Gas injection is a proven enhanced oil recovery technique. The gas injection changes the reservoir oil composition, temperature, and pressure conditions, which may result in asphaltene precipitation. In this work, we have used a modeling approach from the literature in order to predict asphaltene precipitation onset condition during gas injection. The modeling approach is used with the Soave Redlich Kwong, Soave Redlich Kwong-Plus-Huron Vidal mixing rule and cubic-plus-association (CPA) equations of state (EoS). Six different reservoir fluids are studied with respect to asphaltene onset precipitation during nitrogen, hydrocarbon gas mixture, and carbon dioxide injection. It is also shown how to extend the modeling approach when the reservoir fluid is split into multiple pseudocomponents. It is observed that the modeling approach using any of the three models can predict the gas injection effect on asphaltene onset conditions. The CPA EoS is more reliable than the other two models, which are sensitive to asphaltene molecular weight and sometimes predict highly nonlinear behavior outside the experimental temperature range used for fitting the model parameters.

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