

활동도계수를 적용한 이산화탄소-아민수용액 흡수 모형 연구

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The removal of acid gases from synthesis gas, natural gas and refinery using mixed solvents continues to be of interest. A mixed solvent may be defined as consisting of chemical-chemical solvents and chemical-physical solvents. In this study, Sulfolane was chosen as the physical solvent because of its stability and outstanding affinity. MEA, DEA, MDEA, DIPA were chosen because they are representative amines and are thermodynamically and kinetically selective for H<sub>2</sub>S in the presence of CO<sub>2</sub>.

The solubility of CO<sub>2</sub>, H<sub>2</sub>S, and their mixtures has been measured from 40 to 130°C in a various mixing combination of solvents by the static method. In order to overcome non-ideality, activity coefficients and fugacity coefficients were introduced. The activity coefficient take into account interaction between solute species in the liquid phase. Debye-Huckel expression given by Deshmukh and Mather (1980) has been used to obtain activity coefficient matrices. The fugacity coefficients were also calculated to consider non-ideality of pressure. All the solubility calculations and optimizations (parameter estimations) were executed by using MATLAB® 2015b version.