

عنوان مقاله:

Cold Flow Simulation of a ۳۰ kWth CFB Riser with CPF

محل انتشار:

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خلاصه مقاله:

A ۳۰ kWth Circulating fluidized bed (CFB) combustor is experimentally and numerically investigated under cold flow conditions. Barracuda software based on Computational Particle Fluid Dynamics (CPF) method is utilized for simulations. The influences of bed inventory and drag model on flow hydrodynamics were investigated considering pressure and velocity profiles and particle concentration. Two advanced drag models, namely Energy minimization multi-scale (EMMS) and Wen-Yu/Ergun were selected for this study. The simulations were performed with initial bed material masses of ۳.۷۹, ۴.۵۵ and ۵.۲۰ kg corresponding to ۲.۵, ۳ and ۳.۵ diameters height of riser, respectively. With increasing bed inventory pressure drops and solid concentration increase. The axial particle velocities slightly change with bed inventory. The comparison of simulation results with experimental measurements was resulted in good agreement

کلمات کلیدی:

CFB, Cold flow, CPF, Experimental, Drag model

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