

Kinetic Theory of Gases

* Defⁿ:-

The Kinetic theory of gases describes the gas as a collection of small, hard spheres that interact with each other and with the surface of the wall.

- This is a theoretical model which explained the molecular composition of the gas in the terms of a large number of submicroscopic particles which atoms and molecules.
- It also defines properties such as temperature, volume, pressures - well as transport such as viscosity and thermal conductivity as well as mass diffusivity.
- It defines all the properties related to the microscopic phenomenon.

* Kinetic Model

- the two most important areas of Kinetic theory of matter are:-

- 1) The flow or transfer of heat and.
- 2) The relationship between pressure, temperature and volume properties of gases.

* Fundamental Postulates of Kinetic Theory

- The gas molecules are considered to be rigid, perfectly elastic and identical in all respect. Gas molecules are solid spheres and their size is negligible than intermolecular distances.

- In all directions with all possible velocities these molecules are in random motion.

- The molecules collide with each other as well as with the walls of the container. At each collision, the velocity of molecules changes but the molecular density of molecule is constant in steady state.

- There is no force of attraction or repulsion between the molecules because the collisions are perfectly elastic. Therefore this energy is only kinetic.

- The molecules travel with uniform velocity along a straight line between any two successive collisions.