

### On the effect on initial and operating conditions of a 2D fluidized bed reactor

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The effect of parameters for Computational Fluid Dynamic (CFD) simulation of a 2D fluidized bed reactor was studied. First, a 2D fluidized bed reactor model was developed and the simulation results were compared with the existing experimental data in literature for the purpose of validation. The CFD simulation is carried out with academic version of CFD software-FLUENT. A two-phase Eulerian-Eulerian approach coupled with kinetics theory of granular flow (KTGF) for solid phase was applied to simulate the gas-solid flow. Standard k-epsilon model was chosen for turbulence model. Momentum exchange coefficients are calculated using appropriate drag force function. The kinetic energy loss during the particle-particle collision is characterized by the value of coefficient of restitution as 0.9. Once validated, simulation experiments to understand the effect of various other operating conditions and system parameter were carried out.

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