$$\text{Normality} = \frac{\text{Gram equivalents of solute}}{\text{Volume of solution in litre}}$$

$$= \frac{\text{Mass of solute in gms.}}{\text{GEM of solute} \times \text{volume of solution in litre}}$$

Normality depends on temperature. Also if strength is given in normalities, **N_1 of A & N_2 of B, Then $N_1V_1 = N_2V_2$.**

Molarity:

It is the number of moles of solute present in one litre of solution.

$$M = \frac{\text{Moles of solute}}{\text{Volume of solution (L)}}$$

$$= \frac{\text{Weight of solute}}{\text{GMM of solute} \times \text{Volume of solution (L)}}$$

$$\Rightarrow \text{Moles} = M \times V_{(\text{in litre})} \text{ and millimoles} = M \times V_{(\text{in ml})}.$$

Molarity and mass percentage have the relation M

$$= \frac{\text{mass percentage} \times 10 \times d}{\text{GMM of solute}}, \quad \text{where d = density}$$

If a solution of molarity M_1 and volume V_1 adds up with a solvent to a final volume V_2, then molarity M_2 is given by

$$M_2 = \frac{M_1V_1}{V_2}$$

If two different solutions (M_1, V_1) and (M_2, V_2) are mixed then molarity of resulting solution is

$$M = \frac{M_1V_1 + M_2V_2}{V_1 + V_2}$$

Also, Molarity × GMM of solute = Normality × GEM of solute