



HOKKAIDO UNIVERSITY

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— Note —

**CORRECTION TO THE PAPER
“RATE EQUATIONS FOR TRACER STUDIES
IN RECIRCULATING REACTORS”
BY JOHN HAPPEL¹⁾**

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John HAPPEL^{*)}

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The present author discovered two errors in his note¹⁾. Equation (13) should read:

$$\lambda = \frac{1}{2} \left[- \left(\frac{Wv_1}{\beta C^A} + \frac{v_1+v_2}{C^{A'}} + \frac{Wv_2}{\beta C^B} \right) \pm \sqrt{\left(\frac{Wv_1}{\beta C^A} + \frac{v_1+v_2}{C^{A'}} + \frac{Wv_2}{\beta C^B} \right)^2 - 4 \left(\frac{Wv_1v_2}{\beta C^A C^{A'}} + \frac{W^2v_1v_2}{\beta^2 C^A C^B} + \frac{Wv_1v_2}{\beta C^{A'} C^B} \right)} \right]$$

Equation (16) should read:

$$z^B = C_1 \left[\left(\frac{C^{A'}\lambda_1}{v_2} + \frac{v_1+v_2}{v_2} \right) \left(\frac{\beta C^A}{Wv_1} \lambda_1 + 1 \right) - \frac{v_1}{v_2} \right] e^{\lambda_1 t} + C_2 \left[\left(\frac{C^{A'}\lambda_2}{v_2} + \frac{v_1+v_2}{v_2} \right) \left(\frac{\beta C^A}{Wv_1} \lambda_2 + 1 \right) - \frac{v_1}{v_2} \right] e^{\lambda_2 t} + C_3$$

With these corrections, it is then possible to compute the values of C_1 , C_2 and C_3 from Equations (14)–(16) by specifying three initial values of concentration z_0^A , $z_0^{A'}$ and z_0^B . Equation (17) is not an independent additional relationship.

1) J. HAPPEL, This Journal, **22**, 206 (1975).

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