

Process Intensification of Side Stream Columns with Using a Dividing Wall: Heuristics and Case Studies

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Retrofitting a side stream column (SSC) to a dividing wall column (DWC) has been demonstrated beneficially in term of the economy and increasing the capacity. Nevertheless, no literature reports why and when a SSC can be retrofitted to a DWC with a minimum modification costs. In this study, a report of retrofitted a SSC was explored to reveal the opportunities and generating the heuristics in both the academia and industries. The ethylene dichloride and the diphenyl carbonate purification processes were used as some case studies to highlight the developed heuristics. A retrofit design procedure, which utilizes the shortcut, rigorous and a response surface-based optimization methodologies, was implemented. As a result, 45.3 and 24.2 % energy savings can be achieved compared to the conventional SSC. This research was supported by Priority Research Centers Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (2014R1A6A1031189).

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