Reactive Distillation to intensify selectivity in the multiple reaction systems

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The use of reactive distillation to improve the selectivity of multiple reactions based on the order and activation energies of desired and undesired products has been investigated. This paper suggests process synthesis heuristics on feasibility and attractiveness for irreversible multiple reactions based on the order of reaction and activation energies for desired and undesired products occurring in the RD system. . The proposed design is based on the hypothetical quaternary irreversible reaction system. The analysis is further extended to ethylene glycol production. The results reports that the reactive distillation can be effectively used to improve selectivity based on the order and activation energies of the desired and undesired products by manipulating the composition profiles of reactants and product inside the reactive zone of a RD column. This study was supported by the Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (2015R1D1A3A01015621). This study was also supported by Priority Research Centers Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (2014R1A6A1031189).