

多相流和计算流体力学

气流床气化炉内颗粒停留时间分布

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摘要 颗粒停留时间分布是气流床气化炉开发与设计的重要参数, 实验设计一种新型脉冲示踪法测量了气流床气化炉内颗粒停留时间分布。初步研究了多喷嘴气化炉和Texaco气化炉内颗粒停留时间分布, 分析了气速和颗粒粒径对两种气化炉内颗粒停留时间分布的影响。结果表明: 该实验方法具有良好的重复性和可靠性, 可以用于气流床气化炉内颗粒停留时间的测量; 与Texaco气化炉相比, 颗粒在多喷嘴气化炉内的停留时间分布更为合理; 随气速的增大和颗粒粒径的减小, 两种气流床气化炉内的颗粒停留时间和方差都增大。

关键词

[撞击流](#) [多喷嘴气化炉](#) [Texaco气化炉](#) [停留时间分布](#)

分类号

Particle residence time distributions in entrained-flow gasifier

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Abstract

The particle residence time distributions in the entrained-flow gasifier as the important parameters in the gasification process were studied by using a new stimulus response method. The differences of the particle residence time distributions in the opposed multi-burner entrained-flow (OMBEF) and Texaco gasifier were compared. The influence of gas velocity and particle diameter on particle residence time distributions was discussed. The experimental results showed that the new stimulus response method was reliable and could be used to measure the particle residence time distributions in the entrained-flow gasifier and the particle residence time in the OMBEF gasifier was more favorable than in the Texaco gasifier. The results also showed that with increasing gas velocity and decreasing particle diameter, the mean and variance of particle residence time increased in both kinds of entrained-flow gasifier.

Key words

[impinging streams](#) [multi-burner entrained-flow gasifier](#) [Texaco gasifier](#) [residence time distributions](#)

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