

A novel heat-integration scheme of DWC configuration for separation of multi-component wide-boiling mixtures

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The modern distillation technologies for multi-component separations are based on the Petlyuk configuration. DWC(Divided Wall Column) is a practical implementation this system, in which the pre-fractionator and the main column are built in the same shell but separated by a vertical wall.

Generally, the DWC configuration is able to achieve on about 30% in energy savings by avoiding remixing effects, but since it is limited to a single-pressure operation, it has poor economic efficiency for separation of wide-boiling components, due to larger temperature range across the distillation column.

In this research, several heat-integration schemes for distillation column are applied to both Petlyuk and DWC configurations for separation of a multi-component wide-boiling mixture, and suggest a breakthrough technology of economically efficient heat-integration scheme for DWC.