Recovery of lactic acid by reactive dividing wall column

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Process intensification represents an important trend in chemical engineering and process technology attracting more and more attention of both industry and the research community. In this work, the dividing wall column has been extended to cover reactive system, which results in a new configuration called the reactive dividing wall column. The reactive dividing wall column offers a good separation of products and good reaction for esterification of Lactic Acid. However, the reactive dividing wall column poses a very difficult control problem caused by interactions between control loops. We explored control possibility of the reactive dividing wall column based on RGA, SVD, and dynamic simulation. We found that the profile position control scheme provides better control performance than temperature control scheme in the face of feed (LA) flow disturbance. However, further study is needed to get satisfactory control performance.