

Modeling and Simulation of Heat Exchanger using Multilevel Flow Modeling

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Abstract

Functional modeling is a powerful modeling technique used to represent sequences of events and has found many applications in manufacturing systems. This paper describes the application functional modeling paradigm in a chemical process system. As a case study, a pilot scaled shell and tube Heat exchanger system with objectives of heating and maintaining water temperature at a desired set point is considered. The model is developed using multilevel flow modeling (MFM) algorithm, assisted by software tools including MS VISIO for formulating the MFM graphics and Fuzzy logic for the simulation studies. The simulation results are validated using experiments carried out in the laboratory and good agreement was obtained.

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