LIQUID-LIQUID EQUILIBRIA FOR QUATERNARY SYSTEM
EUGENOL(1) + β-CARYOPHYLLENE(2) + ETHANOL(3) + WATER(4) AT TEMPERATURES 303.15, 313.15, AND 323.15 K

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ABSTRACT

Liquid-liquid equilibrium (LLE) data of quaternary system eugenol + β-caryophyllene + ethanol + water were measured at temperatures 303.15, 313.15, and 323.15 K at atmospheric pressure. Equilibrium mixtures of eugenol + β-caryophyllene + ethanol + water were stirred intensely in a water jacket thermostat equilibrium cell at constant temperatures. The system was stirred for 2 hours and settled for at least 20 hours to ensure that the equilibrium was reached. The sample mixtures were analyzed by a gas chromatograph to obtain the compositions of each component. All the measured data were correlated using NRTL and UNIQUAC model. The experimental results were compared with values correlated by NRTL and UNIQUAC model and the values predicted by UNIFAC method. The highest value of root-mean-square deviations of the UNIQUAC, NRTL and UNIFAC equations were 6.82%, 7.73% and 9.17% respectively.

Keywords: Ethanol, Eugenol, β-caryophyllene, NRTL, UNIFAC, UNIQUAC
(HALAMAN INI SENGAJA DIKOSONGKAN)