

Optimizing refinery hydrogen networks

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Jiao et al. (2012) use mixed integer linear programming for a simplified model of a refinery hydrogen network.

Questions

1. Explain the optimization problem. Give examples of two similar real-life optimization problems. What optimization methods have been used? Describe at least two and explain their advantages and shortcomings based on the reported results.
2. Explain the mixed integer linear programming problem and at least one method used to solve it. Implement this method and test it on a numerical example. Explain the advantages and shortcomings of the method based on your implementation and the obtained results.

References

Jiao, Y., Su, H., and Hou, W. (2012). Improved optimization methods for refinery hydrogen network and their applications. *Control Engineering Practice*, 20(10):1075–1093.