Fuzzy Approach for the Synthesis of Mass Exchange Network

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Authors:
Nesma Younes
Said M. Abdallah
M. Abdel Alim

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Abstract

This article addresses a fuzzy logic approach to calculate the optimum minimum allowable composition difference (\(?\)) to target the minimum total annualized cost (TAC) of a mass exchange network (MEN), which is based on combining composition interval diagram (CID) with fuzzy set theory. The value of \(?\) directly affect the TAC as a main constrain. By utilizing this decision algorithm it gives the opportunity to calculate the optimum composition difference by decision making from a wide range of assumed \(?\). This method is very simple and more convenient than the methods previously published; as the decision is taken without calculating TAC for every assumed \(?\).

References

design Tools.
Academic Press.
AIChE Journal, 1233-1244.
- Fábio J. J. Santos, H. A. (December 2010). Fuzzy Systems for Multicriteria Decision
the singularity of the Kremser equation. Comp. & Chem. Eng., 2331-2335.
Taylor & Francis.
approach to the optimization of in-plant wastewater interception with mass and property
- Hallale, N., & Fraser, D. (2000). Capital and total cost targets for mass exchange
networks. Part 1: Simple capital cost models. Computers and Chemical Engineering,
1661-1679.
Trans I Chem, 202-203.

Index Terms

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Keywords

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