A Hybrid Formulation for Multipurpose Batch Process Scheduling

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Abstract
This paper presents a hybrid algorithm for optimal scheduling of multipurpose batch process plants. The algorithm decomposes the scheduling problem into two parts: an aggregate scheduling stage, based on Mixed Integer Linear Programming (MILP), and a detailed scheduling stage, applying Constraint Logic Programming (CLP). This decomposition utilises the complementary strengths of the two solution techniques in an attempt to reduce the inherent combinatorial complexity of process scheduling. A summary of the structure of the algorithm is presented and encouraging results for scheduling an example process are shown.

Keywords: scheduling, multipurpose, MILP, CLP, hybrid algorithm