Instructions for Use:

Note: *Always wear appropriate personal protective clothing as indicated by Good Laboratory Practice. If blood is spilled follow your laboratory policy or national guidance for safe disposal.*

1. Mix the blood sample tube thoroughly but gently, by at least 8 full inversions.

2. Remove the black stopper from the vacuum tube & carefully insert the vacupette, blue piston end first, into the mouth of the tube (diagram 2).

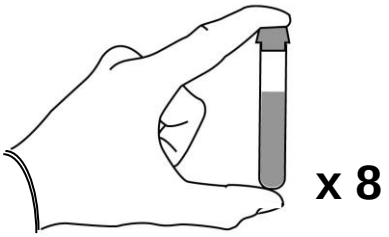
3. Gently push the Vacupette further into the tube and observe the blood sample being pushed up inside the bore until it reaches just beyond the zero level (diagram 3). The blood sample must be seen to be slightly absorbed by the cotton plug. Keep the Vacupette and piston at that level. Do Not push the pipette further in or try to pull it out.

4. Place the full Vacupette and vacuum tube assembly in a correctly levelled ESR stand ensuring that the Vacupette remains vertical, i.e. at 90 degrees, plus or minus one degree to the horizontal, (diagram 4).
   Immediately start the timer.

5. At the end of the timed hour, the result is read by aligning the eye to the level where the red cell column has dropped – leaving clear plasma above (see illustration d on page 3). Record the number of mm the red cells have dropped from the mm scale printed on the Dispette.

6. Record the result as ESR = *x* mm
   or Sed-Rate = *x* mm

   Note: It is common, though an incorrect practice, to record ESR results as *x* mm/hour or *x* mm per hour. Both the ICSH and CLSI point out that despite the common title Erythrocyte Sedimentation *Rate*, it is not in fact a rate but a measurement at one hour. Hence both these official organizations currently recommend that results should be reported as: ESR = *x* mm.



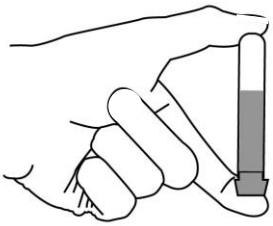


Diagram 1.

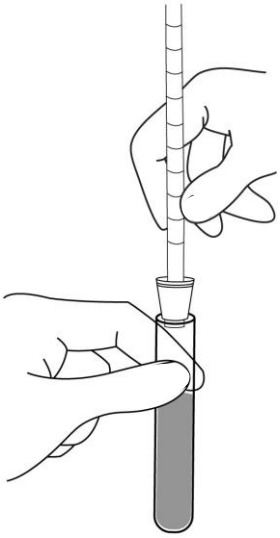


Diagram 2.

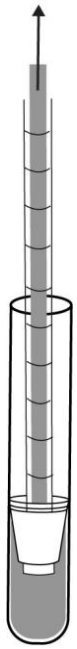


Diagram 3.

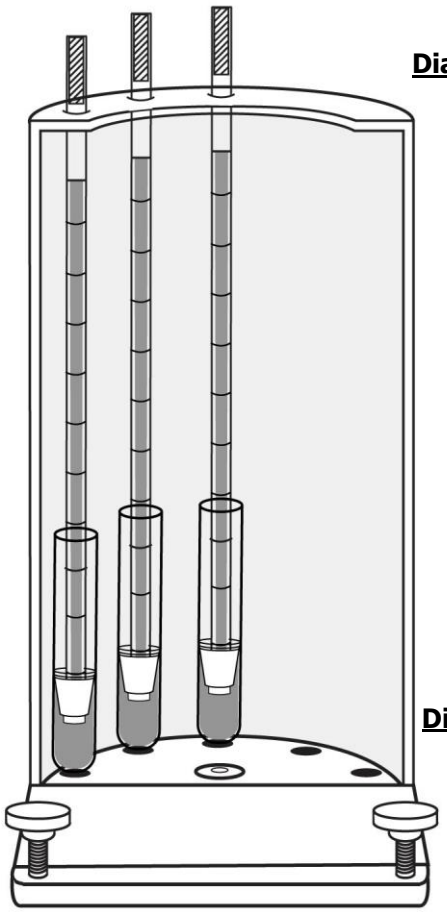


Diagram 4.

PRECAUTIONS:

a) Thorough mixing of the blood sample is essential see 1. under instructions for use. However it must be done gently, shaking the sample will result in haemolysis which may obscure the end point.

b) Vigorous mixing may also create bubbles which will seriously affect the result. If bubbles are present in the Vacupette repeat the test with a fresh sample that has been more carefully mixed.

c) The ESR must be performed at room temperature (defined by the ICSH as 18 to 25^0C or 64 to 77^0F). Do not place the stand near a window, in direct sunlight or where it may be subjected to drafts.
Note: Should it be impossible to perform the test within this temperature range request a temperature correction chart from Arkray USA Inc.

d) The ESR is affected by vibration; ensure the stand is isolated from machinery and that the bench is not subjected to knocks.

e) Do not pick up the stand to read the result as this will affect other tests in progress. Bring the eye to the level of the red cells to read accurately from the scale (see illustration d).

f) Be careful to ensure that the Vacupette pipette remains upright in the ESR stand for the one hour duration of the test. If knocked, the vacuum tube and Vacupette may bend at the piston point thus slewing the Vacupette away from the vertical.

g) Occasionally the level of the red cells is not clear-cut and a 'Christmas Tree' effect may be observed. In such cases the level where the red cells become fully concentrated should be recorded (see illustration e).

h) In cases of serious infection or leukaemia a heavy layer of white cells may be present on top of the column of red cells. This should be ignored and the reading taken from the level of the red cells only.

i) It must be remembered that the red cells will continue to settle after one hour has elapsed. Therefore it is most important to read the test at exactly one hour after setting up the test in the stand (e.g. the test reading will generally be higher at 1 hour 15 minutes than at 1 hour).

j) It must not be assumed that the reading at 60 minutes will be twice that at 30 minutes because the rate of fall is not linear (see Physical basis of blood sedimentation on page 1)

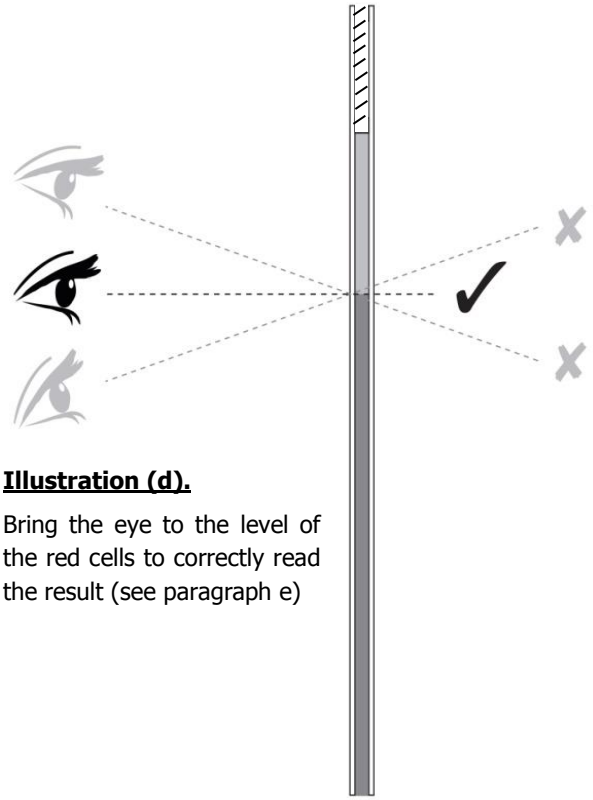


Illustration (d).

Bring the eye to the level of the red cells to correctly read the result (see paragraph e)

Please note: Illustrations are not to scale

Illustration (e).

Reading the maximum concentration of red cells where 'Christmas Tree' effect is present (see paragraph g).