

Bed height and particle properties effects on dense bed voidage in gas fluidized system

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The dense bed voidage were determined in a circulating fluidized bed of 0.1 m I.D and 2.6 m height of plexi-glass equipped with 12 differential pressure transducers to measure axial pressure drop along the riser to measure axial voidage profile. Influence of static bed height (height to dia ratio, H/D= 6, 7 and 8) on dense bed voidage and pressure fluctuations was analysed with different particles (FCC and Glassbeads of Geldart A, B and C classification) at different superficial gas velocities. The axial voidage profile showed a typical trend, a dense bed in the lower part followed by a transition in the splash zone and a lean phase in the freeboard as height from the distributor increased. A model relationship of Choi et al. 1999 to predict dense bed voidage was ammended for different bed height from bubbling to fast fluidization regime.