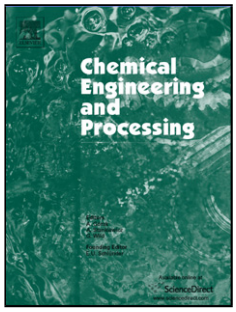

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Deterministic Global Optimization in Conceptual Process Design of Distillation and Melt Crystallization

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Abstract

The potential of deterministic global optimization in hierarchical process design is discussed and its application is demonstrated for conceptual design with two examples arising from hydroformylation with tunable solvents [E. Schäfer, Y. Brunsch, G. Sadowski, A. Behr, 2012]. In the first example, deterministic global optimization is utilized to evaluate flowsheet options for the separation of a binary mixture in a process comprising distillation and melt crystallization units. In the second example, the standard countercurrent design of multistage melt crystallization is compared to more general configurations described by a superstructure. Parameter studies based on globally optimal solutions are carried out for the second example. For each

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