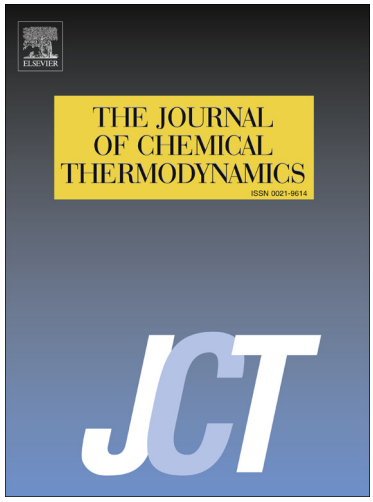

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ABSTRACT

The equilibrium solubility of paclobutrazol in co-solvent mixtures of ethanol (1) + water (2), *n*-propanol (1) + water (2) and 1,4-dioxane (1) + water (2) were determined experimentally by using isothermal dissolution equilibrium method within the temperature range from (278.15 to 313.15) K under atmospheric pressure (101.1 kPa). At the same temperature and mass fraction of co-solvent, the mole fraction solubility of paclobutrazol in the three binary co-solvent mixtures obeyed the following order from high to low: 1,4-dioxane (1) + water (2) > *n*-propanol (1) + water (2) > ethanol (1) + water (2). The preferential solvation parameters were derived from their thermodynamic solution properties by means of the inverse Kirkwood–Buff integrals. The preferential solvation parameters for ethanol, *n*-propanol or 1,4-dioxane ($\delta x_{1,3}$) were negative in water-rich mixtures but positive in compositions from 0.24 (0.19, 0.18) in mole fraction of ethanol