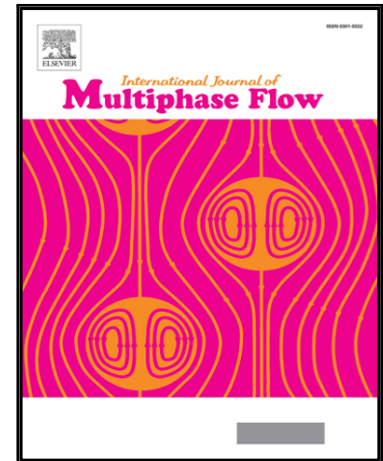


## Accepted Manuscript

The effect of aspect ratio in counter-current gas-liquid bubble columns: experimental results and gas holdup correlations

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**Highlights**

- The effect of the aspect ratio in a counter-current gas-liquid bubble column has been studied
- The aspect ratio, up to a critical value, decreases the gas holdup and destabilizes the homogeneous regime
- The critical value of the aspect ratio depends on the bubble column operation and liquid phase properties
- A new scheme of correlation for the prediction of the gas holdup in counter-current gas-liquid bubble columns has been proposed
- The correlation predicts fairly well the gas holdup measurements at the different aspect ratios

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