413d Heat Transfer Coefficient Measurements in High Pressure Bubble Column

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Abstract

Local instantaneous and averaged heat transfer coefficients were studied in a 6-inch stainless steel air-water bubble column by using a fast response rod shape heat transfer probe. The effects of high superficial gas velocity (up to 30cm/s) and high pressure (up to 10 bar) were investigated in the fully developed region of the column. The results show that the heat transfer coefficients increase with superficial gas velocity, and that the averaged heat transfer coefficients in the center of the column are larger than those near the wall region. The heat transfer coefficients decrease with pressure in this system due to combined effects of bubble size decreasing, gas holdup increasing, number of bubble increasing, and liquid properties changing. In this presentation, the heat transfer probe technique and the obtained results, and findings will be discussed.