

عنوان مقاله:

Modeling of the absorption of acid gases into aqueous solutions of MDEA using discretization by the finite difference method

محل انتشار:

پنجمین کنگره بین المللی مهندسی شیمی (سال: 1386)

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خلاصه مقاله:

A calculation model, based on the film theory, is developed to numerically interpret the mass transfer behavior occurring in the absorption of CO₂ into aqueous solutions of methyldiethanolamine (MDEA). In the liquid film region, the model is a set of differential equations that describes the mass transfer accompanying several chemical reactions; the solution of the system is achieved by the finite difference method combined with Newton's method. Continuity equations and equilibrium coefficients are used in the treatment of the bulk region, which is based on the Newton-Raphson method; the results are used directly as boundary conditions in the liquid film equations. The model results indicate that the combined mass transfer-reaction kinetics-equilibrium model can predict CO₂ mass transfer into the aqueous MDEA solution, especially in lower CO₂ loadings.

کلمات کلیدی:

Modeling; Mass transfer; Carbon dioxide; Methyldiethanolamine

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