

Unexpected effect of small viscosity on flow regimes in bubble columns

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Bubble column contacting/reacting systems are widely used in many technologies of chemical and food industry, in biotechnology, and in environmental areas. The transport parameters of the system depend strongly on the flow regimes in the apparatus (homogeneous and heterogeneous regimes). One regime can change into the other at critical values of control parameters - system size and geometry, physico-chemical properties of the phases, etc. This study concerns the effect of the liquid phase viscosity on the extent the homogeneous regime. Experiments were performed in cylindrical bubble columns with solutions of different Newtonian viscosity. The data show that the uniform regime can be both supported and deteriorated with small changes in viscosity.

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