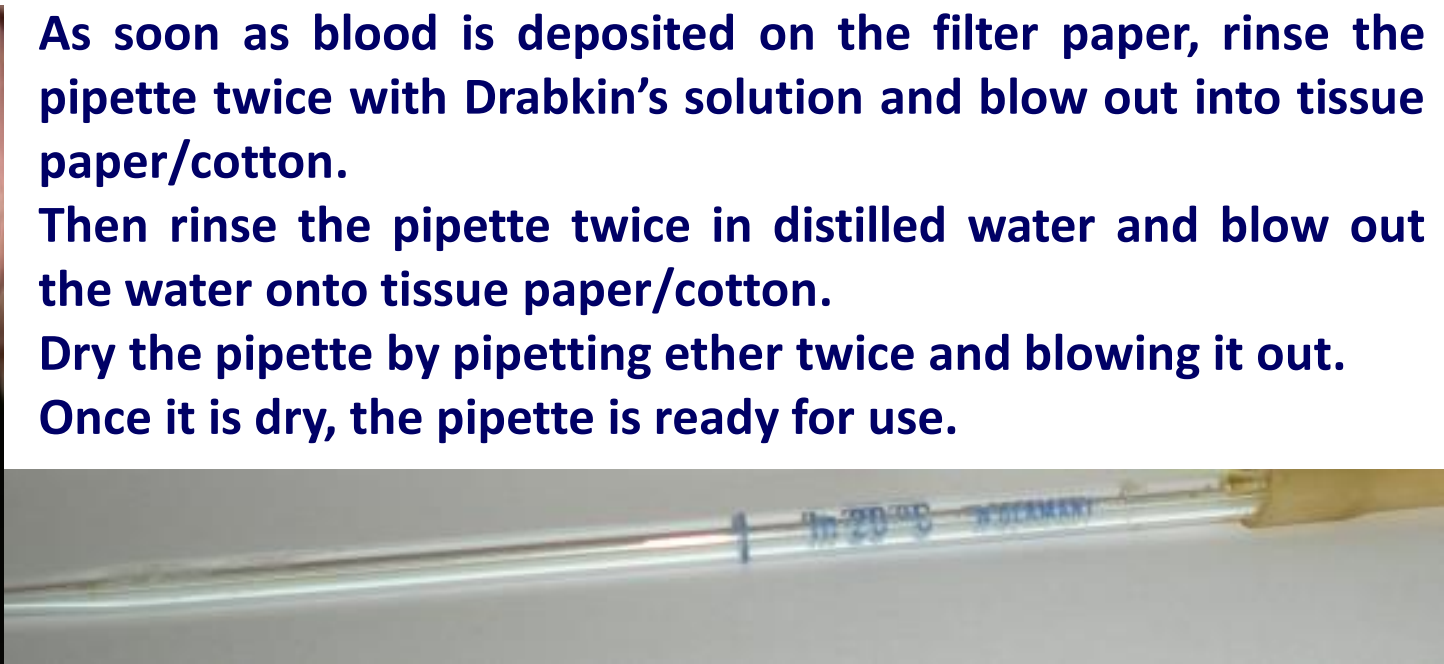
Blood outside the pipette has not been wiped out before depositing the blood on the filter paper.

CLEANING AND DRYING THE PIPETTE

As soon as blood is deposited on the filter paper, rinse the pipette twice with Drabkin's solution and blow out into tissue paper/cotton.

Then rinse the pipette twice in distilled water and blow out the water onto tissue paper/cotton.

Dry the pipette by pipetting ether twice and blowing it out. Once it is dry, the pipette is ready for use.





5ml dispenser

Drabkin's solution



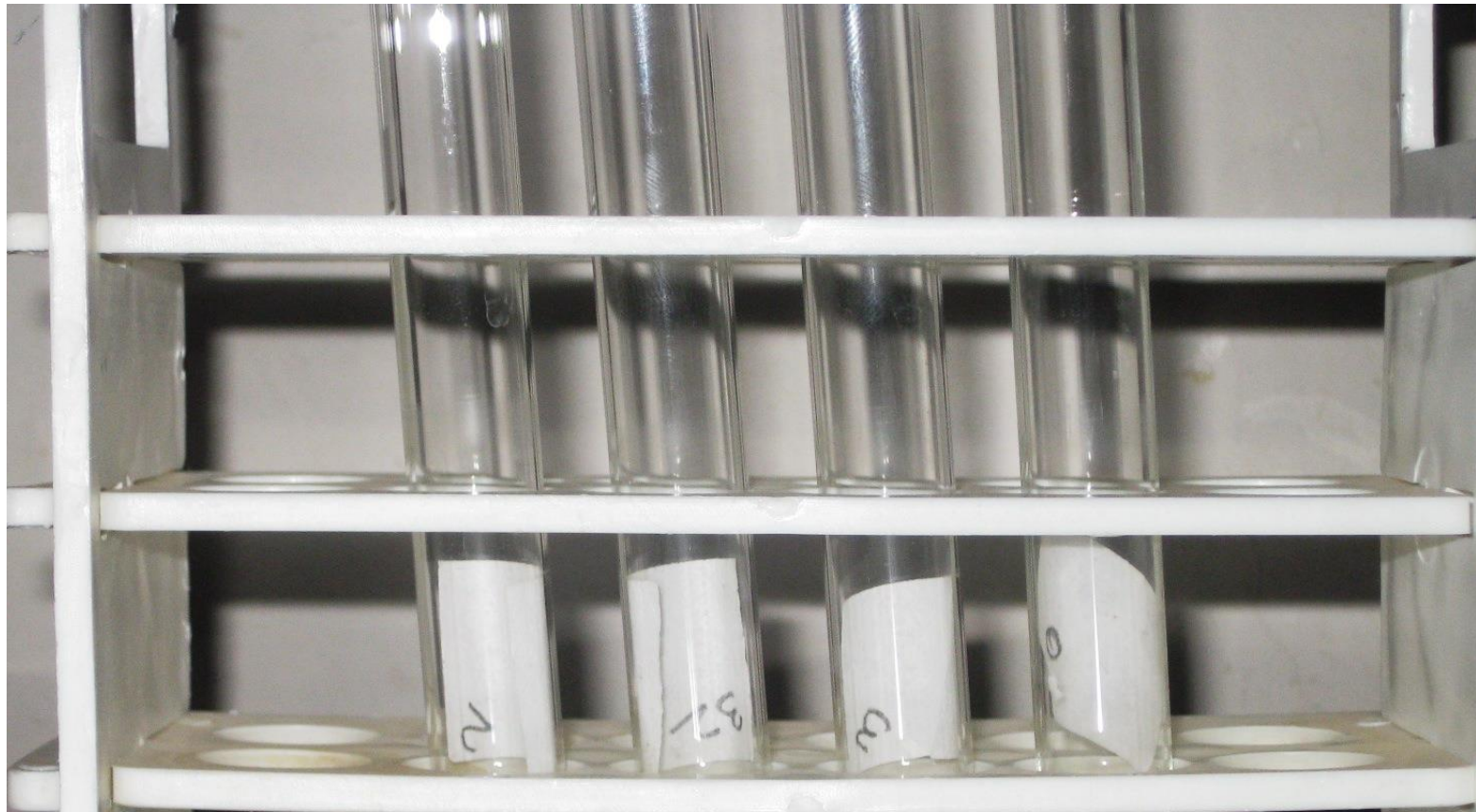
Test tubes in test tube rack



Test tubes containing filter papers from which blood spot has been fully eluted.

Test tubes containing Drabkin's solution in which blood from filter paper has been fully eluted.



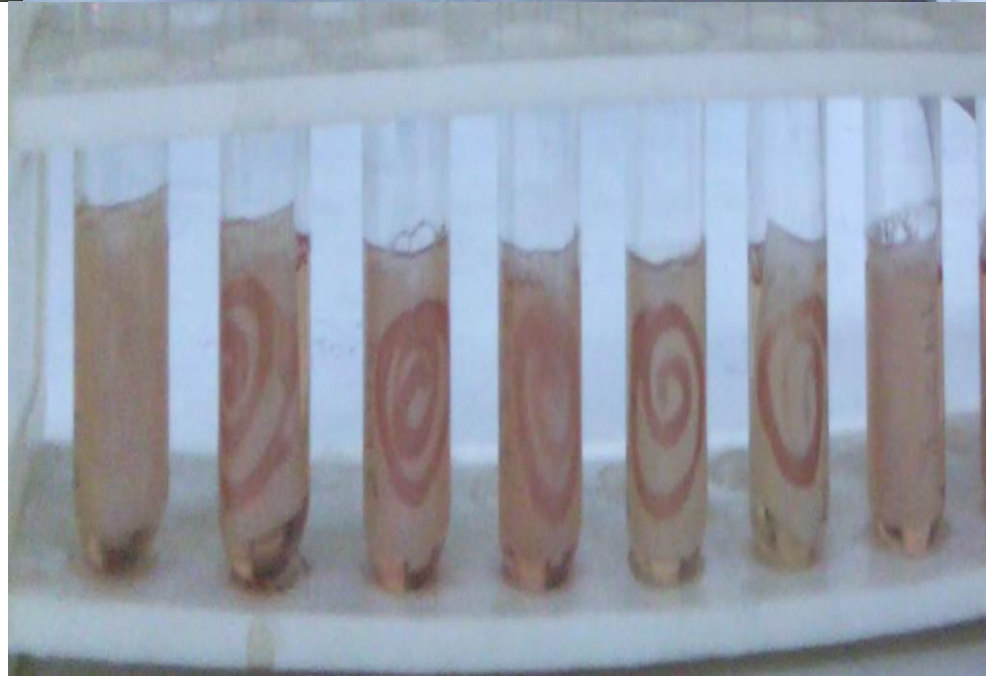


Drabkin's solution in which blood spot has been eluted has been transferred to a cuvette.

Test tubes now contain clear filter papers from which blood spot has been completely eluted.

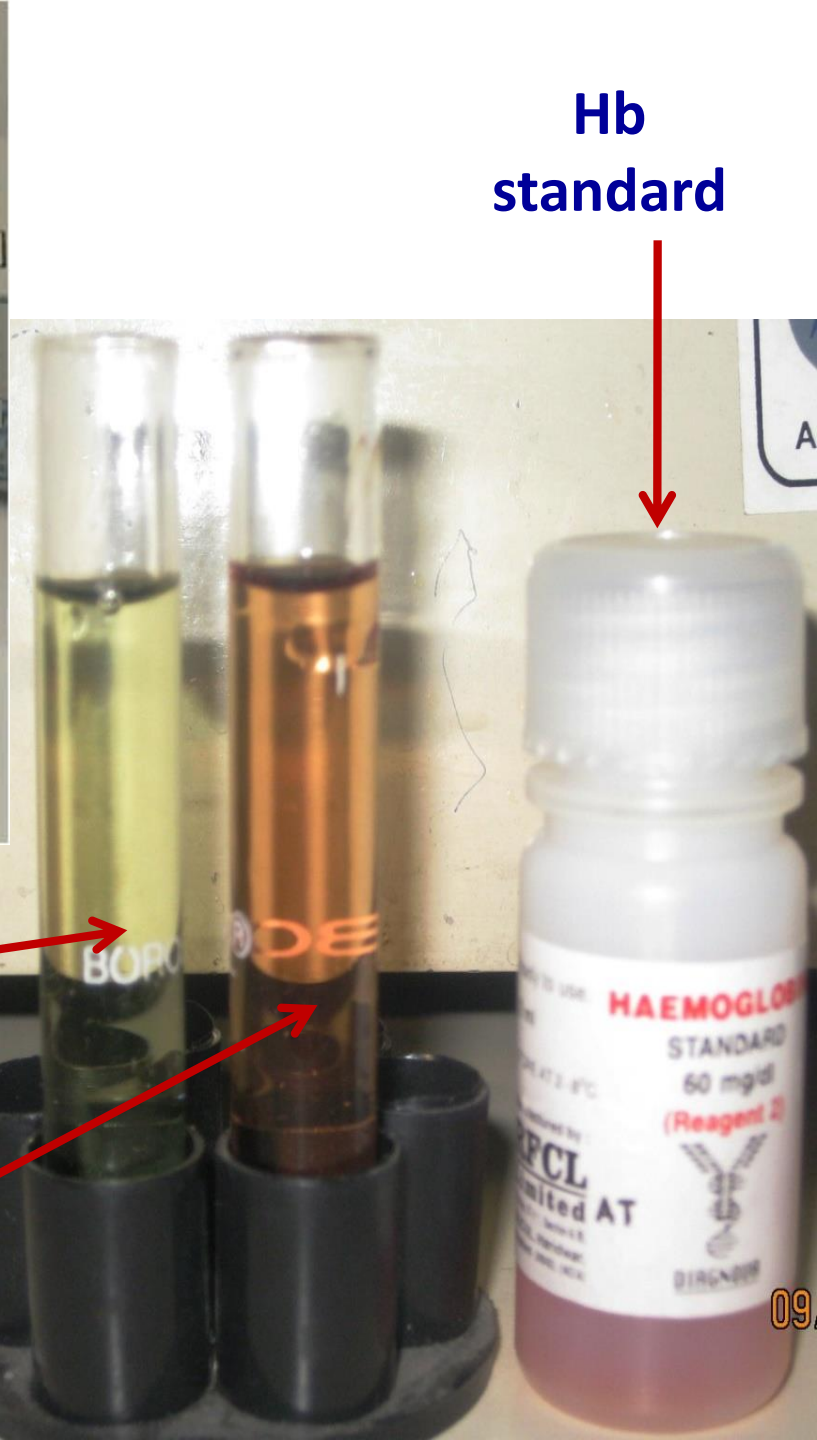


Non-elution of the dried blood spot in the Drabkin's solution due to use of spirit for cleaning the finger prior to pricking and collecting blood





Colorimeter

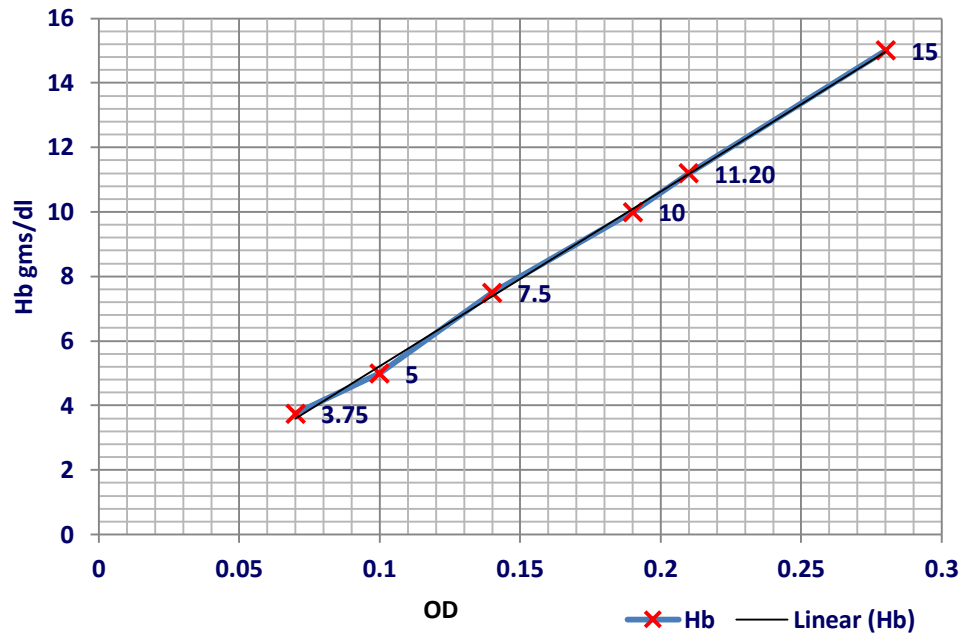


**Hb
standard**

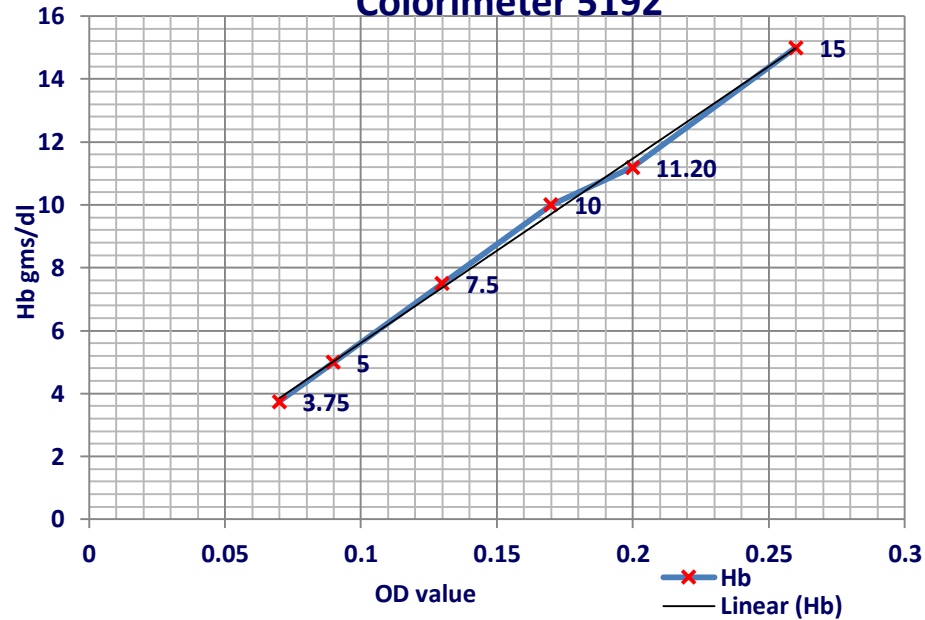
**Cuvette with Drabkin's solution
(Blank)**

**Cuvette with Drabkin's solution in
which blood spot has been eluted**

Colorimeter 5329



Colorimeter 5192



Checking accuracy with Hb standards

Every colorimeter is to be calibrated using the Hb standards.

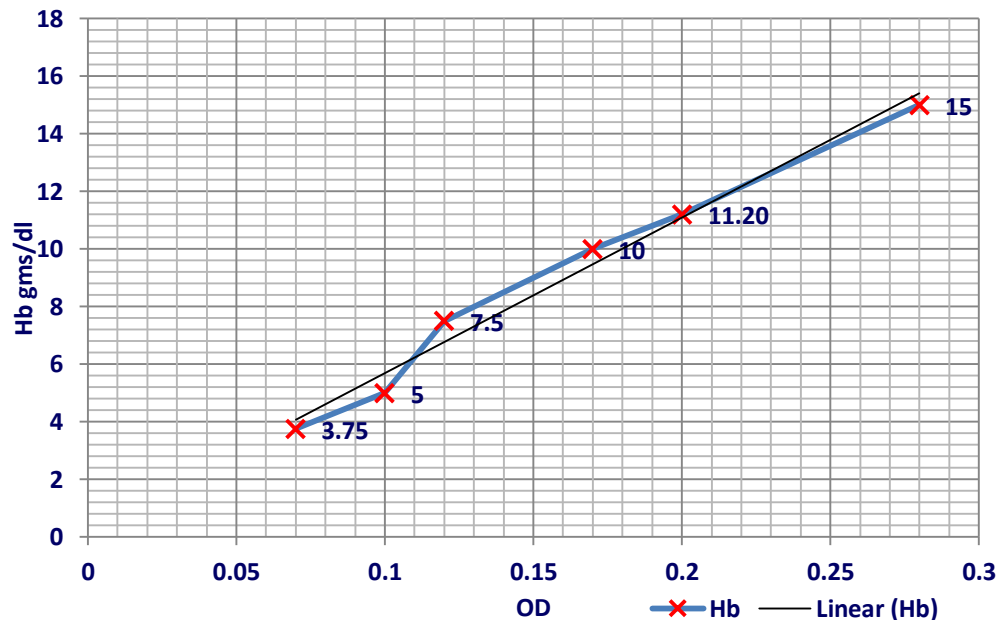
Colorimeter 5329, 5192 are good.

Colorimeter 5330 is not accurate

From the Hb standard chart for each colorimeter the Hb values for each of the 0.01 OD can be computed.

This can be used for day-to-day computation of Hb for any given OD

Colorimeter 5330





Cuvette containing plain Drabkin's solution is inserted.
Colorimeter reading is 0

Cuvette containing Drabkin's solution with eluted blood from blood spot is inserted.
Colorimeter reading is 27

