

A chemical Reaction Engineering Laboratory Experiment: Isothermal Laminar-Flow Reactor

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Abstract

We report here an experiment for the chemical reaction engineering laboratory. The reaction between sodium hydroxide and ethyl acetate is conducted isothermally in a tubular reactor under isothermal, laminar flow, conditions. Steady-state reactor performance is followed at different space times and Reynolds numbers. Analysis of reactor performance is easily followed by direct sampling and titration. Comparisons between theory and experiment are in reasonably good agreement. The experiment demonstrates how concepts in transport phenomena, introduced early in the chemical engineering curriculum, are related to reactor engineering.