SYSTEM ENGINEERING

过程工业中具有能量集成的用水网络优化设计

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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　Effective utilization of water and energy is the key factor of sustainable development in process industries, and also an important science and technology problem to be solved in systems engineering. In this paper,two new methods of optimal design of water utilization network with energy integration in process industries are presented, that is, stepwise and simultaneous optimization methods. They are suitable for both single contaminant and multi-contaminant systems, and the integration of energy can be carried out in the whole process system, not only limited in water network, so that energy can be utilized effectively. The two methods are illustrated by case study.

关键词　 工业过程　 最佳化设计工艺　 水　 能源　 利用　 炼油厂
分类号

DOI:

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Optimal Design of Water Utilization Network with Energy Integration in Process Industries

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Abstract Effective utilization of water and energy is the key factor of sustainable development in process industries, and also an important science and technology problem to be solved in systems engineering. In this paper,two new methods of optimal design of water utilization network with energy integration in process industries are presented, that is, stepwise and simultaneous optimization methods. They are suitable for both single contaminant and multi-contaminant systems, and the integration of energy can be carried out in the whole process system, not only limited in water network, so that energy can be utilized effectively. The two methods are illustrated by case study.

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