

Chapter 3

ATOMS AND MOLECULES

Mole concept:

The concept of “mole” is introduced to account for no of particles present in a given mass of substance.

The no of particles present in one mole of any substance is fixed with a value 6.022×10^{23} and occupies a volume of 22.4 L at STP. This no. is called Avogadro’s constant (or) Avogadro No. It is indicated as N_A .

The mass of 1 mole of substance is equal to its relative atomic or molecular mass in grams.

Ex.

1) 1u of hydrogen has only 1 atom of hydrogen.

1g of hydrogen has 1 mole of atoms that is 6.022×10^{23} atoms of oxygen.

2) 16u of oxygen has 1 atom of oxygen. While 16g of oxygen is 1 mole and has 6.022×10^{23} atoms of oxygen.

3) 28u of nitrogen has 1 molecule of nitrogen (N_2) while 28g of nitrogen is 1 mole and has 6.022×10^{23} molecules of nitrogen.

