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# Combined Water-Oxygen Pinch Analysis with Mathematical Programming for Wastewater Treatment

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收稿日期 修回日期 网络版发布日期 接受日期

摘要 Water-oxygen pinch analysis is an effective method to decrease the wastewater quantity and improve the wastewater quality. But when multiple-contaminants are present, the method is difficult to be carried out. In this paper, the method that combines water-oxygen pinch analysis with mathematical programming is proposed. It obtains the general optimal solution and leads to the reuse stream that cannot be found only by pinch analysis. The new method is illustrated by an example, and the annual cost is reduced by 8.43% compared with the solution of literature.

关键词 water-oxygen pinch analysis,wastewater minimization,mathematical programming

分类号

**DOI:**

对应的英文版文章:205295

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