

RESEARCH PAPERS

加长循环流化床提升管中加速段长度的实验研究

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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 Systematic experimental work was conducted to investigate the solid acceleration length in a 16m long circulating fluidized bed riser with fluid cracking catalyst particles over a wide range of operating conditions. A more feasible method is proposed to determine the acceleration length from the measured axial profiles of pressure gradient (or apparent solid holdup). With this new method and large amount of experimental data, a clear picture on the variation of the acceleration length with both solid circulating rate and superficial gas velocity is obtained. It is found that the acceleration length increases generally with increasing solid flow rate and/or decreasing gas velocity. However, the trend in variation of the acceleration length with operating conditions are quite different in different operation ranges. Reasonable explanations are suggested for the observed variation patterns of acceleration length.

关键词 [CFB riser](#) [solid acceleration](#) [acceleration length](#) [axial flow structure](#) [gas-solid flow](#)
[solid holdup](#)

分类号

DOI:

An Experimental Investigation on Solid Acceleration Length in the Riser of a Long Circulating Fluidized Bed

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Received Revised Online Accepted

Abstract Systematic experimental work was conducted to investigate the solid acceleration length in a 16m long circulating fluidized bed riser with fluid cracking catalyst particles over a wide range of operating conditions. A more feasible method is proposed to determine the acceleration length from the measured axial profiles of pressure gradient (or apparent solid holdup). With this new method and large amount of experimental data, a clear picture on the variation of the acceleration length with both solid circulating rate and superficial gas velocity is obtained. It is found that the acceleration length increases generally with increasing solid flow rate and/or decreasing gas velocity. However, the trend in variation of the acceleration length with operating conditions are quite different in different operation ranges. Reasonable explanations are suggested for the observed variation patterns of acceleration length.

Key words [CFB riser](#); [solid acceleration](#); [acceleration length](#); [axial flow structure](#); [gas-solid flow](#); [solid holdup](#)

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