

Process simulation of CO₂ capture with aqueous ammonia using the NRTL model

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The capture of carbon dioxide from power plants flue gas is considered a key technology for achieving greenhouse gas reductions. The use of aqueous ammonia is 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. In this work, the performance of the carbon dioxide capture process using aqueous ammonia is analyzed by process simulation. NRTL thermodynamic model available for the CO₂-NH₃-H₂O system has been implemented in the commercial simulator Aspen Plus by making equilibrium calculations using the thermodynamic experimental data. The ultimate goal 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 conducted by using the electrolyte NRTL model.