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CHIM—Geo-electrochemical Method in Search of Concealed Cu-Ni Deposits in China

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CHIM (Chastichnoe Izvlechennye Metallov) is a geoelectrochemical method for mobilizing and collecting ions using electrodes placed in the soil and applying a small current for a sustained period. Since Ryss (Ryss, 1986) studied the process of electrochemical dissolution of the sulfide minerals and provided a theoretical explanation for the development of metallic ion haloes, many geologists and experts have been improved the technique and applied to exploration for various metallic deposits in CHIM method in Canada, US (Leinz, 1998), China and Australia (Luo, 2007), and have resulted in many new discoveries. Practical results demonstrate that CHIM is applicable in exploring for various types of metallic deposits.

This research is mainly concerned with a study of CHIM- geoelectrochemical method for prospecting Cu-Ni deposits in China. Included in the experiments were electrochemical dissolution tests. As a result of our experiments, we concluded that natural or artificial electric field enables the Cu-Ni ore dissolving Cu^{2+} , Ni^{2+} and other ions which can be moved and enriched on the surface in the effects of external electric field, which is the halo-forming

of the Cu-Ni deposit. On the basis of it, the feasible experiments about geoelectrochemical methods for prospecting research were carried out in Hongqiling and Jinchuan Cu-Ni deposits. The results of the experiments have shown that some clear geoelectrochemical anomalies are tested on the section of the known ore bodies. It was indicated that geoelectrochemical methods for prospecting these types of concealed Cu-Ni deposit was effective. From the experiments, we forecasted several geoelectrochemical abnormal targets in external and deeper areas of the two deposits by the method.

References

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