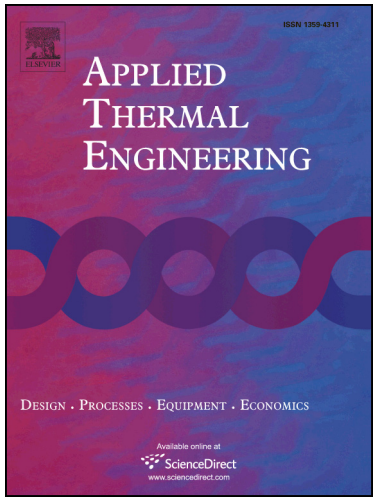

Modelling of vacuum distillation in a rotating packed bed by Aspen

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Modelling of vacuum distillation in a rotating packed bed by Aspen

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Abstract

A theoretical model based on Aspen plus was proposed to predict the vacuum distillation performance in rotating packed bed (RPB). Factors of gas and liquid mass transfer rate, the interfacial area, the liquid hold-up, mass and energy balance were considered. The effects of high gravity factor, operation pressure, feed concentration on the concentration production flux of overhead (X_D) and the height equivalent to theoretical plate (HETP) were investigated. The simulated data agreed well with the experimental results. The vacuum distillation performances in RPB were also compared with other existing equipments. Both the experimental data and modeling results suggested that the vacuum distillation in RPB exhibited good performance on separating the water and ethanol.

Keywords: Rotating packed bed; Vacuum distillation; Aspen; Ethanol.

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