Indian Journal of Chemistry
Vol. 63, January 2024, pp. 57-64
DOI: 10.56042/ijc.v63i1.3247

Influence of temperature and solvents on the molecular interactions of benzo[*d*]imidazole substituted 1,3,4-oxadiazole derivatives

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Received 26 June 2023; accepted (revised) 22 December 2023

Thermo-acoustical parameters of solutions of (2-[(5-(4-nitrophenyl)-1,3,4-oxadiazol-2-ylthio)methyl]-1*H*-benzo[*d*]imidazol-1-yl)(phenyl)methanone, (AS_2-13) and (2-[(5-(4-aminophenyl)-1,3,4-oxadiazol-2-ylthiomethyl]-1*H*-benzo[*d*]imidazol-1-yl)(phenyl)methanone, (AS_2-14) in dimethyl sulfoxide (DMSO) and *N, N*-dimethylformamide (DMF) have been evaluated. Various acoustical and thermodynamic parameters, including density (ρ), viscosity (η), and ultrasonic sound velocity (U), have been measured at three different temperatures, namely (298.15 K, 308.15 K and 318.15 K at atmospheric pressure. These results have been explained by considering the molecular interactions of the liquid mixture's components.

Keywords: 1,3,4-Oxadiazole, Ultrasonic sound velocity, Density, Acoustical parameter, Thermodynamic parameters, Molecular interaction

After the synthesis by