

Colligative properties are those properties which depends only upon the number of solute particles in a solution irrespective of their nature.

## Relative Lowering of Vapour Pressure

It is the ratio of lowering in vapour pressure to vapour pressure of pure solvent. The relative lowering in vapour pressure of solution containing a nonvolatile solute is equal to the mole fraction of solute in the solution.

$$\frac{p_A^\circ - p_A}{p_A^\circ} = \chi_B$$

where,  $\frac{p_A^\circ - p_A}{p_A^\circ}$  = relative lowering of vapour pressure

$$\frac{p_A^\circ - p_A}{p_A^\circ} = \frac{n_B}{n_A + n_B}$$

for dilute solutions,  $n_B \ll n_A$ . Hence,

$$\frac{p_A^\circ - p_A}{p_A^\circ} = \frac{n_B}{n_A}$$

$$p_A^\circ - p_A = \frac{W_B \times M_A}{M_B}$$