Thesis	Kinetics of CO+NO Reaction over Rh/Al_2O_3 at 150°C
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Degree	Master of Engineering
Programme	Chemical Engineering
Year	2006
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ABSTRACT

Kinetics of CO+NO reaction over Rh/Al_2O_3 has been investigated at 150 °C according to the behaviors of the system observed under both steady and unsteady conditions. As for the behavior of reaction under steady conditions, rate of reaction was measured using a packed-bed reactor. Concentrations of CO and NO were varied in the range of 0.0409–0.2454 $mol \cdot m^{-3}$ and 0.0204–0.1431 $mol \cdot m^{-3}$, respectively. The results showed that the order of the reaction were 0.03 and 0.45 with respect to the concentration of CO and NO, respectively. Behavior of the reaction under Bang-Bang periodic condition reported in the literature was refered. The pattern of NO concentration wave at the outlet of a reactor was employed to determination of satisfied reaction mechanism and its kinetic parameter. For the calculation, the established model consists of a mole balance equation for an integral reactor and differential equations for the change of surface coverage of each species. The concentration wave of NO was calculated using the proposed mechanisms and adjusted its kinetics parameters. The mechanism and its parameters which gave good resemblance of experimental results obtained under both steady and unsteady operating conditions were selected. Finally, the reliability of the selected kinetics model was evaluated.