

CARBONATE-HOSTED LEAD AND ZINC DEPOSITS OF EMARAT AREA, SANANDAJ-SIRJAN ZONE, IRAN

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Carbonate Hosted Lead-Zinc deposits of the Emarat zone forms part of the Sanandaj-Sirjan tectonic belt extending from NW to SE across central Iran. This region primarily composed of Mesozoic sedimentary rocks that have been subjected to deformation and metamorphism. Mineralization occurs in rocks ranging from Triassic to Lower Cretaceous of these the latter which is carbonate, are most significant. Detailed field and petrographic studies of lead and zinc deposits have revealed that; a) mineralization was thoroughly occurred in the secondary structures as void and fracture fillings and sometimes as replacement of host rocks and there are no primary sedimentary controls on the mineralization, b) the host rock and ore mineralization have different ages, besides, different stratigraphic units of the region show identical mineralization, c) two types of alterations occurred in the host rock: 1) dolomitization that predates the mineralization and 2) jasperoid alteration which is contemporaneous with mineralization, and d) mineralization mainly happened in the rib-shape dolomitized stratigraphic traps. A likely scenario is that the ore-bearing hydrothermal fluids generated at depths due to intrusion of granitic to dioritic rocks during Laramide Orogeny were preferentially channeled along major fractures and faults into the rib-shape stratigraphic traps and after interactions with host rocks and meteoric waters, precipitated their metal contents. The paragenetic sequence, stratigraphic position, types of alterations, temperature of ore deposition, and other characteristics of the studied deposits are very similar to MVT type epigenetic deposits. Therefore, the earlier conception of syngenetic mechanism for ore deposition is ruled out.