

Geochemical Characteristics of Organic Matter from Qom Formation Rocks of north-west of Iran (Uremia)

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The northern margin of the Central Iran Basin is one of the main oil-gas exploration areas in north-west Iran, where source rocks are composed mostly of oligo-miocene dark shale.

Based on investigation of more than 50 samples taken from natural outcrops of the Qom Formation (Oligocene–Lower Miocene) in north-west of Iran (Uremia), the genetic hydrocarbon potential and the organic matter (OM) maturity of these rocks was estimated.

In the study region, sedimentary rocks of this formation were deposited under reductive or weakly oxidative conditions. Possessing a relatively medium to high (1.1%, on the average) content of organic matter of a mixed (continental–marine) OM, these rocks are able to generate both liquid and gaseous hydrocarbons under favorable conditions. The mean T_{\max} for the samples translate to a vitrinite reflectance range of 0.75-1.1% based on standard conversion techniques ($T_{\max} = 55.5 \text{ VR} + 398$). Contributions of both the continental and marine components to the total organic carbon (TOC) varied in time and space. The upper and lower sub-formations of the Qom formation differ in the qualitative and quantitative compositions of OM. Oligocene rocks have a relatively lower OM content and are characterized by better oil-generating properties, as compared to lower Miocene rocks.

Key words: *organic matter, kerogen, rock eval, maturity, petroleum system*