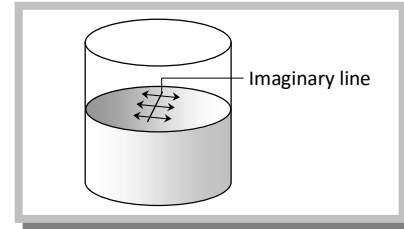


Surface Tension.

The property of a liquid due to which its free surface tries to have minimum surface area and behaves as if it were under tension somewhat like a stretched elastic membrane is called surface tension. A small liquid drop has spherical shape, as due to surface tension the liquid surface tries to have minimum surface area and for a given volume, the sphere has minimum surface area.



Surface tension of a liquid is measured by the force acting per unit length on either side of an imaginary line drawn on the free surface of liquid, the direction of this force being perpendicular to the line and tangential to the free surface of liquid. So if F is the force acting on one side of imaginary line of length L , then $T = (F/L)$

- (1) It depends only on the nature of liquid and is independent of the area of surface or length of line considered.
- (2) It is a scalar as it has a unique direction which is not to be specified.
- (3) Dimension: $[MT^{-2}]$. (Similar to force constant)
- (4) Units: N/m (S.I.) and $Dyne/cm$ [C.G.S.]
- (5) It is a molecular phenomenon and its root cause is the electromagnetic forces.