Design and Synthesis of Distillation Systems using a Driving Force Based Approach - DTU Orbit (15/05/2019)

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A new integrated framework for synthesis, design and operation of distillation-based separation schemes is presented here. This framework is based on the driving force approach, which provides a measure of the differences in chemical/physical properties between two co-existing phases in a separation unit. A set of algorithms has been developed within this framework for design of simple as well as complex distillation columns, for the sequencing of distillation trains, for the determination of appropriate conditions of operation and for retrofit of distillation columns. The main feature of all these algorithms is that they provide a simple "visual" method to obtain near-optimal solutions in terms of energy consumption without rigorous simulation and/or optimisation. Several illustrative examples highlighting the application of the integrated approach are also presented. (C) 2003 Published by Elsevier B.V.

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