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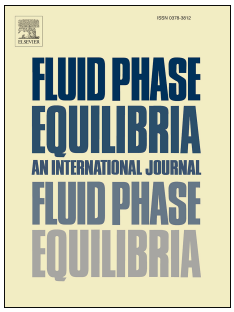

Phase behavior modeling for gas condensate fluids with PC-SAFT and an improved binary interaction coefficient model

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Phase Behavior modeling for Gas Condensate Fluids with PC-SAFT and an Improved Binary Interaction Coefficient Model

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Abstract

The accurate reservoir fluid phase behavior prediction in the gas condensate samples is still a challenging problem. The binary interaction coefficients are among the effective parameters in the phase behavior calculations. The binary interaction coefficients (*BICs*) are different for different equations of state. This work provides a solution to this problem with a modified version of Hudson-McCoubrey (*HM*) equation to determine the *BICs* of *PC-SAFT*, over a number of real gas condensate samples.

The modeling procedure in this work includes two separate steps; in the first step, the proposed binary interaction estimation models parameters are regressed and in the second step, the prepared models are used, to evaluate the performance under phase behavior prediction feedback with different binary mixtures and real gas condensate samples. The modeling results are presented for *PC-SAFT* with the new *BICs* models and original *HM* in comparison to the experimental data and Peng-Robinson equation of state (with a common interaction coefficients set). The experimental data for the liquid dropouts and dew point pressures for different real gas condensate fluids are used from published data in the literature.

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