

عنوان مقاله:

The non-sulfide ore Formation conditions of Ravar-Bafgha rea, findings of carbon and oxygen stable isotopes

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نویسندگان:

Ali Amiri - Department of Geology, Faculty of Basic Science, Islamic Azad University - Zarand Branch, Zarand, Iran

Iraj Rassa - Department of Geology, Faculty of Earth Science, Shahid Beheshti University, Tehran, Iran

خلاصه مقاله:

The carbonate-hosted zinc-lead deposits of Ravar-Bafgh area mainly contain non-sulfide ore. In this article, we have studied the variations of carbon and oxygen isotopic ratios from separated non-sulfide minerals. The range of $\delta^{13}\text{CPDB}$ in the smithsonite varies from -1.456 to -7.248% and shows a good congruency with meteoric CO_2 . In the hemimorphite, $\delta^{13}\text{CPDB}$ values vary from -17.871 to -23.554% and show high enrichment of light carbon isotope. Vein-type aragonite associated with non-sulfide ore is formed under the same conditions as the smithsonite, but the calcite mineral associated with sulfide ore is formed under the same conditions as the limestone. The range of $\delta^{18}\text{OSMOW}$ and $\delta^{18}\text{OPDB}$ isotopic ratios is studied in the mentioned minerals. In the smithsonite, the $\delta^{18}\text{OSMOW}$ values vary from $+21.821$ to $+26.445\%$, the values of $\delta^{18}\text{OPDB}$ vary from -6.882 to -8.768% , the values in the hemimorphite vary from $+16.263$ to $+19.580\%$ and from -10.876 to -14.160% for $\delta^{18}\text{OSMOW}$ and $\delta^{18}\text{OPDB}$ respectively. These values show that the non-sulfide minerals of these deposits are formed during the weathering of exposed sulfide ore and the fluids responsible for these processes are descending meteoric waters with minor amount of pore waters entrapped in the porosity of the carbonate host rocks.

کلمات کلیدی:

Isotope, Carbon, Oxygen, Lead, Zinc, Ravar-Bafgh

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