

### Liquid-liquid equilibria for the ternary systems of carbonate compounds, phenol and water at 358.15 K

노현정, 박소진\*, 황인찬  
충남대학교

(sjpark@cnu.ac.kr\*)

Di-methyl carbonate (DMC), di-ethyl carbonate (DEC), ethylene carbonate (EC), propylene carbonate (PC) and di-phenyl carbonate (DPC) are excellent solvents for a variety of substances such as cellulose ethers and esters, pharmaceutical and cosmetic preparations, natural and synthetic resins and polymers, and salts. The DMC and phenol react to form methyl-phenyl carbonate (MPC), followed by PMC disproportion to DPC. Besides the swelling characteristics of the polymer, the knowledge of the phase equilibrium behavior of the involved reactants such as DPC and by-products such as phenol and water in the solvent is clearly crucial for process design. In this work, Liquid-liquid equilibrium data for the ternary systems di-phenyl carbonate (DPC) + di-methyl carbonate (DMC) + water, DPC + phenol + water and DMC + phenol + water at 358.15 K were analytically determined at atmospheric pressure by using stirred and thermo-regulated cells. The experimental data were correlated with NRTL and UNIQUAC activity coefficient models on the base of the binary interaction parameters that were obtained from three sub-ternary systems of DPC, DMC, phenol and water.