

## Comparison of Lactic acid recovery processes with thermally coupled reactive distillation

김동민, 이범석<sup>†</sup>

경희대학교

(bslee@khu.ac.kr<sup>†</sup>)

In this work, two types of thermally coupled reactive distillation for lactic acid recovery processes are compared. Lactic acid recovery processes referenced in previous papers have a problem with the remixing effect. In the upper section of the hydrolysis column, the separation of water and methanol go through a maximum then decrease in the distillate. This phenomenon causes a large demand of energy to repurify the mixture. One of the way to overcome high energy consumption is using thermally coupled design to mitigate the remixing effect. There are several types of design for thermally coupled distillation columns. This work suggests two types of thermally coupled reactive distillation columns for the lactic acid recovery process. One is partially thermally coupled design and the other one is diving wall column (DWC) design. The equilibrium stage model based on the RADFRAC module of Aspen Plus is employed for simulation of two types of thermally coupled designs. Simulation result shows that partially thermally coupled design can save more energy than DWC in a lactic acid recovery process.