

## **Geochemistry of biotites in Ali-Abad & Darreh-Zereshk porphyry copper deposits, Yazd, Central Iran**

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### **ABSTRACT**

Darreh-Zerreshk and Ali-Abad are two relatively small porphyry copper deposits in Central Iran. The biotite compositions used to interpret nature, physicochemical conditions of magma source and petrogenesis of these granitoid rocks. Biotites from granitoids of the Aliabad-Darreh Zereshk areas are green and brown types. On the basis of IMA classification, these biotites can be classified mainly as phlogopite on the basis of ratios of  $100 \text{ (Mg / (Mg + Fe))}$  which vary between 17 and 22. Also, plotting of  $100\text{Fe}_t / (\text{Fe}_t + \text{Mg})$  ratio of the studied biotites on a stability diagram correspond to temperature about 600 to 750°C and confirming magmatic origin for these biotites. In addition, biotite composition used for discrimination of the granitoid magma. The chemical composition of studied biotites show that the granitoids of the Aliabad-Darreh Zereshk areas are calc - alkaline I-type.

**KEYWORDS:** Geochemistry of biotite, Granitoids, Ali-Abad- Darreh Zereshk porphyry copper, Yazd, Iran