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RESEARCH PAPERS

内构件存在时提升管内流动及颗粒混合行为研究

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摘要 The hydrodynamics and solids mixing behavior in a riser with blunt internals are studied. A uniformradial distribution for solids fraction and particle velocity achieves near the internals. The turbulent velocityof particles near the wall increases with the addition of the internals, with the lateral solids mixing enhancedsignificantly. Probability density distribution of particle velocity is bimodal in the riser with internals, which issimilar to that in the conventional riser, indicating that no significant difference in the micro flow structure existsbetween the riser with internals and the conventional riser. At the same time, the axial solids mixing behaviorchanges insignificantly with the addition of internals. These results indicate that the micro flow structure in theriser is very stable, which changes insignificantly with the change of the bed structure.

关键词 riser internal hydrodynamics solids mixing behavior

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Hydrodynamics and Solids Mixing Behavior in a Riser with Blunt Internals

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Abstract The hydrodynamics and solids mixing behavior in a riser with blunt internals are studied. A uniformradial distribution for solids fraction and particle velocity achieves near the internals. The turbulent velocityof particles near the wall increases with the addition of the internals, with the lateral solids mixing enhancedsignificantly. Probability density distribution of particle velocity is bimodal in the riser with internals, which issimilar to that in the conventional riser, indicating that no significant difference in the micro flow structure existsbetween the riser with internals and the conventional riser. At the same time, the axial solids mixing behaviorchanges insignificantly with the addition of internals. These results indicate that the micro flow structure in theriser is very stable, which changes insignificantly with the change of the bed structure.

Key words riser; internal; hydrodynamics; solids; mixing behavior

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