osmotic coefficient, φ

Quantity characterizing the deviation of the *solvent* from ideal behaviour referenced to Raoult's law. The osmotic coefficient on a molality basis is defined by:

$$\varphi = \frac{\mu_A^* - \mu_A}{RTM_A \sum_i m_i}$$

and on an amount fraction basis by:

$$\varphi = \frac{\mu_A^* - \mu_A}{RT \ln x_A}$$

where μ_A^* and μ_A are the chemical potentials of the solvent as a pure substance and in solution, respectively, M_A is its molar mass, x_A its amount fraction, R the gas constant and T the temperaure. The latter osmotic coefficient is sometimes called the rational osmotic coefficient.

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