عنوان مقاله:

An interactive fuzzy programming approach for a new multi-objective multi-product oil pipeline scheduling problem

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خلاصه مقاله:

In this paper, a new fuzzy multi-objective multi-product pipeline scheduling problem is introduced. The system consists of a single refinery, a unique distribution center, and a multi-product pipeline. Restrictions such as batchsizing, discharging rate, forbidden sequences, batch volumetric, etc. are considered. Due to the uncertain nature of real-world problems, some parameters of the system are considered as fuzzy values. Tardiness and earliness penalties are considered with a time dependent non-linear function. The basic aim of this scheduling problem is to achieve the optimal sequence for pumping batches of oil products to maximize the financial benefit and simultaneously satisfies the customers with on-time delivery as a multi-objective problem. To tackle this problem, a two-stage methodology is proposed. In the first stage, the fuzzy formulation is converted to its equivalent crisp form by a credibility-based chance-constrained programming approach. In the second stage, the multi-objective crisp formulation is solved by some well-known approaches in the literature. Some test problems are generated and solved by the proposed approaches and the obtained Pareto-optimal solutions are analyzed and compared using some .distance-based comparison metrics

کلمات کلیدی:

Credibility-based chance-constrained modeling, Fuzzy number, Multi-objective optimization, Multi-product pipeline scheduling