

Hydrodynamic Characteristics in Circulating Fluidized Bed with U-bend line

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The hydrodynamic characteristics in circulating fluidized bed that equipped u-bend line was investigated for various particles. The properties of particle such as particle size and density initial static bed height and fluidizing gas velocity in riser were considered as variables. The pressure drop in riser commonly caused by the solid hold up, particle acceleration and friction. In this study, to neglect the effect of particle acceleration and friction in riser, 10 cm diameter riser was applied and also to simplify solid flow the u-bend was equipped instead of non-mechanical valve. The aeration rate of u-bend was decided by saturation point which the solid circulation rate was not changed by flow rate in u-bend. The effect of particle properties accord with prior studies, which indicated solid circulation rate increased with particle diameter and decreased with particle density. On the other hand, the riser pressure drop represent non-linear relation with solid to gas mass ratio and linearly increased with bed pressure drop and fluidizing gas velocity.