عنوان مقاله:

An Effective EOS Based Modeling Procedure for Minimum Miscibility Pressure in Miscible Gas Injection

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خلاصه مقاله:

The measurement of the minimum miscibility pressure (MMP) is one of the most important steps in the project design of miscible gas injection for which several experimental and modeling methods have been proposed. On the other hand, the standard procedure for compositional studies of miscible gas injection process is the regression of EOS to the conventional PVT tests. Moreover, this procedure does not necessarily result in an accurate calculation of the MMP. In this study, an effective procedure is presented using both conventional PVT and slim tube data in the regression to provide appropriate EOS parameters for field studies including miscible gas injection. In the first step, the EOS parameters were subjected to regression to the conventional PVT data. In addition, these parameters were then used as inputs for simultaneous regression to the conventional PVT and MMP data. MMP is modeled through the automated execution of a series of compositional simulation of slim tube. Moreover, the regression uses a stochastic optimization for minimizing an objective function (regression) have been coupled with two separate core calculations, (۱) equilibrium calculations of the conventional tests and (۲) compositional simulation of the slim tube. For evaluation, a number of real reservoir fluids from field data are used from reliable datasets in the literature. Finally, the promising results demonstrated that this procedure is capable to provide EOS parameters for accurate predictions in the miscible gas injection processes.

کلمات کلیدی:

Reservoir Fluids, Minimum Miscibility Pressure, Compositional Simulation, Regression, Slim Tube