

An Application of DWC in n-BuOH recovery

신준호*, 이성규, 이종구, 이문용¹, 한명완², 김영한³
LG화학; ¹영남대학교; ²충남대학교; ³동아대학교
(deepest@lgchem.com*)

Distillation is a unit operation widely used to separate multi-component mixtures in spite of its high energy consumption low thermodynamic efficiency. To reduce energy consumption of distillation columns, most chemical/petrochemical/refinery industries have performed energy saving activities well known as column targeting such as applications of high performance tray, reallocation of feed stage and heat integration with other units. But those approaches are not enough to remove the root cause of the energy inefficiency in conventional distillation schemes. However, DWC can remove inevitable re-mixing phenomena causing energy inefficiency and can save energy usage by 30~40 % with less capital cost.

In this work we introduce a DWC application that reduced 45% energy usage and increased n-BuOH recovery by 4~5% in an octanol plant. This is the first commercial scale DWC implemented in Korea and showed us a quite successful result of 45% energy saving with better product quality. Based on this experience, we try to expend DWC applications to the candidate processes in LG Chem. It is expected that DWC technology can be a great contributor to chemical business competence by energy saving and less capital cost requirement.