席斌斌,张德会,周利敏,张文淮,王成.江西省全南县大吉山钨矿成矿流体演化特征[J].地质学报,2008,82(7):956-

江西省全南县大吉山钨矿成矿流体演化特征

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席斌斌 张德会 周利敏 张文淮 王成

中国地质大学地球科学与资源学院,中国石油化工股份有限公司石油勘探开发研究院,无锡石油地质研;中国地质大学地球科学与资源学院;中国地质大学地球科学与资源学院;中国地质大学地球科学与资源学院;江苏省有色金属华东地质勘查局研究所

基金项目：本文为国家自然科学基金（编号 40173021、40573033）资助的成果。

DOI：

摘要：

大吉山钨矿位于南岭W、Sn成矿省，是我国著名的大型W矿床。本文旨在通过对大吉山脉形钨矿25 13 号脉中的包裹体进行详细的岩相学及显微测温学研究，对成矿流体的演化过程及矿床形成深度进行探讨。包裹体的岩相学研究表明，包裹体类型复杂主要由富液包裹体、含CO 2 、CH 4 三相包裹体及含子矿物包裹体组成；包裹体组合复杂，各种类型的包裹体常叠加在一起；原生、次生包裹体产状区别明显，较易识别，原生包裹体主要由含CO 2 、CH 4 三相包裹体及充填度较小的富液包裹体组成，次生包裹体主要为充填度较大的富液包裹体。显微测温分析发现不同类型的包裹体的盐度、均一温度差别显著，呈现复杂的流体演化过程。包裹体的爆裂曲线显示，曲线有高低温两个起爆点，分别对应原次生包裹体包裹体群的起爆温度；由深部到浅部，原生包裹体的起爆温度逐渐降低。利用显微共焦激光拉曼探针仪对原生包裹体进行成分分析发现，成矿流体主要由H 2 O NaCl和H 2 O CO 2 CH 4 NaCl体系组成。包裹体的显微测温结果显示，成矿流体演化经历了自然冷却、不混溶作用和混合作用等过程，各种过程相互作用造成了钨的沉淀。通过对不混溶包裹体的测温数据进行计算，得出大吉山脉型钨矿成矿流体的压力约为114～132MPa，矿床形成深度约为4.6～5.3km。

关键词：流体包裹体 均一法 爆裂法 成矿流体演化 大吉山钨矿

Characteristics of Ore forming Fluid Evolution in Dajishan Tungsten Deposit, Quannan County, Jiangxi

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XI Binbin ZHANG Dehui ZHOU Limin ZHANG Wenhuai WANG Cheng

School of Geosciences and Resources, China University of Geosciences,Wuxi Research Institute of Petroleum Geology; SINOPEC;School of Geosciences and Resources, China University of Geosciences;School of Geosciences and Resources, China University of Geosciences;School of Geosciences and Resources, China University of Geosciences;Institute of Eastern China Geological and Mining Organization for non ferrous metal

Fund Project:

Abstract:

Dajishan tungsten deposit, located in the Nanling metallogenic province of tungsten and tin, is a famous large tungsten deposit in China. This paper studied No. 25 13 vein in the Dajishan tungsten vein type deposit using facieology and microthermometry, and then discusses the evolution and depth of ore forming fluid. The facieology study on the fluid inclusions reveals a variety of fluid inclusions: aqueous inclusions, bearing CO 2 /CH 4 three phases fluid inclusions and bearing daughter mineral fluid inclusions.The assemblage of fluid inclusion are quite complex, with different types of fluid inclusions generally overprinted. It is easy to distinguish between primary fluid inclusion and secondary ones based on their different filling characteristics. Primary fluid inclusions consist of bearing CO 2 /CH 4 three phases fluid inclusion or low filling degree aqueous inclusion, while secondary fluid inclusions are high filling degree aqueous inclusion. Microthermometry analysis data indicates that the salinity and homogeneous temperature differ with fluid inclusions types markedly, manifesting a complicated fluid evolution process. TThe dercepitation temperature curves display that there are two initial dercepitation temperatures which correspond to primary and secondary fluid inclusions respectively. The dercepitation temperature of primary fluid inclusions declines from deep to shallow level. The analysis on the components of primary fluid inclusions using confocal Raman microscopy demonstrates that the ore forming fluid is H 2 O NaCl or H 2 O CO 2 CH 4 NaCl system. According to microthermometry data, it is identified that ore forming fluid evolutions in Dajishan tungsten deposit are composed of cooling, immiscibility and mixing processes. Employing microthermometry data of immiscibility fluid inclusions, following conclusions can be drawn on: a) the ore forming pressure is about 114~132Mpa; and b) the ore forming depth is about 4.6~ 5.3 km.

Keywords:Fluid inclusions Homogenization methods Decrepitation methods Ore forming fluids evolution Dajishan tungsten deposit

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