

عنوان مقاله:

Developing a scaling equation as a function of pressure and temperature to determine the amount of asphaltene precipitation

محل انتشار:

پنجمین کنگره بین المللی مهندسی شیمی (سال: 1386)

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خلاصه مقاله:

In this study a simple and applicable scaling equation as a function of pressure, temperature, molecular weight, dilution ratio (solvent) and weight percent of precipitated asphaltene has been developed. This equation can be used to determine the weight percent of precipitated asphaltene in the presence of difference precipitants (solvents) and the amount of solvent at onset point. Since increasing the pressure of crude oil decreases the amount of asphaltene precipitation, the effect of reservoir pressure has been taken into account in developing this equation. The results obtained by using this equation are substantially different and more accurate from other developed scaling equations for asphaltene precipitation. By considering the effect of reservoir pressure in developing the scaling equation and application of a genetic algorithm, the unknown parameters of the scaling equation are simultaneously and without any reservation obtained. The most important application of this unique equation is in the determination of critical point of asphaltene precipitation, known as onset point, and asphaltene precipitation in gas injection operations for enhanced oil recovery. The results predicted using the scaling equations are compared with our experimental and literature precipitation data and it is shown that they are in good agreement with our experimental data

کلمات کلیدی:

Asphaltene precipitation; n-Alkane; Amount of precipitation; Temperature-pressure dependent scaling equation; Genetic algorithm

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