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## Runaway Criterion in Fixed Bed Catalytic Reactors with Radial Temperature Profile

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**摘要** The discrepancy between pseudo-homogeneous one-dimensional model and pseudo-homogeneous two-dimensional model is studied. It is found that there are great differences between two models. This paper compares the maximum and minimum values of the radial temperature in the hot spot in case that a single exothermic reaction is carried out, a correlation is obtained with pseudo-homogeneous one-dimensional model to describe the entire reactor behavior. A new runaway criterion, based on the occurrence of inflection in the hot spot locus, is developed for the case of pseudo-homogeneous two-dimensional model. This criterion predicts the maximum allowable temperature for safe operation and the regions of runaway, respectively. The calculated results show that, compared with the results based on pseudo-homogeneous one-dimensional model, runaway will easily occur when the radial temperature gradient has to be considered.

**关键词** [固定床](#) [催化反应器](#) [参数灵敏度](#) [径向温度](#) [研究模型](#)

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**Key words** [parametric sensitivity](#); [runaway](#); [fixed bed catalytic reactor](#)

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