

ACTIVITY 1

MEASUREMENT OF A MICROSCOPIC OBJECT BY MICROMETRY

Requirements:

- (i) Compound microscope
- (ii) Prepared microscopic slides
- (iii) Ocular micrometer

Theory:

Microscope is used for the observation of micro-organisms. It can also be used for the measurement the small objects. In this process metric system is used, because it is related to one another by multiple of 10.

Procedure:

- (i) In calibration of microscope two scales are used:
 - (a) **Ocular Micrometer:** It is in the form of a circular disc with scale of 5mm or 10mm. It is in a single row or in two rows, crossing at right angle.
 - (b) **Stage micrometer:** It is on a glas slide. it is the scale of 1mm, 2mm or 10mm.
- (ii) Place the ocular micrometer in the eyepiece cylinder, and focus the stage micrometer under objective lens.
- (iii) Move the stage micrometer and coincide its zero line to the first line of ocular micrometer.
- (iv) Observe the next pair of coinciding lines of two scales and note the number of divisions of both scales.
- (v) Calculate the length of one ocular division in **microns** as the valve of standardization of microscope.

Value of Standardization:

(Size of one ocular division)

$$\frac{\text{Number of stage micrometers divisions coincide}}{\text{Number of ocular micrometer divisions coincide}} \times \text{Size of one stage sub division (0.01mm or 10 microns)}$$