

桐柏造山带破山银矿床流体包裹体研究

摘要

在桐柏地区著名的围山城成矿带发现了大量的大型、超大型金银矿床，国内学者已对该区进行了大量的研究工作，破山银矿床作为本区超大型银矿床其成矿流体来源及成矿物质来源有较大争议。

本文通过总结矿床地质，研究矿相学、岩相学来划分矿床的成矿阶段并且对各阶段矿石中矿物做流体包裹体研究和激光拉曼分析以得到成矿流体特征。在此基础上结合前人资料分析成矿流体演化。

破山银矿床位于桐柏造山带西端。矿体赋存在歪头山组上部第二岩性段的炭质绢云石英片岩，矿体受地层控制主要呈层状产出，显示了矿床的层控特征。主要的矿石构造有浸染状构造、条带状构造、脉状构造、块状构造、角砾状构造。矿石结构有固溶体分离结构、交代残余结构、骸晶结构等，成矿作用大致划分为以下四个阶段：石英—菱铁矿阶段、石英—黄铁矿阶段、石英—多金属硫化物阶段、石英—碳酸盐阶段。

通过流体包裹体数据分析可知，成矿流体属于中—低温、低密度、低盐度、富 CO_2 的还原性流体，成矿早阶段以变质流体为主，晚阶段有大气降水的加入。赋矿围岩的 Ag 含量远高于地壳丰度，推断成矿物质主要来源于歪头山组地层。成矿流体在向上运移的过程中萃取地层中的成矿物质，在构造有利部位沉淀成矿。

破山银矿床为典型的造山型银矿床，研究此矿床的成矿流体有利于预测、识别此类矿床。

关键词：破山银矿床 流体包裹体 成矿流体

ABSTRACT

A large number of giant and large gold/silver deposit have been discovered in the famous Weishancheng ore belt in the Tongbai area. Domestic scholars have conducted a lot of research on this area. The Poshan deposit is a giant silver deposit in Tongbai area. The ore-forming and metallogenic material sources of this deposit are quite controversial.

The author classifies the ore-forming stage by summarizing the geology of the deposit and studying the mineralogy and petrography. And using the fluid inclusion studies and laser Raman at each stages of ore to obtain ore-forming fluid characteristics. On this basis, the evolution of ore-forming fluid is analyzed with previous data.

The Poshan silver deposit is located in west of Tongbai ore belt. The Waitoushan Group can be divided into three vertical parts and several members within each part. Poshan silver deposit is hosted in the upper part of the Waitoushan Group, which is mainly carbonaceous sericite quartz schist. The ore body is controlled by the stratum, the occurrence of ore bodies are mainly shaped as stratiform with obvious stratabound characteristics. The structures of ores are dominated by disseminated structure, banded structure, vein structure, block structure, and breccia structure. The textures of ores are dominated by solid solution separation texture, metasomatic texture, twin texture, etc. The mineralization contains four stages: quartz-siderite stage, quartz-pyrite stages, quartz-polymetallic sulfides stage and quartz-carbonate stage.

According to the analysis of fluid inclusions, ore-forming fluids are medium-temperature, low-density, low-salinity, CO₂-rich fluids. The metamorphic fluid is mainly in the early stage of mineralization, and atmospheric water was added in the late stage. The content of Ag in ore hosting strata is much higher than that of crustal abundance. In the process of upward migration of ore-forming fluids, the ore-forming materials in the strata were extracted and precipitated in the favorable part of the structure. The Poshan silver deposit is a typical orogenic-type silver deposit. Studying the ore-forming fluid of this deposit is beneficial to predicting and identifying such deposits in the area.

Key Words: Poshan silver deposit; Fluid inclusions; Ore-forming fluid

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