SOLUTIONS. METHODS OF EXPRESSION OF SOLUTIONS CONCENTRATIONS.

Concentration is a measure of the amount of solute dissolved in a given amount of solvent.

Percent concentration. Mass percent

Definition:

Parts of solute per 100 parts of solution.

The statement “5% aqueous solution of NaCl” has the following meaning:

the solution contains 5g of NaCl in 100g of solution.

The solution contains 5g of NaCl and 100-5=95g of H_2O.

$$\% = \frac{number\ of\ grams\ solute}{number\ of\ grams\ solution} \cdot 100\%$$

$$\text{mass } of\ solution = mass\ of\ solute + mass\ of\ solvent$$

Molar concentration (Molarity)

Molar concentration (Molarity) is a concentration of a solution expressed as number of moles of solute per liter of solution.

$$\text{molar } concentration \ (C_M) =$$

$$= \frac{number\ of\ moles\ solute}{number\ of\ liters\ solution};\ \ mol/L$$

$$C_M = \frac{no.\ mol\ solute}{no.L\ soln}$$

Molal concentration (Molality)

Molality (C_m) is a concentration of a solution expressed as number of moles of solute per kilogram of solvent.

$$\text{molal } concentration \ (C_m) =$$

$$= \frac{number\ of\ moles\ solute}{number\ of\ kilograms\ solvent}$$

$$C_m = \frac{no.mol\ solute}{no.kg\ solvent}$$