

Study of structuredness and hydrogen bonding in binary solutions using microwave technique

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Dielectric and volumetric information of alcohols with different solvents provide eminent information regarding heteromolecular interactions and hydrogen bonding nature between diverse entities. Ordering of heteromolecules in their pure form as well as in binary mixture is studied thereby obtaining the Kirkwood correlation factor. Luzar model predicts the bonding between the hetero molecules such that the concentration dependent heteromolecular interactions study of isopropyl alcohol with dimethylsulfoxide and water liquid solutions with variations in the physicochemical and volumetric parameters has been revealed. The dielectric permittivity of the binary liquid mixtures have been obtained at 9.685 GHz using X-band microwave technique at room temperature.

Keywords: Static dielectric constant (ϵ'), Dielectric loss (ϵ''), Microwave conductivity, Excess permittivity, Kirkwood correlation factor, Structuredness