

Production of high purity ethyl acetate using thermally coupled reactive distillation column

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In this work, a process for the production of high purity ethyl acetate using thermally coupled reactive distillation is suggested. In existing process to produce high purity ethyl acetate such as tyrell has a problem with high energy consumption. In the upper section of the reactive distillation column go through a maximum mole fraction value of ethyl acetate and then decrease in the distillate. This is the so called "remixing effect". This phenomenon causes larger demand of energy in order to repurify the mixture. One of the way to overcome high energy consumption is the use of the thermally coupled distillation by mitigating remixing effect. To fulfill the effect, the decanter is moved to the stripper side, to reflux the organic phase outlet stream, and to sidedraw a liquid stream from the stripper to the reactive distillation column. The equilibrium stage model based on the RADFRAC module of Aspen Plus is employed for simulation. Simulation result shows that production of high purity ethyl acetate about 99.5% with 10% energy savings can be realized.