

RESEARCH PAPERS

流态化固体颗粒对载气蒸发传热的强化

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摘要 Heat transfer characteristics are studied for gas carrying evaporation with fluidized solid

particles in a vertical rectangular conduit. Experimental results show that heat transfer of gas carrying evaporation is enhanced and the superheat of liquid in contact with heating surface lowers remarkably by introducing solid particles. Nucleate boiling on the heating surface is suppressed to a considerable degree. The mechanism of heat transfer enhancement

by fluidized solid particles is analyzed with the consideration of collisions of solid particles with the boiling vapor bubbles.

关键词 [heat transfer](#) [flow boiling](#) [evaporation](#) [gas-liquid-solid three-phase](#)

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Heat Transfer Enhancement by Fluidized Solid Particles in Gas Carrying Evaporation

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Abstract Heat transfer characteristics are studied for gas carrying evaporation with fluidized solid particles in a vertical rectangular conduit. Experimental results show that heat transfer of gas carrying evaporation is enhanced and the superheat of liquid in contact with heating surface lowers remarkably by introducing solid particles. Nucleate boiling on the heating surface is suppressed to a considerable degree. The mechanism of heat transfer enhancement by fluidized solid particles is analyzed with the consideration of collisions of solid particles with the boiling vapor bubbles.

Key words [heat transfer](#); [flow boiling](#); [evaporation](#); [gas-liquid-solid three-phase](#)

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