The Use of TES for the Recovery of Heat for Industrial Processes and Cleaning Water

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Contributors: Dalsgaard, H., Qvale, E. B.
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Simplification of Process Integration Studies in Intermediate Size Industries

It can be argued that the largest potential for energy savings based on process integration is in the intermediate size industry. But this is also the industrial scale in which it is most difficult to make the introduction of energy saving measures economically interesting.

The reasons are that the required engineering effort is too great and therefore too expensive, and that the resulting systems designs often become inordinately complex and therefore not attractive in operation.

The present study describes steps that aim at reducing the magnitude of the theoretical work and engineering effort associated with a given process integration study in an intermediate size industry. This is based on the observation that the systems that eventually result from a process integration project and that are economically and operationally most interesting are also quite simple.

Four steps that may be used separately or in series ahead of or simultaneously with the conventional process integration procedures (for example, the pinch point method) are described and are applied to an industrial case study.

It might be feared that the use of preselections and groupings would limit the “freedom of movement” and therefore lead to non-optimal economic solutions, which may be right. But the objective of the optimisation is not to reach the best economic solution, but to relatively quickly develop the design of a simple and operationally friendly network without losing too much energy saving potential. (C) 2002 Elsevier Science Ltd. All rights reserved.
Simplification of process integration in medium size industry

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Projects:

Procesintegration, Analyse og Syntese
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01/06/1996 → 18/11/2002
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Project: PhD

Process Integration
Initially, activities in the area had general and rather diffuse goals. During recent years, however, work has been streamlined towards the development of combinatorial methods for the synthesis of process networks for continuous processes and batch processes, the combination of process-integration techniques and simulation methods, and case studies of a limited number of types of industrial plants (brewery, dairy, textile factory, malting factory, fertilizer manufacturer, sugar factory). A major part of these latter activities are undertaken in connection with an agreement of cooperation with Lithuania, funded by the Ministry of Energy.
Qvale, E. B., Project Manager, Department of Energy Engineering
Dalsgård, H., Project Participant, Department of Energy Engineering
Mikkelsen, J. B., Project Participant, Department of Energy Engineering
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