



Title	CORRECTION TO THE PAPER “ RATE EQUATIONS FOR TRACER STUDIES IN RECIRCULATING REACTORS ” BY JOHN HAPPEL
Author(s)	HAPPEL, John
Citation	JOURNAL OF THE RESEARCH INSTITUTE FOR CATALYSIS HOKKAIDO UNIVERSITY, 24(1), 71-71
Issue Date	1976-09
Doc URL	<a href="http://hdl.handle.net/2115/25009">http://hdl.handle.net/2115/25009</a>
Type	bulletin (article)
File Information	24(1)_P71.pdf



[Instructions for use](#)

— Note —

**CORRECTION TO THE PAPER  
"RATE EQUATIONS FOR TRACER STUDIES  
IN RECIRCULATING REACTORS"  
BY JOHN HAPPEL<sup>1)</sup>**

By

John HAPPEL<sup>\*)</sup>

(Received January 30, 1976)

The present author discovered two errors in his note<sup>1)</sup>. Equation (13) should read :

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

Equation (16) should read :

$$z^B = C_1 \left[ \left( \frac{C^{At}\lambda_1}{v_2} + \frac{v_1+v_2}{v_2} \right) \left( \frac{\beta C^A}{Wv_1} \lambda_1 + 1 \right) - \frac{v_1}{v_2} \right] e^{\lambda_1 t} + C_2 \left[ \left( \frac{C^{At}\lambda_2}{v_2} + \frac{v_1+v_2}{v_2} \right) \left( \frac{\beta C^A}{Wv_1} \lambda_2 + 1 \right) - \frac{v_1}{v_2} \right] e^{\lambda_2 t} + C_3$$

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  $z_0^A$ ,  $z_0^{At}$  and  $z_0^B$ . Equation (17) is not an independent additional relationship.

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

\*) Department of Chemical Engineering, Columbia University in the City of New York, New York.