

### CPFD study of gas–solid multiphase flow in fluidized bed catalyst regenerator

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Fluidized catalytic cracking (FCC) process is an important oil refinery process, since this process converts heavy petroleum fractions into high-value lighter hydrocarbon products. In FCC process, optimizing the burning efficiency of a regenerator is a key issue for maximize production and improve operating efficiency. This work aimed at investigation of regenerated catalyst flow in FCC regenerator. Computational particle fluid dynamics (CPFD) simulations were performed for two types of regenerator and its modifications primarily to the shape of air sparger. Commercial CPFD code was used to simulate discontinuous phase dominant multiphase flow. The distributed simulation results were compared with experimental data.