Supply Chain Optimisation in a Petrochemical Complex

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Abstract
This paper addresses the supply chain optimisation of a petrochemical complex as a multiperiod model over a short time horizon. In order to coordinate responses to demands while maximising profit, simultaneous planning of production and each plant production distribution has been undertaken. The model is optimised along a short-term planning horizon spanning multiple periods and supports the decision-making process of supply, production, intermediate and final product storage and distribution. Intermittent deliveries and demand satisfaction have been considered. Nonconvexities arise from blending and storage of multicomponent streams. The resulting nonconvex large scale mixed integer nonlinear model has been solved with GAMS using as initial point a linear model where bilinerities have been reformulated into linear equations.

Keywords: supply chain, petrochemical complex, optimisation, production planning.

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