

Retrofit of Distillation Columns using MINLP Model

김호수, 최승준, 한종훈, 윤인섭*
서울대학교
(esyoon@pslab.snu.ac.kr*)

Optimal retrofit problem of the industrial distillation column in TA process solved using MINLP model that allows both the continuous variables representing the specification of the process operation conditions and the discrete variables representing the process structure. The superstructure that can well describe the distillation column of problem is proposed for MINLP model's consistency. And then, the model is implemented using the General Algebraic Modeling System (GAMS). Lastly simulation model is made using the commercial simulator, Aspen Plus and is used for the comparison of the initial status and optimization result.

The optimization result show that the improvement of the feed's and side-draw's split fraction and stage will save operation cost about 2.6 hundred thousand dollar. That is 7 percent of initial operation cost. Also, the analysis of column inner vapor and liquid flow showed that optimization result can make the use of column capacity efficient because of decreasing the column inner fluid flow.