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Characteristics of Mo Mineralization in Lala Iron Oxide (Cu-U-Au-REE) Deposit, SW-Sichuan, China

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The iron oxide (Cu-U-Au-REE) deposits can contain some Mo [1], but so far there is not any paper report that this kind of deposit has an economic reserves of Mo. Lala iron oxide (Cu-U-Au-REE) deposit, contains 0.2Mt Mo, and is producing Mo. The grade of Mo ranges from 0.002% to 0.124%, and has a positive correlation with Cu. The ratio of Mo/Cu in the ore is about 1/6.

Molybdenite is the only mineral contained Mo. It occurs as euhedral crystal and sizes 0.01–0.1mm. It occurs with fluorite and chalcopyrite in veins and also as disseminated grains in the ore. The texture of molybdenite in the deposit is exclusively of 2H+3R types, determined by X-ray. The contents of Se, Te and Cu in nine molybdenites are 0.06–0.27%, 0.02–0.08%, and 0.12–0.54%, respectively. Re content in four samples ranges from 111.88×10^{-6} to 121.50×10^{-6} . The ratios of $^{206}\text{Pb}/^{204}\text{Pb}$, $^{207}\text{Pb}/^{204}\text{Pb}$, and $^{208}\text{Pb}/^{204}\text{Pb}$ from seven samples vary 50.622–70.573, 17.719–19.100, and 43.013–46.324, respectively. The values of $\delta^{34}\text{S}\%$ in seven samples range from 1.82 to 2.25.

These data support the suggestion on which the deposit originate from metamorphic fluids [2]. Compared with other iron oxide (Cu-U-Au-REE) deposits, Lala deposit has more characteristics of crust sources.

The research was supported by the National Natural Science Foundation of China (grant: 401702039).

References

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6.4.P03

Mineralogical and geochemical characteristics of massive sulfide mineralization of Sheikh-Ali and Ahmad-Abad (southwest of Dolat-Abad, Baft)

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The study area (Sheikh-Ali and Ahmad-Abad deposits) are located in southwest of Iran in Esphandagheh region. Ancient Sheikh-Ali copper mine is situated 150 kms southwest of Baft and 26 kms southwest of Dowlat-Abad and ancient copper mine of Ahmadabad is situated in 25 kms east of Sheikh-Ali. The Geological units around this deposits include spilite basaltic lava with pillow structure, cream to pink colour pelagic limestone and radiolarite banded cherts which are situated like a fault along with other colored mélange units. There are two types of mineralization in this area namely disseminated (inside basalts, pelagic limestone and banded chert) and massive (inter banded chert in the basalts) types.

The most important sulfides in the deposits are: pyrite, chalcopyrite, sphalerite, digenite and covelite. The minerals of oxidized zone are goethite, limonite, malachite, and azurite. Mineralogical of the polished section shows pyrite mineral mostly in the form of colloform, massive, open space filling and in the form of replacement in pyrite

According to geochemical study of ore mineralization, average of Cu is 5.8%, Zn 0.35%, Pb 195 gr/ton, Cd 8.3 gr/ton, Ag 21 gr/ton, and Au 190 mgr/ton. The Co and Ni composition in the ore mineralization of the area with VMS is very close. The average of Co in pyrite mineral is 331 gr/ton and Ni 32 gr/ton and Co/Ni ratio 10 which is very close to submarine sulfide deposits.

The ore mineralization of the area is similar mostly to Cyprus type volcanogenic massive sulfide deposits.