

RESEARCH NOTES

搅拌槽中固体颗粒离底悬浮机理的研究

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摘要 The minimum fluid velocity to maintain particles just suspended was deduced, and the theoretical analysis shows that the minimum velocity is influenced by the properties of the solid and liquid, not by the operational conditions. For justification, the local minimum velocity at the bottom of the tank was measured by a bi- electrode conductivity probe, in a square-sectioned stirred tank (0.75m×0.75m×1.0m) with the glass beads-water system. The experiments showed that the fluid velocities for the same suspension state were identical despite that the power dissipated per unit mass was not the same under different configuration and operation. Both theoretical analysis and experimental results indicate that the off-bottom suspension is controlled by the local fluid flow over the bottom of the stirred tank.

关键词 [off-bottom suspension](#) [solid-liquid system](#) [local velocity](#) [stirred tank](#)

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Mechanism of Off-Bottom Suspension of Solid Particles in a Mechanical Stirred Tank

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Abstract The minimum fluid velocity to maintain particles just suspended was deduced, and the theoretical analysis shows that the minimum velocity is influenced by the properties of the solid and liquid, not by the operational conditions. For justification, the local minimum velocity at the bottom of the tank was measured by a bi- electrode conductivity probe, in a square-sectioned stirred tank (0.75m×0.75m×1.0m) with the glass beads-water system. The experiments showed that the fluid velocities for the same suspension state were identical despite that the power dissipated per unit mass was not the same under different configuration and operation. Both theoretical analysis and experimental results indicate that the off-bottom suspension is controlled by the local fluid flow over the bottom of the stirred tank.

Key words [off-bottom suspension](#); [solid-liquid system](#); [local velocity](#); [stirred tank](#)

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