

عنوان مقاله:

Relaxation Process in Crude Oil after Ultrasonic Treatment

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خلاصه مقاله:

This paper presents an investigation on changes in viscosity and group composition of heavy oil samples after ultrasonic upgrading process. Heavy oil samples correspond to different oilfields (located in Russia) were processed under various ultrasonic mode, the cavitation consequence of which was controlled by acoustic method. The viscosity of samples was measured just after ultrasonic treatment, 10 minutes, and 1-34 days. The saturate, aromatic, resin and asphaltene (SARA) analysis was carried out after ultrasonic treatment with 34 days of relaxation and the achieved results were compared with the SARA fractions of original crude oil. The results of viscosity measurement showed viscosity reduction after the ultrasonic treatment. However, the viscosity was regressed after 1-4 days of relaxation with further reduction in 7 days. The degree of viscosity increase after 34 days was only 10% in contrast to viscosity of original crude oil. The power and the sonication time did not influence the relaxation process. In conclusion, attention was drawn to the results of SARA analysis, the content of saturates decreased and the relative content of heavy fragments such as resins and asphaltenes was increased, which determines the degree of viscosity increase after relaxation period.

کلمات کلیدی:

Ultrasound, Cavitation, Asphaltenes, Aromatic and Resin Analysis, Sonochemistry, Viscosity

لینک ثابت مقاله در پایگاه سیویلیکا:

