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Abraham model correlations for describing the thermodynamic properties of solute transfer into pentyl acetate based on headspace chromatographic and solubility measurements

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Abstract

Infinite dilution activity coefficients were measured for 32 liquid organic solutes dissolved in pentyl acetate at 298.15 K. The organic solutes included both saturated (hexane through decane, cyclohexane) and unsaturated hydrocarbons (1-hexene, 1-heptene, cyclohexene, 1-octyne, 1,7-octadiene), several substituted benzene derivatives (benzene, methylbenzene, ethylbenzene, propylbenzene, 1,3-dimethylbenzene, 1-dimethylbenzene, fluorobenzene, bromobenzene), four haloalkanes (trichloromethane, 1-chlorobutane, 1,2-dichloropropane, isopropyl bromide) and three alcohols (ethanol, 1-propanol, 2-propanol), as well six miscellaneous organic compounds (acetonitrile, ethyl acetate, tetrahydrofuran, 1,4-dioxane, propanone, nitromethane). Mole fraction solubilities were also determined for 10 crystalline nonelectrolyte organic solutes dissolved in pentyl acetate. Results of the experimental measurements were used to derive Abraham model correlations for describing thermodynamic properties of solute transfer into

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