

스타이렌 모노머 공장의 열 교환망 개선

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Many chemical plants consume large amounts of energy and their energy costs contribute a significant portion of the total plant operating cost. Heat recovery systems have been incorporated in the plants to reduce these energy costs. Well-designed heat exchanger network can reduce the total operating cost.

The improved heat recovery system is very important for the styrene monomer plant, because the styrene monomer process has high temperature endothermic reactions, and the heat of reactions is supplied by high temperature steam utilities. Due to this reaction heat, lots of cold utilities are also required to cool down the downstream processes. This plant consumes much energy cost, which is almost one half of the total plant operating cost.

In this study, the current heat exchanger network of the styrene monomer plant was analyzed using Aspen Pinch™ which adopts pinch analysis. The analysis result shows that opportunities for improving the current heat exchanger network exists. Using this analysis result, an improved heat exchanger network is proposed.