

Process simulation of the Ammonia Process for removal of CO₂ from Flue Gas with VLE data

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The use of aqueous ammonia is the better option to capture carbon dioxide from power plants due to the potential low heat requirement during the carbon dioxide desorption than monoethanolamine(MEA) based process. The performance of the carbon dioxide capture process using aqueous ammonia is analyzed by process simulation with NRTL(Non-Random Two Liquid) thermodynamic model using the binary parameters obtained from the thermodynamic experimental data. To verify NRTL parameters, the VLE (vapor liquid equilibrium) data calculated using these parameters is compared with the experimental VLE data(Ulrich Goppert and Gerd Maurer, 1988). The objective of this study is a process simulation of a CO₂ capturing process with aqueous ammonia using NRTL thermodynamic model. The simulation results are compared with results which was mostly conducted by using electrolyte NRTL model.