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Comparison of Distribution Functions for Characterization of C_{7+} Fraction in One of Iranian Oil Field

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Abstract

In characterization of wide boiling range heptane plus (C7+) fractions in addition to bulk properties such as molecular weight (MW), specific gravity (SG), etc., properties distribution is also required. Bulk properties can be measured easily but determination of properties distribution is more costly and time consuming. So the characterization methods is used for determining the properties distribution. Methods selected for the characterization of reservoir fluids have significant impact on the estimation of physical properties and phase behavior needed in reservoir simulation for petroleum production. Characterization of reservoir fluids involves representing the fluid as a continuous, semi-continuous mixture or through a number of components/pseudocomponents with known basic characterization data. Understanding of various characterization schemes and their limitations is the key to selecting the right one in a reservoir simulator. The main objective of these paper is to compare the results of characterization methods for one of Iranian south oil field to determine the best method that is compactible with that reservoir fluid. The results show that all models can estimate the mole fraction distribution very close to the experimental data from C_7 to C_{30+} but the average absolute error for single carbon number (SCN) model is lower than other models for this reservoir fluid.

Key words: PDF, distribution model, characterization, plus fraction, PVT

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