

عنوان مقاله:

Experimental Investigation of the Performance of Organic Acids as Asphaltene Inhibitors

محل انتشار:

هفتمین کنفرانس بین المللی مهندسی شیمی و نفت (سال: 1400)

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خلاصه مقاله:

One way to reduce the problem of asphaltene deposition is to use chemical inhibitors, which has been considered by many authors in recent decades. All the previous researches in this field were at ambient temperature and mostly applied the model oil. Therefore, to better understand the performance of inhibitors at condition more similar to real state, the effect of salicylic acid (SA) and benzoic acid (BA) on the aggregation of asphaltene particles in crude oil were investigated at temperatures ۲۲ and ۱۲°C in this study. The particle diameters of asphaltene were measured using a light microscope at ۱۲۱۰x magnification at different times. Then, to determine the effect of temperature on the aggregation of asphaltene particle size, the values of asphaltene solubility and oil viscosity at ۲۲ and ۱۲°C were measured using a centrifuge and a capillary tube viscometer, respectively. The results of asphaltene particle size showed that the aggregation of asphaltene particles and consequently particle size at ۱۲°C was higher than that at ۲۲°C due to lower oil viscosity. In addition, it observed that both inhibitors reduced the particle size, but BA had a better performance in reducing the particle size compared to SA. According to the results of particle size, the presence of carboxylic acid group in the structure of inhibitors cause the inhibitor to interact with asphaltene particles. The alcoholic group in the structure of BA has no function in reducing the particle size.

کلمات کلیدی:

Asphaltene, Organic Acids, Aggregation, Temperature

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