

The Preliminary Results Of Shale Gas Resource Characteristics Of Dadas Formation In The Southeastern Anatolia, Turkey

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The Southeastern Anatolia Basin, which is located in southeastern Turkey, was a part of Arabian Plate in the Early Paleozoic period. The active oil production has already been manufactured in the basin which contains three main source rocks. One of these source rocks is the Silurian Dadas Formation is considered a shale gas formation. However, it has not been sufficiently discovered as scientific proof yet. The outcrop, cuttings and core shale samples of the Dadas Formation from different locations in the basin were characterized by organic geochemical and mineralogical analyses to obtain basic information on shale gas potential. The total organic carbon (TOC) content of the samples ranges between 0.73 and 7.51 (wt. %). According to the Rock-Eval pyrolysis analyses, nineteen outcrop samples from two different locations (Korudağ and Çat) are thermally overmature. However, for all core and cuttings samples from in southeastern Diyarbakır are in the oil generation window. The whole rock mineral compositions of outcrop samples are feldspar, mica, quartz and clay minerals (illite and kaolinite). The mineral compositions of cuttings and core shale samples are a mixture of feldspar, carbonate minerals (calcite and dolomite), quartz, mica and clay minerals. The clay minerals content of core samples are chlorite, kaolinite and illite. However, the clay minerals of cuttings samples are illite and dominantly kaolinite. Illite crystallinity/Kübler Index (IC) values point out between upper diagenetic zone and epizon. Based on these results, the thermal maturation of these shales are in accord with each other. The high concentrations of quartz and carbonate minerals imply that these shales are considered to be appropriate for induced hydraulic fracture. The brittleness of these shales from various locations in the basin reaches up to 42%. All of these preliminary results lead to Dadas Formation can have shale gas potential.