Solubility of carbon dioxide in imidazolium-based and pyrrolidinium-based ionic liquids

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Ionic liquids(ILs) are liquid at room temperature or below. Many ILs have electric conductivity, extremely low vapor pressure, no flammability, high thermal stability, and a wide liquid range. Therefore, the ionic liquids receive attention as green solvents in various chemical industries.
Solubilities of CO2 in imidazolium and pyrrolidinium based ILs have been experimentally studied for development of a separation process of mixed gas containing CO2. The solubility of CO2 in ionic liquids was measured by using high pressure variable volume view cell. The range of temperature for the experimental measurements is from 303.15 K to 373.15 K in 10K intervals. The Peng-Robinson Equation of state (PR-Eos) and the modified Lydersen-Joback-Reid method have been applied to correlate the experimental data.