

عنوان مقاله:

Study of Energy Saving in Petlyuk & Multiple-Effects Arrangements in Distillation Separation of a Ternary Mixture (iC₅, nC₅ and nC₆) in Compared with Conventional Prefractionator Configuration

محل انتشار:

هفتمین کنفرانس بین المللی فناوری و مدیریت انرژی (سال: 1400)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

There is a possibility of using different arrangements in distillation separation of a three-component mixture and one of the most popular arrangements is the pre-fractionator configuration. This arrangement like all other distillation columns, consumes high amount of energy. So reduction in energy consumption of this process is needed. In this article, we studied Petlyuk and multiple-effects arrangements in decreasing required heat duties to separate a three-component mixture of iso-pentane, normal-pentane, and normal-hexane and then compared them with the pre-fractionator configuration. Petlyuk and multiple-effects (forward or backward) arrangements are considered as heat integration options in reduction of required heat duties in distillation systems. Results show that the forward-multiple-effects arrangement in compared to Petlyuk and backward-multiple-effects arrangements has about ۳۶.۱۳% and ۴۶.۸۵% energy savings respectively, and therefore it is selected as the best heat arrangement

کلمات کلیدی:

forward and backward multiple-effets; heat integration in distillation column; petlyuk; pre-fractionator; ternary mixture

لینک ثابت مقاله در پایگاه سیویلیکا:

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