

## 秦岭凤太成矿区金多金属矿床成矿流体地球化学研究

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摘要: 笔者以八卦庙金矿床和八方山一二里河铅锌矿床为例, 对秦岭凤太成区内铅锌矿床与金矿床的成矿流体特征进行了对比。研究表明: 本区各矿床流体包裹体中的气相成分属CO<sub>2</sub>-N<sub>2</sub>-CO-CH<sub>4</sub>-H<sub>2</sub>型, 但八卦庙金矿床不同成矿阶段的CH<sub>4</sub>含量明显较高, 而f<sub>o2</sub>和f<sub>s2</sub>值又低于铅锌矿床; 液相成分中, 八卦庙金矿床除Ca<sup>2+</sup>/Mg<sup>2+</sup>和Eh值小于铅锌矿床以外, 主成矿期的Na<sup>+</sup>/K<sup>+</sup>、Cl<sup>-</sup>、F<sup>-</sup>、pH值均大于后者, 两者的主成矿期均为中盐度, 但前者明显大于后者; 溶液水中的氢、氧同位素显示铅锌矿床的水源主要为地层水, 而八卦庙金矿床中的水源主要是岩浆水或受岩浆加热的地层水, 其与岩浆热液的成矿关系较为密切。

关键词: 秦岭造山带; 凤太成矿区; 多金属; 成矿流体地球化学; 热水沉积; 岩浆热液

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## Ore fluid geochemistry of gold polymetallic deposits in the Fengtai ore district, Qinling Mountains

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Abstract: Take for example the Baguamiao gold deposit and Bafangshan-Erlihe lead-zinc deposit, a comparative study has been conducted of the characteristics of ore-forming fluids of gold and lead-zinc deposits in the Fengtai ore district, Qinling Mountains. Study indicates the following: the gas phase composition in fluid inclusions of all deposits in the district is of CO<sub>2</sub>-N<sub>2</sub>-CO-CH<sub>4</sub>-H<sub>2</sub> type, but in comparison with lead-zinc deposits the CH<sub>4</sub> value in different mineralization stages of the Baguamiao gold deposit is notably high, while its f<sub>o2</sub> and f<sub>s2</sub> values are low; for the liquid phase composition, except the values of Ca<sup>2+</sup>/Mg<sup>2+</sup> and Eh which are lower than those in lead-zinc deposits, the values of Na<sup>+</sup>/K<sup>+</sup>, Cl<sup>-</sup>, F<sup>-</sup> and pH in the main metallogenic epoch of the Baguamiao gold deposit are all higher than those in lead-zinc deposits, and the ore-forming fluids in the main metallogenic epochs of both types of deposit are mesosaline but the salinity of the gold deposit is markedly higher than that of the lead-zinc deposits; δD and δ<sup>18</sup>O in fluids indicate that the water in ore-forming fluids of the lead-zinc deposits is mainly connate water, while most of the water in ore-forming fluids of the Baguamiao gold deposit is magmatic water or connate water heated by magma, whose metallogenic relation is closely related to magmatic hydrothermal fluids.

Key words: Qinling orogen; Fengtai metallogenic area; polymetallic; ore fluid geochemistry; hydrothermal deposits; magmatic hydrothermal fluids