Definition

- Normality is the number of gram equivalent of solute dissolved per litre of solution.
- The symbol for normality is N .

$$normality = \frac{gramequivalentofsolute}{volumeofsolutioninlitre}$$

Mathematical derivation

$$normality = \frac{gramequivalentofsolute}{volumeofsolutioninlitre}$$
$$normality = \frac{\frac{weightingram}{equivalenweight}}{volumeofsolutioninlitre}$$
$$normality = \frac{wt.ofsoluteingram}{volumeofsolutioninlitre} \times \frac{1}{equivalentwt.}$$

The expression for normality in terms of equivalent weight is:

$$normality \times equivalentweight = \frac{wt.ofsoluteingram}{volumeofsolutioninlitre}$$

The expression for weight in terms of equivalent weight normality and volume is:

$$W = NEV$$

The expression expressing gram per litre with normality is:

$$gm \times lit^{-1} = N \times E$$

The expression for normality in terms of density is:

$$N = \frac{\%\frac{W}{V} \times \rho 10}{E}$$

Types of Normal Solution

Normal Solution

- A solution is said to be normal solution if:

- one gram equivalent weight of substance is dissolved in one litre of solution.

The expression for normal solution is given by:

$$1N$$

Semi Normal Solution

- A solution is said to be semi normal if:
  - half gram equivalent of weight of a substance is dissolved in one liter of solution.

The expression for semi normal solution is given by:

$$\frac{N}{2}$$

Deci normal solution

- A solution is said to be deci normal solution if:
  - $\frac{1}{10^{th}} gram$ equivalent of substance is dissolved in one litre of solution.

The expression for deci normal solution is:

$$\frac{N}{10}$$

Centi normal solution

- A solution is said to be centi normal solution if:
  - $\frac{1}{100^{th}} gram$ equivalent weight of substance is dissolved in one litre of solution.

The expression for centi normal solution is:

$$\frac{N}{100}$$