

SYSTEM ENGINEERING

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摘要 为了有效诊断炼油厂的可调度线性规划(LP)模型的生产计划问题, 本文提出了基于约束分类和不可调度分析的方法。通常, 不可调度源包括结构性不兼容性和数据误差, 而数据误差会进一步分为 I、II 和 III 类。本文提出了三种策略: (1) 检查数据是否满足物料平衡, 并报告数据误差; (2) 检查数据是否与 LP 模型一致, 并报告数据误差; (3) 检查数据是否与 LP 模型一致, 并报告数据误差。这些策略可以自动执行, 并应用于图形化的石化建模系统。

关键词 调度; 生产计划; 线性规划; 不可调度分析; 石化建模系统

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Infeasibility Diagnosis on the Linear Programming Model of Production Planning in Refinery
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Abstract In order to effectively diagnose the infeasible linear programming (LP) model of production planning in refinery, the article proposed three stages strategy based on constraints' classification and infeasibility analysis. Generally, infeasibility sources involve structural inconsistencies and data errors, and the data errors are further classified into I, II and III. The three stages strategy are: (1) Check data when they are equalized to detect data error I, and report them; (2) Report data whether they are accorded with material balance before solving the LP model to identify data error II, and report them; (3) Find infeasible inconsistent system of infeasible LP model and give diagnosis information priority ranked to recognize data error III and structural inconsistencies. These stages could be automatically executed by computer, and the approach has been applied to diagnose the infeasible model well in our graphic I/O petro-chemical industry modeling system.

Key words Scheduling; production planning; linear programming; infeasibility analysis; petro-chemical modeling system

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