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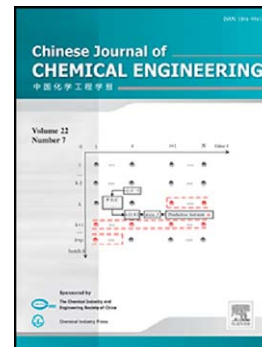
A comparative study of different arrangements for methanol distillation process

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Process Systems Engineering and Process Safety**A comparative study of different arrangements for methanol distillation process****Davood Hajavi¹, Norollah Kasiri^{2,*}, Javad Ivakpour³**

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Abstract The current study presents an effective method of determining and optimizing distilled methanol alternative arrangements. To complement the information required to run the rigorous simulation, V_{\min} method is used as a base for the selection of the optimum arrangement from among different alternatives. Results obtained from V_{\min} diagram and shortcut simulation are utilized, by means of the simulator, for the precise simulation of alternative arrangements of methanol distillation under optimum conditions. Taking into account of target function Profit and the process parameters and conditions, the most optimum parameter value for reaching maximum Profit was obtained, based on which all the arrangements with or without their heat integration were compared to each other. Technical and economic analysis results indicate, that increased profit by Prefractionator with heat integration arrangement is 4.79% compared to the base arrangement, while the three-columns, four-columns and five-columns arrangements have benefits increase by 3.61%, 3.55% and 3.46%, respectively.

Keywords Methanol distillation, Heat integration, V_{\min} diagram, Energy saving, Optimization.

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