

New correlations for gas holdup in bubble column reactors (I)

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Abstract A comprehensive literature search was conducted to obtain the holdup data for different gases in various liquids using bubble column reactors operating under wide ranges of conditions in different size reactors provided with a variety of gas spargers. The data were used to develop new correlations for the total gas holdup. These correlations are capable of predicting the experimental data. The new correlations were used to predict the effects of temperature, gas velocity, type of reactors and distributor type on the air holdup in various bubble column reactors (BCRs). The objective of this study is to develop novel correlation to predict the holdup of bubbles for gases in operating with aqueous liquids, at the atmospheric pressures and different temperatures in the absence of particles as those used in industrial applications (Flue Gas Desulfurization FGD).

Keywords: bubble column reactor, gas holdup, empirical correlation, gas distributor.
