

Development of Carbon Dioxide capture process using strongly basic Ionic liquid

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For the purpose of developing advanced new absorbent for carbon dioxide, solubility of carbon dioxide using strongly basic ionic liquid, such as [bmim]phenolate, is studied with various temperatures and pressures ranges. [bmim]phenolate is easily synthesized using [bmim]Cl (C₆H₁₅ClN₂) and Na-phenoxide (C₆H₅NaO·3H₂O) with simple method and shows greater performance at capturing CO₂. CO₂ solubility of [bmim]phenolate is measured with VLE (Vapor Liquid Equilibrium) apparatus, and its purity is assessed by ¹H-NMR spectra and ¹³C-NMR spectra. Solubility data of carbon dioxide of some conventional ILs are also measured for comparism, and other properties of [bmim]phenolate are reported.