

**Distillation column network optimization
using multi-agent modeling**

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Energy saving is a hot issue in the chemical industry, recently. Especially, many researches have been made to reduce operation cost by optimal operation of existing plant without any modification or additional investment.

Distillation column is one of the main energy-consuming units in the chemical process that usually consumes about 40-50% of total steam, and many researches have been made to save energy in the distillation column.

In this paper, we proposed an agent-based approach to minimize total operation cost of distillation column network where different types of columns exist. The proposed approach is composed of main agent and sub-unit agents for efficient calculation.

Main agent is domain on behalf of resources and facilities representing a subset unit and. And sub-unit agent models process of components or operation of a sub unit.

Through this agent based optimization, we take advantages that arise from allowing collaboration among the agents. Further we proposed plug-in available optimization framework for additional process unit and applied this approach to the industrial process.