Abstract

The objective of the present work is precise control of distillate quality using the temperature profile of reactive distillation process. The temperature profile of the reactive process may be controlled using intelligent controller. The paper presents the methodology for the design of various intelligent controllers and its application on distillation process. Four
intelligent controllers are designed based on fuzzy logic, adaptive linear network (Adaline) and hybrid of these two techniques i.e. Fuzzy-Neural Network and Fuzzy-Adaline Network. The Fuzzy Logic Controller (FLC) provides a better steady state response whereas the adaptive linear network controller (ADC) provides better transient response. The hybrid Fuzzy-Neural Network Controller (FNNC) and Fuzzy-Adaline Controller (HFADC) are proposed to combine the advantages of the two techniques. The results of the designed intelligent controllers are compared with the conventional PI controller. It is observed that the Hybrid Fuzzy-Adaline Controller (HFADC) outperforms all the controllers.

Reference

Control of Reactive Distillation Process using Intelligent Controllers


Index Terms

Computer Science

Control Systems

Key words

Fuzzy Logic Controller

Adaline Controller

FNN

Hybrid Fuzzy- Adaline Controller