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A simplified and general approach to absorption and stripping with parallel streams

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Highlights

Development of McCabe-Thiele methodology for para- and meta-absorption/stripping columns with two or more divisions of the vapor or liquid phases, respectively.

Alternative processes capable of diminishing either the consumption of solvent (absorption)/stripping agent (desorption) or the equipment height.

Development of Kremser-like equations for para- and meta-absorption/stripping.

Extension of the approach to the calculation of binary distillation columns.

Abstract

This work presents a simplified and general approach for calculating the number of ideal stages and the corresponding concentrations in absorption and stripping with parallel streams. Vapor (gas)/liquid separation processes with parallel streams involve the division of either the vapor phase or the liquid phase in a selected and feasible number of sub-streams and their contact, in alternate trays, with the entire stream of the other phase, i.e. the liquid or vapor phases, respectively. The division of the vapor phase (para-absorption or stripping) allows the possible allocation of a larger number of trays

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