



INDUSTRIAL PROJECTS

Project No.: 06

Industry: Specialty Chemicals

Project Subject:

Energy Consumption Optimization of Detergents Production Plant

Challenge:

In this project, energy optimization in a Detergents Production Plant has been studied. By application of Process Integration and Pinch Analysis, three different modifications that lead to considerable improvement have been proposed. In these three proposals part of steam and electricity requirements can be generated through improved heat recovery in the process.

Proposed Solution:

Proposal 1: In this proposal, 8190 Kg steam in Sulfurex (Unit 3000) and 2730 Kg steam in Sulfurex (Unit 1000) making an overall amount of 10920 Kg steam (7bar) will be produced in a cycle.

- Energy Saving: 27 % - Investment: 150,200 \$ - Payback Period: 31 months

Proposal 2: In second proposal, 1549 Kg of condensed steam in each working cycle is sent to Sulfurex heat exchangers and therefore 12394 Kg steam (7bar) is raised.

- Energy Saving: 31 % - Investment: 140,500 \$ - Payback Period: 23 months

Proposal 3: In third proposal, 1365 Kg of condensed steam in each working cycle is sent to Sulfurex heat exchangers and therefore 10921 Kg steam (7bar) is raised.

- Energy Saving: 27.3 % - Investment: 192,311 \$ - Payback Period: 20 months

1. Reduced fuel consumption in boilers and also reduced Shaft Work needed for compressors and etc. 2. Reduced steam demand in Sulfurex unit and less water consumption in boilers. 3. Decreased energy intensity and therefore lower product cost. 4. Less GHG emission and thus less negative impact on the environment.

Results:

