

流体力学与传递现象

回料流入口高度对循环流化床提升管流动特性的影响

孙绍增, 王正阳, 杜明坤, 邓启刚, 吴少华

哈尔滨工业大学能源科学与工程学院; 哈尔滨工业大学土木工程学科博士后流动站

收稿日期 2009-4-30 修回日期 2009-9-20 网络版发布日期 2010-1-20 接受日期

摘要

关键词

[循环流化床](#) [回料气固两相流](#) [入口高度](#) [颗粒浓度分布](#) [回料风的扩散](#)

分类号

Effect of return gas-solids stream position on flow properties of circulating fluidized bed

SUN Shaozeng, WANG Zhengyang, DU Mingkun, DENG Qigang, WU Shaohua

Abstract

The axial pressure drop profile and the radial solids distribution were measured in a circulating fluidized bed for evaluating the effects of return gas-solids stream position on the riser flow properties. The saturation carrying capacity of gas for Geldart B typed particles and the flow mode of return gas-solids stream in the bed were discussed. It was found that arranging the inlet at a higher position of the riser would make the bottom bed leaner when U_0 was high and G_s was low. When G_s increased, the longer influenced region of return particles and a small air-staging through lifting the loosening air injection position made the bottom bed become denser significantly. The deceleration and residence of return particles caused a relatively denser but asymmetrical region in the vicinity of inlet. But much more symmetrical solids distribution profile was found in the upper and lower regions far away from the inlet. The effects of inlet height on the flow properties of the riser with air-staging also were analyzed. The secondary air injection below the solids inlet could not cut off the solids exchange in the bed. The bed solids concentration increased when the particles inlet moved to a higher position of the bed when air-staging was adopted. Using CO_2 as tracer, the dispersion of the loop-seal-fluidizing air for transmitting the return particles was investigated. It was found that the loop-seal fluidizing air dispersion rate was low but can be enhanced by the secondary air injection.

Key words

[circulating fluidized bed](#) [return gas-solids stream](#) [inlet height](#) [solids holdup distribution](#) [dispersion of loop-seal fluidizing air](#)

DOI:

通讯作者 王正阳 wangzy@hit.edu.cn

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(1594KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中 包含“](#)

[循环流化床” 的相关文章](#)

▶ [本文作者相关文章](#)

- [孙绍增](#)
- [王正阳](#)
- [杜明坤](#)
- [邓启刚](#)
- [吴少华](#)