

Diagenetic and Metallogenic Ages of Baoshan Cu-Mo-W Deposit in Heilongjiang Province, China and Its Geologic Significance

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Abstract: Baoshan Cu-Mo-W deposit is a typical skarn deposit located in the northern section of the Xiaoxing'anling-Zhangguangcailing metallogenic belt. It occurs at the contact zone between granitoid rocks and carbonate rocks of the Cambrian Qianshan Formation. In this paper, we present new data about zircon U-Pb age of ore-hosting granodiorite and molybdenite Re-Os age. The LA-ICP-MS U-Pb zircon analyses yield a concordia age of (248.4 ± 2.1) Ma for granodiorite, indicating that the granodiorite was intruded in the Early Triassic. The Re-Os isochron age of molybdenite is (242.0 ± 1.0) Ma with a weighted average of (241.9 ± 1.7) Ma, which is slightly younger than the emplacing age of granodiorite. Intrusion of the granodiorite and associated Cu-Mo-W mineralization occurred in a collisional tectonic setting during the Early-Middle Triassic, which is related to the closure of the Paleo-Asian Ocean.

Keywords: U-Pb isotopic dating; Re-Os isotopic dating; skarn deposit; Baoshan; Heilongjiang Province