

Solubility of carbon dioxide in the ionic liquids, 1-butyl-1-methylpyrrolidinium trifluoromethanesulfonate and trihexyltetradecylphosphonium bis(trifluoromethylsulfonyl)imide

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Ionic liquids can be synthesized by combining different counter ions, and through this method many different IL's have been produced. While new IL's are being continuously synthesized, researches to develop new IL-based processes are also being actively conducted. For this, various thermodynamic data for solutions with IL's should be available. Among them, IL-CO<sub>2</sub> solutions are of importance in the recovery of solutes in supercritical fluid extraction. As a consequence, solubility measurement and thermodynamic modeling for IL-CO<sub>2</sub> systems are actively investigated recently.

In this research, solubility of CO<sub>2</sub> in IL's, 1-Butyl-1-Methylpyrrolidinium Trifluoromethanesulfonate and Trihexyltetradecylphosphonium bis(trifluoromethylsulfonyl) imide has been experimentally studied for the development of a CO<sub>2</sub> refining process which is necessary for design of a supercritical CO<sub>2</sub>-based dry wafer cleaning process. The temperature ranged from ~313.15 to ~353.15K, and the pressure reached up to ~16MPa.