

The influence of carbonate rock on the processes of oil transformation

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Abstract

© 2018 Taylor & Francis Group, LLC. The study of the processes of crude oil transformation in carbonate rock was carried out on the “oil-carbonate rock” model systems. For the study, oils of different chemical composition recovered from both terrigenous and carbonate reservoirs, and rock from carbonate reservoir were selected. It was shown that not all oils were subjected the catalytic action of carbonate rock. In oils that have experienced the catalytic action of carbonate rock the content of aromatic hydrocarbons decreased significantly and the content of non-polar resins increased. In carbonate rock, in addition to calcite and aragonite the montmorillonite was detected and it was supposed that the catalytic effect of the carbonate rock was due to this clay mineral. It was found that the oil transformation in the carbonate rock did not require much time and high temperature, and also that the oil recovered from the carbonate reservoir was resistant to the catalytic action of the carbonate rock.

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Keywords

asphaltenes, carbonate rock, hydrocarbon composition, resins, transformation of oil composition

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