

Characterization and kinetics of siberian and tatarstan regions crude oils using differential scanning calorimetry

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Abstract

Copyright © Taylor & Francis Group, LLC. In this study, nonisothermal kinetics and thermal analysis of Siberian and Tatarstan regions crude oils is studied by differential scanning calorimetry (DSC) at different heating rates. DSC curves revealed two reaction regions in the temperature range of 20-600°C, known as low and high temperature oxidation, respectively. Three different kinetic methods (ASTM, Borchardt and Daniels, and Roger and Morris) were used to determine the kinetic parameters of the samples and it was observed that the activation energy values are varied.

<http://dx.doi.org/10.1080/10916466.2015.1021011>

Keywords

crude oil, differential scanning calorimetry, in-situ combustion, kinetics, thermal analysis