

* Surface Tension :-

Surface tension is defined as the force acting per unit length perpendicular to the line drawn on the surface of the liquid.

It is denoted by γ (Gamma). Its SI unit is N m^{-1} .

The energy required to increase the surface area of the liquid by one unit is called surface energy.

When the surface area is minimum, energy is lowest.

* Some facts explained by surface tension :-

1) Spherical shape of drops :-

Surface tension decreases the surface area. When the surface area is minimum, energy is lowest. Spherical shape satisfies this condition. It is the reason that mercury drops are spherical.

2) Rise of liquid in a capillary :-

If one end of a capillary is placed in a liquid which wets glass, it is found that liquid rises into the capillary. It is the downward attractive force acting at the surface of the liquid which pushes the liquid to rise in the capillary.

3) Fire polishing of glass :-

Sharpe glass edges are heated to make them smooth. On heating, the glass melts and the surface of the liquid -

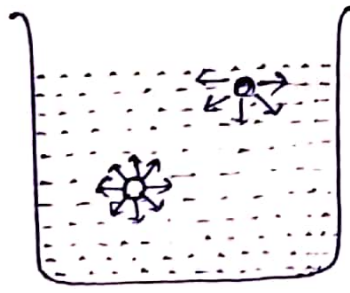
becomes round at the edges to have minimum surface area. This is called fire polishing of glass.

(4). Effect of temperature on surface tension:-

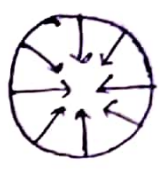
The magnitude of surface tension of a liquid depends on the attractive force between the molecules. Greater are the attractive forces, higher is the surface tension. On increasing the temperature, kinetic energy of molecules increases and intermolecular attractive force decreases. Therefore, surface tension decreases with rise in temperature.

(5) Nature of liquid and surface tension:-

Greater are the attractive force between the molecules of the liquid, higher is the surface tension.

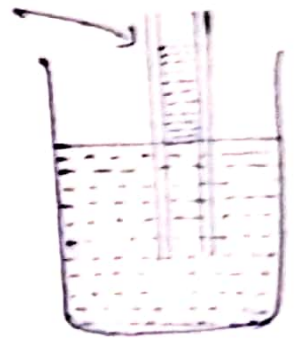


Surface tension of a liquid



spherical shape of liquid drop

Capillary tube



Rise of the liquid in a capillary

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