

RESEARCH PAPERS

循环流化床气固传质实验研究

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摘要 This study is devoted to gas-solid mass transfer behavior in heterogeneous two-phase flow.

Experiments were carried out in a cold circulating fluidized bed of 3.0 m in height and 72 mm in diameter with naphthalene particles. Axial and radial distributions of sublimated naphthalene concentration in air were measured with an online concentration monitoring system HP GC-MS. Mass transfer coefficients were obtained under various operating conditions, showing that heterogeneous flow structure strongly influences the axial and radial profiles of mass transfer coefficients. In the bottom dense region, mass transfer rate is high due to intensive dynamic behavior and higher relative slip velocity between gas and clusters. In the middle transition region and the upper dilute region, as a result of low mass transfer driving force and the influence of flow structure, mass transfer rate distribution becomes non-uniform. In conclusion, among the operating parameters influencing mass transfer coefficients, the superficial gas velocity is the most important factor and the solid circulation rate should be also taken into account.

关键词 [mass transfer](#) [circulating fluidized bed](#) [gas-solid heterogeneous flow](#)

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Experimental Study on Gas-Solid Mass Transfer in Circulating Fluidized Beds

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Key words [mass transfer](#); [circulating fluidized bed](#); [gas-solid heterogeneous flow](#)

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