

عنوان مقاله:

Modeling study of asphaltene adsorption and deposition during natural depletion process

محل انتشار:

دومین کنفرانس بین المللی نفت، گاز و پتروشیمی (سال: 1393)

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نویسندگان:

s kashefi - Semnan University

(a sharabadi - Research Institute of Petroleum Industry (RIPI

,m.n lotfollahi - Semnan University

خلاصه مقاله:

In this work, the natural depletion process in a core sample from one of the Iranian oil reservoir was simulated under reservoir conditions to investigate the asphaltene adsorption and deposition phenomena. Mass balance, momentum equations and the Wang asphaltene deposition model were applied to model the dynamic asphaltene deposition process as a two phase system. A Langmuir and Toth adsorption models were used discretely to investigate a monolayer and multilayer asphaltene adsorption onto core surfaces respectively. A computer program was provided and used to calculate the equations with implicit finite difference and a numerical model solved by iteration method. The Genetic algorithm technique was used as an optimization tool for determination of the model parameters. The obtained results showed a model based on the Toth adsorption theory fits better with reported experimental data. This result confirmed the multilayer asphaltene adsorption onto core surfaces.

کلمات کلیدی:

Natural depletion, Asphaltene deposition, Adsorption, Genetic algorithm

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