

CFD Modeling of Gas-Solid Flow in a Fluidized Bed Reactor

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A computational fluid dynamic (CFD) model for predicting the hydrodynamic characteristics of a gas-solid fluidized bed reactor (FBR) was developed. A multi-fluid Eulerian model was applied and a suitable drag function was selected in order to simulate the gas-solid flow in the reactor. For the verification of simulation of the developed the model, pressure drops predicted by the simulations were compared to experimental data obtained by using a fluidized bed containing glass beads of 300 – 500 μm in a diameter. Based on the model, flow regime can be predicted with the change of the FBR scale.