

Model Predictive Control Of Shell Benchmark Process

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Summary

Simultaneous control of overhead and bottoms composition in a binary distillation column using reflux and steam flow as the manipulated variables often proves to be particularly difficult because of the interaction inherent in the process. The development of model based control (MPC) theory in the past 20-25 years has provided a framework which caters for the above distillation control problem. MPC technology has penetrated a significant portion of the process industries and harvested large economical benefits. In this paper model predictive controller is proposed for the control of a two-input-two-output high purity shell distillation column. The use of this controller allows for the impurity and pressure control to be decoupled while simultaneously satisfying column operating conditions. For this purpose the dynamic process model is identified using classical least squares technique.

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