

Kinetics of Carbon Dioxide in Aqueous Sodium Glycinate Solution

이승문, 송호준, 산지브 마킨, 박진원*,
심재구¹, 김준한¹, 엄희문¹
연세대학교 화학공학; ¹한국전력연구원
(jwpark@yonsei.ac.kr*)

In the present work, the reaction between CO₂ and sodium glycinate has been studied by using wetted wall column apparatus at various temperature. These results would be applied in the basic absorption process related to design of acid gas treatment equipment for acid gas removal in our future work.

The physical solubility of N₂O and CO₂ aqueous sodium glycinate solutions of various concentrations at T = (303.15 to 323.15) K were recorded. It was found that while physical solubility increases with increase in sodium glycinate mass fraction, it decreases with decrease in temperature. The diffusivity of N₂O and CO₂ in aqueous sodium glycinate solution of various concentrations at different temperatures was also recorded. It was found that diffusivity decreases with increase in sodium glycinate mass fraction and decrease is more severe at higher temperature. Based on the pseudo-first order for the CO₂ absorption, the overall pseudo first-order reaction rate constants were determined. The second-order rate constant of CO₂ with sodium glycinate was found to be as k_2 (m³ kmol⁻¹ s⁻¹) = $1.95 \times 10^{13} \exp[-7670/(T/K)]$.