

Mass Transfer Studies of Carbon Dioxide Absorption in Sodium Hydroxide in Millichannels

Authors : A. Durgadevi, S. Pushpavanam

Abstract : In this work, absorption studies are done by conducting experiments of 99.9 (v/v%) pure CO₂ with various concentrations of sodium hydroxide solutions in a T-junction glass circular milli-channel. The gas gets absorbed in the aqueous phase resulting in the shrinking of slugs. This phenomenon is used to develop a lumped parameter model. Using this model, the chemical dissolution dynamics and the mass transfer characteristics of the CO₂-NaOH system is analysed. The liquid side mass transfer coefficient is determined with the help of the experimental data.

Keywords : absorption, dissolution dynamics, lumped parameter model, milli-channel, mass transfer coefficient

Conference Title : ICMNHMTE 2017 : International Conference on Micro, Nanoscale Heat and Mass Transfer Engineering

Conference Location : Amsterdam, Netherlands

Conference Dates : July 10-11, 2017