

## Evaluation of variable volume diafiltration processes using the Logarithmic Integral

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### ABSTRACT

The minimum process times for ultrafiltration with constant volume diafiltration (UFCVD) and ultrafiltration with variable volume diafiltration (UFVVD) are compared for limiting flux conditions. Using the series definition of the Logarithmic Integral, the optimum concentration to begin VVD is found by numerical solution of a non-linear algebraic equation. This equation is used to establish a criterion for UFVVD to be faster than UFCVD. Calculations indicate that this criterion is never satisfied and thus UFVVD can never be done more rapidly than UFCVD.

*Keywords:* Ultrafiltration; Constant volume diafiltration; Variable volume diafiltration; Modelling; Optimisation; Logarithmic Integral

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