

A preliminary fluid inclusion study of Vejin Pb-Zn ore of Tiran region from Sanadaj-Sirjan zone, Central Iran

Mackizadeh, Mohammad Ali* and Taghipour, Batoul**

*Geology Department, University of Isfahan, Isfahan, Iran

**Department of Earth sciences, Faculty of Sciences, Shiraz University, Shiraz, Iran

The Vejin deposit is one of the three known carbonate rock-hosted Pb-Zn deposits in Tiran region, NW Isfahan. The deposits occur within the Sanadaj-Sirjan metamorphic zone at the margin of the Central Iranian microplate between the NW-SE trending Zagros fold belt and the Uromieh-Dokhtar Belt (Cenozoic magmatic belt of Central Iran) (Fig. 1). The stratabound ore occurs as replacement bodies within the lower Cretaceous (Barremian-Aptian) limestone, as well as along major NW-SE faults with no apparent association with magmatic bodies. The carbonate host rock that formed within a fore-arc environment unconformably lies on metasediments of Triassic-Jurassic age. The ore consists of galena and sphalerite with subordinate amounts of pyrite and is associated with quartz and calcite alteration. Microthermometric studies of fluid inclusions in sphalerite indicates the presence of brines with 16 eq mass% NaCl, $T_{m(ice)} = -11\text{ }^{\circ}\text{C}$, that precipitated at temperature of $150 \pm 10\text{ }^{\circ}\text{C}$.

Fluid inclusion data, the carbonate composition of the host rock, the replacement style of mineralization and the geotectonic setting unrelated with magmatic activity show close similarities with MVT type mineralization for the Vejin Pb-Zn deposit as proposed for other Pb-Zn deposits of the region (e.g. Ghazban, 2003). The ore fluids may have been generated as basinal brines due to the compaction of the Sanadaj-Sirjan metamorphic formations during the Cretaceous Neo-Tethyan continental collision between the Iranian and the Arabian plates.

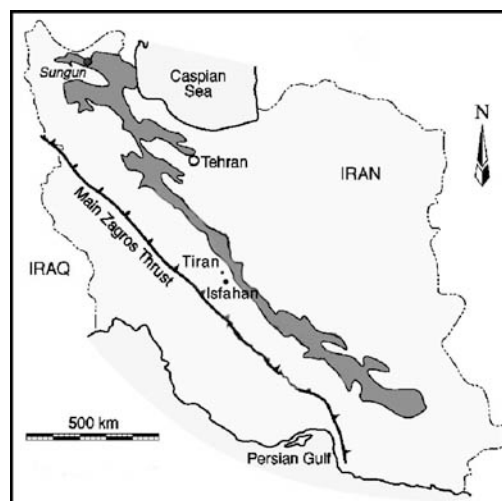


Fig. 1. Sketch map showing the position of the Central Iranian volcanic belt and the study area (Tiran).

REFERENCES

Ghazban F, Hajikazemi E (2003) *Diagenesis, hydrocarbon migration and MVT mineralization in Cretaceous carbonates of west Central Iran Mineral exploration and sustainable development*, P 1161 - 1164.