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Section B: Dielectric Properties

Dielectric Relaxation and FTIR Studies on Molecular Interaction between Ethylene Glycol Monobutyl Ether with Bromobenzene and Chlorobenzene

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Abstract

Complex dielectric spectra over the frequency range of 10 MHz–20 GHz and FTIR spectra in the region of 4000 cm^{-1} – 500 cm^{-1} of binary mixture of ethylene glycol monobutyl ether with chlorobenzene and bromobenzene were obtained over entire concentration range at 303 K. The static dielectric constant (ϵ_0) and relaxation time (τ) have been obtained. Using these values the excess permittivity ϵ^E , excess inverse relaxation time $(1/\tau)^E$, Kirkwood correlation factor (g^{eff}), and corrective Kirkwood correlation factor (g_f) were determined. On the basis of these parameters, intermolecular interaction and dynamics of molecules are predicated and conformational of the hydrogen bond is supported by the FTIR.

Q Keywords: Dielectric parameters excess parameter Kirkwood correlation factor time domain reflectometry

FTIR

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