Dielectric behaviour and dipole moment of binary mixtures containing certain amides in benzene.

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**Abstract**. Certain polar amides(v) are dissolved in benzene, a nonpolar solvent(u) to prepare binary mixtures with different composition of the amides like acetanilide, N-N-dimethyl acetamide, N-methyl acetamide, acetamide and formamide. Static relative permittivity$ ℇ\_{0uv}$ , high frequency permittivity $ℇ\_{\infty uv}$ for different weight fraction of polar solute at 300 C are determined. The dielectric behaviour of binary mixtures are investigated under electric field of low frequency by using the Debye model for polar liquids. Static dipole moment $μ\_{s}$ , $μ\_{b}$ from conductivity measurements and $μ\_{t}$ from bond angle and bond moment measurements are computed. The dipole moments are consequence of attractive interaction between the adjacent molecules in binary mixture due to variation of electron densities. Hydrogen bonding, associated charge distribution among the constituent molecules, changes in bond angle values are some of the factors that give rise to dipole moment of binary mixtures. Nearly equal and close values of $μ\_{s}$,$ μ\_{b}$ and $μ\_{t}$ proves the correctness of dielectric behaviour studies of amides- benzene binary mixtures…

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