# Modeling of $CO_2$ Solubility in Aqueous Solutions of MEA and AMP mixtures Using Activity Coefficients

최봉근[1], 이종섭[2], 신헌용[3], 민병무[2,4], 문종호[1,†]
[1]충북대학교; [2]한국에너지기술연구원; [3]서울과학기술대학교; [4]에너토피아
(moonjongho@chungbuk.ac.kr†)

Reducing emissions of Carbon dioxide (CO2) without decreasing fossil fuel usage is a important issue. Few kinds of alkanolamines has been used for CO2 absorption processes: primary (MEA), secondary (DIPA), tertiary (MDEA), steric hindrance (AMP) amines and their binary mixtures. Among them, MEA (monoethanolamine) has been widely used to process of CO2 Sequestration because of high reactivity and low cost. Recently, AMP (2-amino-2-methyl-1-propanol) are applied as a stable amine for high CO2 absorption capacity. In this study, equilibrium solubility characteristics of CO2 in MEA, AMP and their mixtures were evaluated by using experimental data and thermodynamic models. To consider the non-ideality, binary parameters of activity coefficients and equilibrium constants were regressed from experimental data. The Electrolyte-NRTL models are used to estimate interactions between solute species in the liquid phase. Calculations of solubility and optimizations (parameter regression) were conducted by MATLAB® 2019a version.