

عنوان مقاله:

(CFD simulation of gas-solid flow in freely bubbling fluidized bed contain the FCC particles (Geldart A

محل انتشار:

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خلاصه مقاله:

In this paper hydrodynamics of the bubbling gas–solid fluidized bed containing the fluid catalytic cracking (FCC) particles with 57.4 μm diameter was simulated using the Eulerian–Eulerian approach. For this purpose, between the empirical correlations and kinetic theory of granular flows (KTGF), KTGF was selected to describe the rheology of solid phase as a continuum phase. For simulation of gas–solid fluidized bed, include the fine particles, the cohesive forces must be considered. For this reason the drag force that is one of the dominant forces in fluidized bed systems can be modified. Therefore, the modified Gibilaro drag model was used by obtaining the appropriate value of scale factor (SF) experimentally. This method is mainly caused the reduction of computational time especially for simulation of large-scale systems. The ranges of superficial gas velocity were 0.3-0.5 m/s. In addition, time-average local voidage was compared to experimental data and this comparison was acceptable.

کلمات کلیدی:

;Hydrodynamics, Bubbling Fluidized Bed, CFD, Geldart A

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