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东天山黄山西含铜镍矿镁铁-超镁铁岩体岩浆地幔源区特征研究

作者	单位	E-mail
邓宇峰	<a href="#">State Key Laboratory of Ore Deposit Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550002, China; Graduate University of Chinese Academy of Sciences, Beijing 100049, China; School of Resources and Environmental Engineering, Hefei University of Technology, Heifei 230009, China</a>	
宋谢炎	<a href="#">State Key Laboratory of Ore Deposit Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550002, China</a>	<a href="mailto:songxieyan@vip.gyig.ac.cn">songxieyan@vip.gyig.ac.cn</a>
陈列锰	<a href="#">State Key Laboratory of Ore Deposit Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550002, China</a>	
程松林	<a href="#">Xinjiang Bureau of Geology and Exploration, Urumchi 830000, China</a>	
张新利	<a href="#">No. 6 Geological Team, Xinjiang Bureau of Geology and Exploration, Hami 839000, China</a>	
李军	<a href="#">No. 6 Geological Team, Xinjiang Bureau of Geology and Exploration, Hami 839000, China</a>	

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## 摘要:

新疆黄山-镜儿泉铜镍成矿带位于中亚造山带东天山晚古生代造山带,铜镍总储量达百万吨,是我国仅次于金川硫化物矿床的铜镍矿基地。黄山西铜镍矿床是该成矿带内一个大型矿床,Cu平均品位是0.31%,总储量 $18.8 \times 10^4$ t,Ni平均品位是0.49%,总储量 $32 \times 10^4$ t。黄山西岩体岩石地球化学特征与塔里木大火成岩省镁铁-超镁铁侵入岩和玄武岩存在明显差异:较之塔里木大火成岩省镁铁-超镁铁岩体(269~274Ma),黄山-镜儿泉铜镍成矿带镁铁-超镁铁岩体的形成更早(274~298Ma);此外,成矿带内并没有早二叠溢流玄武岩大量出露。黄山西岩体各岩相的MORB标准化微量元素蛛网图显示明显的Nb、Ta、Ti负异常, $(^{87}\text{Sr}/^{86}\text{Sr})_{269\text{Ma}}$ 值较低(0.7034~0.7037),而 $\epsilon_{\text{Nd}}(269\text{Ma})$ 较高(5.14~7.14),这些地球化学特征难以用地壳混染来解释,而显示其原始岩浆来自于交代地幔的部分熔融,表明原始岩浆可能形成于活动大陆边缘。然而,黄山西岩体的岩相学特征与阿拉斯加型岩体存在差别,因此,不能排除交代地幔的部分熔融发生于碰撞造山后的伸展阶段的可能,软流圈的上涌可能起到重要作用。

## 英文摘要:

Huangshan-Jingerquan copper-nickel mineralization belt is located in Late Paleozoic eastern Tianshan orogenic belt, which is part of the Central Asian orogenic belt. This mineralization belt is the second largest copper-nickel deposit base in China other than the Jinchuan deposit, with total reserves of copper, nickel up to one million tons. The Huangshanxi Cu-Ni ore deposit is one of the large deposits in the Huangshan-Jingerquan copper-nickel mineralization belt. The average grade of copper is 0.31%, with a total reserve of 188000 tons, average grade of nickel is 0.49%, with a total reserve of 32 million tons. The geochemical characteristics of the Huangshanxi rocks are significantly different from mafic-ultramafic rocks in Tarim large igneous province. The mafic-ultramafic intrusions in Huangshan-Jingerquan mineralization belt were emplaced at 269~298Ma, which were earlier than the mafic-ultramafic intrusions in Tarim large igneous province (272~274Ma). In addition, no Early Permian extensive flood basalt outcrop was observed. The Huangshanxi intrusion is characterized by significant Nb, Ta, Ti negative anomalies, low  $(^{87}\text{Sr}/^{86}\text{Sr})_{269\text{Ma}}$  (0.7034~0.7037), and high  $\epsilon_{\text{Nd}}(269\text{Ma})$  (5.14~7.14). These geochemical characteristics can not be explained by crustal contamination, but indicate that the primitive magma may be derived from partial melting of a metasomatized mantle source and formed in the active continental margin. However, the petrographic characteristics of the Huangshanxi intrusive rocks are different from Alaskan-type mafic-ultramafic intrusive rocks, therefore, it can not be excluded that partial melting of the metasomatized mantle occurred in a post-collisional extensional environment and the upwelling of asthenosphere may play an important role.

关键词: [黄山-镜儿泉铜镍成矿带](#) [黄山西镁铁-超镁铁岩体](#) [岩浆铜镍矿床](#) [交代地幔](#) [软流圈](#)

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黔ICP备07002071号-2

主办单位：中国矿物岩石地球化学学会

单位地址：北京9825信箱/北京朝阳区北土城西路19号

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