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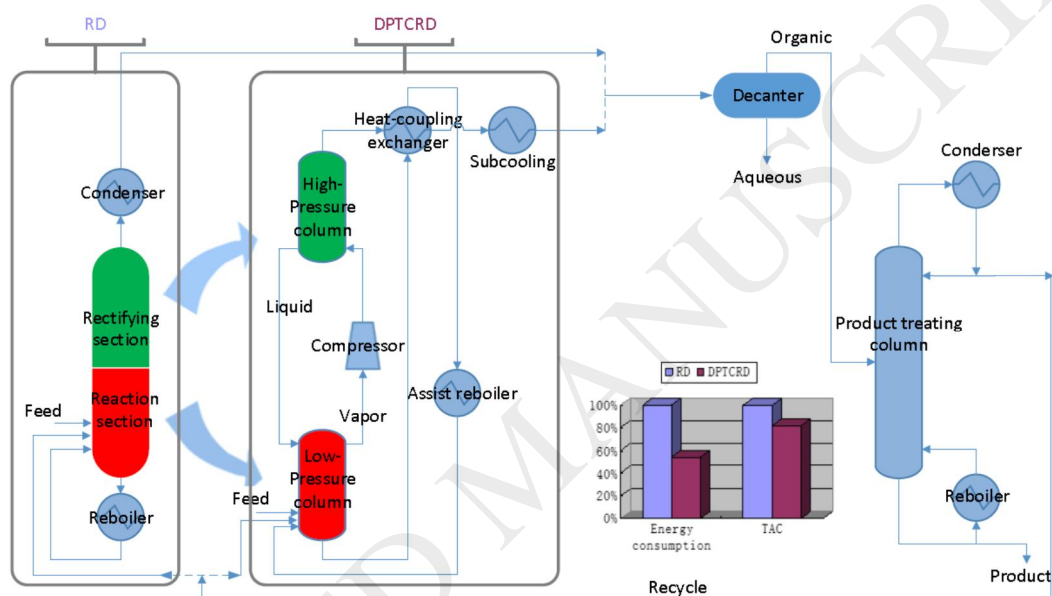
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A thermally coupled reactive distillation process to intensify the synthesis of isopropyl acetate

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Graphical abstract



Highlights

- 1). A different pressure thermally coupled reactive distillation process is proposed.
- 2). High-purity isopropyl acetate product can be synthesized.
- 3). HP column pressure should be strictly controlled during heat coupling.
- 4). The energy requirement and total annual cost are both reduced.

Abstract

On the basis of analyzing the azeotropic behavior, comparing the accuracy of different property models and selecting reaction kinetics, a reactive distillation (RD) process for production of isopropyl acetate (IPAc) through the esterification of acetic acid and isopropanol is designed, through which high-purity isopropyl acetate product can be obtained. Besides, considering the high energy requirements of the RD process, a

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