

عنوان مقاله:

Improvement of Wastewater Treatment Section of Old Urea Plant to Satisfy New Environmental Standards

محل انتشار:

ششمین کنگره بین المللی مهندسی شیمی (سال: 1388)

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خلاصه مقاله:

In this study, the removal of ammonia and urea from outlet wastewater of treatment section of old urea plant has been investigated. Since the amount of urea and ammonia in outlet wastewater of treatment section of old urea plant is not acceptable due to environmental restrictions and possible to upgrade this wastewater to reuse for boiler feed water or cooling water, an additional thermal hydrolyser- desorber system is used for reduction of urea and ammonia. The extended electrolytic UNIQUAC equation has been used to describe the non-ideality of liquid phase. The proposed model incorporates reaction rate of urea hydrolysis and takes into account the effects of solution non-ideality and backmixing on the reactor performance. The model provides concentration distribution of different components in liquid phase along the height of reactor and in liquid and vapor phases in the desorber. Also the effects of key parameters on the performance of wastewater treatment process have been examined. The result of this work shows that an increasing of inlet temperature of wastewater and steam flow rate improves the urea and ammonia removal efficiency.

کلمات کلیدی:

Environmental restriction, Hydrolyser-desorber system, Model, Liquid non-ideality

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