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New evidences on mineralization, diagenesis and fluid inclusions at Kamar-Mehdi stratabound fluorite deposit, southwest Tabas

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Abstract: The Kamar-Mehdi fluorite deposit is located 100 km southwest of Tabas in Tabas Block, Central Iran. There are five stratabound orebodies in the area exposing in carbonate rocks of Shotori Formation. The oldest unit is Shotori Formation dolomite of Triassic age that is emplaced in the core of Kamar-Mehdi Anticline. Folding direction in the area is N-S and normal faults with W-E direction have caused some dislocations. Based on field and microscopic evidences, three types of mineralization are identified: 1- Early Diagenetic mineralization which is observed as disseminated in fenestral porosity in Shotori Formation dolomicrites; 2- Late Diagenetic mineralization that occurs as open space filling in vein and veinlets and open spaces of Shotori Formation. 3- Vein mineralization which occurs along with normal faults in the study area. Fluid inclusions studies of late diagenetic mineralization and vein mineralization show that the fluids in the late diagenetic mineralization have salinities between 15 and 26 wt% NaCl equivalent and homogenization temperatures of 150-270°C. Fluid inclusions of the vein mineralization have salinities between 3.4 and 20.2 wt% NaCl equivalent and homogenization temperatures of 140-237 °C.

The present study, with consideration on the late diagenetic mineralization and comparing it with vein type fluid inclusions, shows that the diagenetic fluid inclusions have higher salinities and homogenization temperatures. All the evidences show that mineralization at Kamar-Mehdi fluorite deposit is related to Shotori Formation and it is regarded as a fluorite-rich Mississipy Valley Type deposit.

Keywords: *Stratabound fluorite deposit, Fluid inclusions, F-rich MVT, Kamar-Mehdi, Iran*