

Application of geochemical data in recognizing origin of Soltanieh dolomite and determining temperature of dolomite formation, in North of Semnan

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Key Words: *Dolomite, Oxygen Isotope, Soltanieh Fm., Shahmirzad.*

Abstract: Shahmirzad village is located on the southern parts of the Eastern Alborz Mountain Ranges. One of the sedimentary rock units that crops out in this area is Soltanieh Formation (Upper Precambrian - Lower Cambrian). Thin section and oxygen isotope studies have been used in order to determine the petrological characteristics and the temperature of Soltanieh dolomites formation environment. Examination of the petrographic properties of the dolomite samples, along with geochemical data reveals that all of the dolomite samples are diagenetic (secondary) and were formed under reducing conditions in shallow to deep phreatic environment. The heaviest and lightest ^{18}O values illustrate that temperature of early to late diagenetic dolomites range from 72 °C to 113.5 °C respectively.