赣北石门寺钨多金属矿床同位素地球化学研究

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中文摘要:赣北石门寺钨矿位于下扬子成矿省江南地块中生代铜钼金银铅锌成矿带中，是最近查明的一个超大型(世界级)钨矿。矿体厚大且产状平缓，大致平行于晋宁期黑云母花岗闪与燕山期似斑状黑云母花岗岩岩珠顶部的接触面分布，以外接触带为主，矿化类型主要为细脉浸染型。文章通过对矿区S、Pb、C、O同位素的研究，探讨了石门寺钨矿成矿物质的来演化。结果表明: 该矿床矿石硫化物的δ34S值分布于－2.53‰～－0.91‰之间，平均为－1.65‰，反映其来源与岩浆硫密切相关。矿石硫化物的206Pb/204Pb、207Pb/204Pb、208Pb/204Pb的比值分别在18.109~18.268、15.586~15.708、38.208~38.715范围内，根据铅构造模式图解及其参数综合分析，表明成矿物质与岩浆作用密切相关，整体上显示下地壳来源的征，但也有上部地壳组分的加入。方解石碳-氧同位素组成特征显示矿床成矿流体中碳源可能来自下地壳或上地幔。

中文关键词:石门寺钨矿 同位素 成矿物质来源 赣北

Isotopic Geochemical Characteristics of the Shimensi Tungsten-polymetallic Deposit in Northern Jiangxi Province

Abstract:The Shimensi tungsten polymetallic deposit is a recently discovered superlarge deposit in the Mesozoic Cu-Mo-Au-Ag-Pb-Zn ore belt of Jiangnan block within Lowe Yangtze metallogenic province. The ore bodies are thick with gentle attitude, approximately parallel to the contact surface between the biotite granodiorite and the top of the porphyraceous biotite granite. In addition, the external contact zone is an important contact type, and the major type of the mineralization is veinlet disseminated scheelite. Ba on sulfur, lead and carbon isotopic characteristics, this paper studied the origin and evolution of the ore-forming material. The results show that the δ34SV-CDT values of the sulfide ore range from －2.53‰ to －0.91‰ with an average of －1.65‰. It is estimated that the sulfur origin is closely related to the magmatic sulfur. The 206Pb/204Pb, 207Pb/204Pb and 208Pb/204Pb ratios of sulfide ore range respectively within 18.109~18.268, 15.586~15.708 and 38.208~38.715. In combination with tectonic patterns of le isotope and related parameters, the lead composition indicates that the metallogenic materials were closely related to magmatism, and their lead was mainly derived from t lower crust with the addition of some upper crust matter. Carbon and oxygen isotopic compositions of calcite show that carbon in the ore-forming fluid was mainly derived fro the lower crust or the upper mantle.