# 2D simulation and experimental verification of gas–solid flow hydrodynamics in a Fast Fluidization Regime

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Hydrodynamics of gas-solid in the fast fluidization regime were investigated by a combination of experiment and computational fluid dynamics (CFD) simulations. A two-dimensional (2D) numerical simulation of gas–solids flow in a circulating fluidized bed riser was performed based on the two-fluid model (TFM). The aim of the present study was to systematically evaluate the influence of the wall boundary conditions (BC) in the riser flow based on Johnson and Jackson BC for particle phase. The dependence between these two parameters was tested against the experimental results and were shown in the present work. Further simulations was performed to investigate the model parameters with respect to axial solid holdup for different solid shear viscosity models. The Gidaspow et al. solid viscosity model demonstrated fairly consistent results with the experimental data over wide range of solid circulation rate.