Mineralogy and geochemistry of Zincian-dolomite in Bahramtaj deposit, Yazd, Central Iran

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Abstract: Bahramtaj Pb-Zn deposit is located about 90 km NW of Yazd, central Iran. The area has been located in Central Iran geotectonic zone and hosted in dolomitic limestone of Paleozoic age. The purpose of this research is to investigate Zincian-dolomite as one of the important effects of the alteration process. Zincian-dolomite as a non-sulfide zinc mineral is characterized by a different amount of Zn, as well as lower amounts of Pb, Cu, and rarely Cd. Characterization of Zn-bearing dolomite, using differential thermal analysis, shows a drop in temperature of the first endothermic reaction of dolomite decomposition with increasing Zn contents in dolomite. The substitution of dolomite by zincian-dolomite supergene is known as a part of a multi-stage mineralization process in Bahramtaj, which begins with the development of the zincian-dolomite process and continues with the dolomitization of the previous dolomites, and finally results formation of zinc non-sulfide minerals such as smithsonite and hemimorphite.

Keyword: Zincian dolomite; Pb-Zn mineralization; Bahramtaj; Yazd; Central Iran.

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