

RESEARCH NOTES

多组分吸附过程的吸附速率模型

姚春才

Department of Chemical Engineering, Nanjing Forestry University, Nanjing 210037, China

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**摘要** Three adsorption rate models are derived for multicomponent adsorption systems under either pore diffusion or surface diffusion control. The linear driving force (LDF) model is obtained by assuming a parabolic intraparticle concentration profile. Models I and II are obtained from the parabolic concentration layer approximation. Examples are presented to demonstrate the usage and accuracy of these models. It is shown that Model I is suitable for batch adsorption calculations and Model II provides a good approximation in fixed-bed adsorption processes while the LDF model should not be used in batch adsorption and may be considered acceptable in fixed-bed adsorption where the parameter  $T_i$  is relatively large.

**关键词** [吸附率](#) [多组分吸附系统](#) [吸附模式](#) [相位传输平衡](#)

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**Adsorption Rate Models for Multicomponent Adsorption Systems**

YAO Chuncai

Department of Chemical Engineering, Nanjing Forestry University, Nanjing 210037, China

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**Abstract** Three adsorption rate models are derived for multicomponent adsorption systems under either pore diffusion or surface diffusion control. The linear driving force (LDF) model is obtained by assuming a parabolic intraparticle concentration profile. Models I and II are obtained from the parabolic concentration layer approximation. Examples are presented to demonstrate the usage and accuracy of these models. It is shown that Model I is suitable for batch adsorption calculations and Model II provides a good approximation in fixed-bed adsorption processes while the LDF model should not be used in batch adsorption and may be considered acceptable in fixed-bed adsorption where the parameter  $T_i$  is relatively large.

**Key words** [adsorption rate](#); [adsorption model](#); [multicomponent adsorption](#)

通讯作者:

姚春才

作者个人主页: 姚春才

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