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MATHEMATICAL MODEL OF UNSTEADY GAS TO SOLID PARTICLES HEAT TRANSFER IN FLUIDIZED BED

ABSTRACT

The mathematical model of unsteady one-dimensional gas to particles heat transfer for non-isothermal fluidized bed with periodic heating of solid particles has been described. The method of numerical solution of governing differential equations, the algorithm and the computer program, have been presented. By using mathematical model and computer program, the temperature profiles for interstitial gas, gas in bubbles, and solid particles along the height of fluidized bed in function of time, have been determined. The results obtained on the basis of prediction method are compared to the experimental results of the authors; the satisfactory agreement has been found for interstitial gas temperature and solid particle temperature. On the basis of this comparison, the mathematical model has been verified.

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