Heteroazeotropic batch distillation in a new double-column system

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Abstract

We investigate a new double-column batch heteroazeotropic distillation system (DCS) by rigorous simulation. Its performance is compared with that of the conventional batch rectifier (BR). For the new configuration the minimal operational time is determined. The separation of mixture isopropanol - water + cyclohexane is studied by using a professional dynamic flowsheet simulator. In the case studied we obtained better results (e.g. lower specific energy consumption) with the DCS than with the BR.
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Abstract

On the basis of the favourable results of the feasibility studies we investigate a new double-column batch heteroazeotropic distillation configuration also by rigorous simulation using a dynamic simulator. We compare the performance of the new configuration with that of the conventional batch rectifier. For the new configuration we determine the minimal operational time. We studied the influence of the most important operational parameters. The new configuration was found competitive with the BR and worthy of further, more accurate investigation.

by Ferenc DÉNES chemical engineer.

New double-column systems for batch heteroazeotropic distillation.

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The extractive and the heteroazeotropic distillations are described in a more detailed form. It is followed by the ordinary batch distillation, and finally the batch extractive and heteroazeotropic distillation methods are presented. 1.2.1. Residue curves of the simple batch distillation.