Slug Initiation Evaluation in Long Horizontal Channels Experimentally

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Abstract : In this paper, the effects of gas and liquid superficial inlet velocities and for the first time the effect of liquid holdup on slug initiation position are studied experimentally. Empirical correlations are also presented based on the obtained results. The tests are conducted for three liquid holdups in a long horizontal channel with dimensions of 5cmx10cm and 36m length. Usl and Usg rated as to 0.11m/s to 0.56m/s and 1.88m/s to 13m/s, respectively. The obtained results show that as α l=0.25, slug initiation position is increasing monotonically with Usl and Usg. During α l=0.50, slug initiation position is almost constant. For α l=0.75, slug initiation position is decreasing monotonically with Usl and Usg. In the case of equal void fraction of phases, generated slugs are weakly (low pressure). However, for the unequal void fraction of phases strong slugs (high pressure) are formed.

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