عنوان مقاله:

Modeling of Liquid Holdup in Horizontal Slug Two-Phase Flow

محل انتشار:

ششمین کنگره بین المللی مهندسی شیمی (سال: 1388)

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خلاصه مقاله:

This paper provides a new theoretical investigation into the prediction of holdup in horizontal slug two-phase flow. Them model developed here enables direct calculation of the slug holdup. So, it is independent of any specific experimental correlation and it can be used for different fluid (high or low viscosity at high or low velocity). Also, in order to validate the theoretical model an apparatus was set-up to measure holdup in horizontal and inclined pipes. The setup consists of a test section with an inside diameter 30 mm and 3 m length made of plexy-glass to permit visual observations of the flow patterns. The experiments were carried out under various air and water flow rates in the slug flow pattern. Theliquid holdup is measured by isolating the test section by two quick closing valves. The proposed model was tested extensively against experimental data collected from the apparatus set up and three liquid holdup data sources for both air–water and air–oil slug flow in horizontal pipes. The predicted holdup matched the experimental data within less than 2% average error. These results substantiate the general validity of the model.

کلمات کلیدی:

Holdup, Slug, Liquid film

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