

ETHYLENE EPOXIDATION: MODELING, SIMULATION AND PROCESS

CONTROL

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ABSTRACT

Ethylene epoxidation synthesis is a process of great importance, so the knowledge process is very important to propose changes in the unity, reducing the operational cost. In this work the modeling of epoxidation process has been developed for a fixed bed reactor considering the total and partial oxidation reactions and the deactivation kinetic of Ag-based catalyst. The heat exchange model also has been developed, and coupled in the reactor model, so this strategy will be useful to develop the control process. The partial differential equations that describe the steady state and dynamic behavior process have been solved by orthogonal collocation in space and integrate by Runge-Kutta-Gill method. Simulation results show that models are valid to represent successfully the ethylene epoxidation process.