

Effect of Liquid Properties on Mass Transfer Area in a packed column

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Purpose of this research is focused on analyzing how liquid properties affect the effective surface area in a packed column. Liquid make thin film by flowing on packing and mass transfer between two phases occurs at the liquid film with gas passing upside. Since liquid properties affect width and thickness of the film, their effects on mass transfer area should be correctly analyzed. In this study, we employed the NaOH / CO₂ reaction because of its fast and simple chemical reaction mechanism and its well-known correlations describing the reaction, which allow us to calculate the mass transfer area We conducted this work under several liquid viscosity and surface tension conditions. We obtained the effective surface area from a proper data processing method using CO₂ in / out concentration and packing height, etc. After obtaining the effective surface area in our experiments, we compared our experimental data with other correlations of effective surface area in literature. Finally, new correlation for effective surface area in a packed column with structured packing was proposed.