

## **290i Design and Operation of Batch Extractive Distillation with Two Reboilers**

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Batch extractive distillation (BED) may simultaneously provide the advantages of both batch distillation and extractive distillation such as the flexibility, several products on one single column and the low capital costs, etc. So the method is very suitable for the separation and purification of close-boiling and azeotropic high-value mixtures in solvent recoveries of fine chemicals and pharmaceutical industries, etc. But this process has not still been widely applied in practical industries due to BED's more complexity such as the larger reboiler volume and the difficulty of operation control of process because of the permanently varying parameters. This paper proposes a new mode of operation for batch extractive distillation with two reboilers. The experiment of the separation of ethanol and water using as ethylene glycol is well done to validate the feasibility of the new mode. The experimental data under the same operational conditions between the regular mode and the new mode are in particular discussed. The results prove the more practical advantages of the new mode over the regular mode such as easier operational control and more flexibility. It supplies certain guidance for the industrial application of BED process. References [1] L. Berg, A.Yeh, The unusual behavior of extractive distillation-reversing the volatility of the acetone- isopropyl ether system, *AIChE J.* 31(1985) 504-506. [2] B.T. Safrit, A.W. Westerberg, U. Diwekar, Extending continuous conventional and extractive distillation feasibility insights to batch distillation, *Ind.Eng.Chem.Res.* 34(1995) 3257-3264. [3] H.Yatim, P. Moszkowicz, Dynamic simulation of a batch extractive distillation process, *Computers. Chem. Engng*,17(1992) s57-s62. [4] P.Lang, H.Yatim, P.Moszkowicz, M.Otterbein, Batch extractive distillation under constant reflux ration, *Computers. Chem Engng*, 18(1994) 1057-1069. [5] P.Lang, Z.Lelkes, P.Moszkowicz, M.Otterbein, H.Yatim, Different operational policies for the batch extractive distillation, *Comput. Chem.Engng.* 19(1995) s645-s650.