SYSTEM ENGINEERING

多产品间歇过程的分层次在线调度——一种数学规划与遗传算法的混合算法

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摘要　In this contribution we present an online scheduling algorithm for a real world multiproduct batch plant.The overall mixed integer nonlinear programming (MINLP) problem is hierarchically structured into a mixed integer linear programming (MILP) problem first and then a reduced dimensional MINLP problem, which are optimized by mathematical programming (MP) and genetic algorithm (GA) respectively. The basis idea relies on combining MP with GA to exploit their complementary capacity. The key features of the hierarchical model are explained and illustrated with some real world cases from the multiproduct batch plants.

关键词　online scheduling　multiproduct batch plant　mixed integer nonlinear programming mathematicalprogramming　genetic algorithm

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Hierarchical On-line Scheduling of Multiproduct Batch Plants with a Combined Approach of Mathematical Programming and Genetic Algorithm

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Abstract In this contribution we present an online scheduling algorithm for a real world multiproduct batch plant.The overall mixed integer nonlinear programming (MINLP) problem is hierarchically structured into a mixed integer linear programming (MILP) problem first and then a reduced dimensional MINLP problem, which are optimized by mathematical programming (MP) and genetic algorithm (GA) respectively. The basis idea relies on combining MP with GA to exploit their complementary capacity. The key features of the hierarchical model are explained and illustrated with some real world cases from the multiproduct batch plants.

Key words　online scheduling; multiproduct batch plant; mixed integer nonlinear programming; mathematicalprogramming; genetic algorithm

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