中国化学工程学报 2005 13 (5): 623-627 ISSN: 1004-616x CN: 44-1063/R

REACTION KINETICS, CATALYSIS AND.....

环戊二烯加氢宏观动力学的研究

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收稿日期 修回日期 网络版发布日期 接受日期

摘要 The macrokinetics of hydrogenation of cyclopentadiene was investigated over Pdγ-Al2O3 catalyst. Experimental results showed that the relationship between the constituents and reaction time was in agreement with the characteristic of consecutive irreversible first-order reaction. Analysis on the reaction mechanism of selective hydrogenation of cyclopentadiene indicated that it is reasonable to express the hydrogenation rate of cyclopentadiene in the power law form. Parameters of the kinetic model were obtained by the Gauss-Newton method based on the experimental data. From the statistic test and residual error distribution the kinetic model was proved to be adequate.

关键词 环戊二烯 环戊烯 加氢反应 宏观动力学 Pdγ-Al2O3催化剂

分类号

DOI:

Kinetics on Hydrogenation of Cyclopentadiene over Pd/γ-Al_2O_3 Catalyst

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Received Revised Online Accepted

Abstract The macrokinetics of hydrogenation of cyclopentadiene was investigated over Pdγ-Al2O3 catalyst. Experimental results showed that the relationship between the constituents and reaction time was in agreement with the characteristic of consecutive irreversible first-order reaction. Analysis on the reaction mechanism of selective hydrogenation of cyclopentadiene indicated that it is reasonable to express the hydrogenation rate of cyclopentadiene in the power law form. Parameters of the kinetic model were obtained by the Gauss-Newton method based on the experimental data. From the statistic test and residual error distribution the kinetic model was proved to be adequate.

Key words cyclopentadiene; cyclopentene; kinetic; mechanism; hydrogenation

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