BATCH DISTILLATION OF MULTICOMPONENT MIXTURES: SEMI-RIGOROUS MODEL WITHOUT HOLDUPS

Adnan Hadžihasanović[1*], Muhamed Bijedić[2]

*[1]Plamingo doo, Gračanica, Bosnia and Herzegovina, adnan.h2012@gmail.com**
[2] University of Tuzla, Faculty of Technology Tuzla, Department of Chemical Engineering, Tuzla, Bosnia and Herzegovina

Abstract

The semi-rigorous model without holdups and the semi-rigorous model with minimum holdups give almost the same results. However, the former uses integration step 0.1 h and the latter integration step 0.00001 h. This, and the fact that a semi-rigorous model describes the dynamics of the batch distillation process more reliably than a shortcut model, makes the semi-rigorous model without holdups more suitable for dynamic optimization of the process. For the calculation of the composition in the condenser, at each step of time, a modified Levenberg-Marquardt method is used. The computer implementation of the above algorithm is performed in the FORTRAN programming language. Imposing the constraints is avoided by introducing the composition normalization.

Keywords: *batch distillation, mathematical modeling, multicomponent mixtures.*