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内蒙古喀喇沁旗安家营子金矿红化蚀变的特征及其实质

作者	单位	E-mail
张宇	<a href="#">中国科学院地质与地球物理研究所, 北京 100029</a> ; <a href="#">中国科学院大学, 北京 100049</a>	
李永刚	<a href="#">中国科学院地质与地球物理研究所, 北京 100029</a>	<a href="mailto:ygli@mail.iggcas.ac.cn">ygli@mail.iggcas.ac.cn</a>
李飞	<a href="#">赤峰金蟾矿业有限公司, 赤峰 024416</a>	
张洪涛	<a href="#">赤峰金蟾矿业有限公司, 赤峰 024416</a>	
种松树	<a href="#">赤峰金蟾矿业有限公司, 赤峰 024416</a>	

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摘要:

安家营子金矿普遍出现红化蚀变,过去一直被认为是钾长石化,并将其看做一种找矿标志,但是效果甚微。经野外地质及室内镜下观察、电子探针、扫描电镜和主量元素分析确定红化并非钾长石化,而是由绢云母、钠长石、绿帘石和铁的氧化物以及少量钾长石的矿物组合在斜长石内部造成的。其过程可能是早期含Na流体通过斜长石内部的显微孔隙,交代形成钠长石,释放出Al和Ca,然后结合流体中的其他成分形成绢云母和绿帘石。随着绢云母的大量生成,  $a_{K^+}/a_{H^+}$  变大,再生成钾长石,便形成了钠长石、绢云母、绿帘石和钾长石的组合。变红的直接原因是由于在钠长石化过程,花岗岩中斜长石或云母中的铁被释放出来,或者流体中带来的Fe,以氧化物的形式充填在显微孔隙中,形成了肉眼所见到的红色。在蚀变较弱的区域,红化蚀变只出现在核部,边部几乎没有蚀变,形成明显的净边结构。这是由于斜长石内部存在大量的显微孔隙造成的。斜长石在形成过程中核部结晶速率非常快,所以容易捕获周围的熔体或流体形成显微孔隙,而边部生长速率对较慢,几乎没有孔隙出现,这些孔隙的分布控制了后来的红化蚀变的分布。所以,红化蚀变并非简单的钾长石化,而是斜长石和流体发生一系列生成钠长石、绢云母、绿帘石和钾长石的相对复杂的蚀变。而这种蚀变在花岗岩地区分布较为普遍,并不一定与成矿作用有关,且分布范围有限,同流体的物质交换较少,对找矿和成矿作用的意义有限。

英文摘要:

The widespread rubefication in the wall rock alteration of the Anjiayingzi gold deposit was considered to be potassic alteration. Rubefication is a not effective clue for prespecting. However, through geologic studies in the field and microscopic morphology and optics as well as EPMA, SEM, major elements in laboratory, it is found that rubefication is mainly caused by a assembly of sericite, albite, epidote, Fe-oxide and bits of potassium feldspar presenting in plagioclase, not separate potassic alteration. The early Na-bearing fluid through microscopic pores reacted with plagioclase to form albite, releasing Al and Ca, and then combined other component in fluid to form sericite and epidote. As the reaction proceeded, a lot of sericite appear, which leads to increase  $a_{K^+}/a_{H^+}$ , then form K-feldspar to constitute the assembly of albite, sericite, epidote and K-feldspar. During this process, iron in plagioclase or mica is released, then precipitate in the pores of plagioclase in the form of oxides, which turned the granite to red. In the weak altered zone, rubefication only appears in the core of plagioclase, which forms pure rim. This is controlled by the distribution of microscopic pores. During crystallization of plagioclase, the speed of formation the core is too fast, so it is able to capture the melt or fluid to form microscopic pores, conversely, the growth rate of the rim is relatively slow, almost no pore appears. These pores directly control the distribution of alteration. Since microscopic pores are distributed in core of plagioclase, so the rubefication is located in the core, and the rim keeps fresh. Based on the results of analyzing, the rubefication is not a solo potash feldspathization. The essence of rubefication was a complex action between plagioclase and fluid. The distribution of this alteration is very common in granite, and not necessarily related to the mineralization. Its distribution is limited, with less material exchange with fluid, so makes little sense to prospecting and mineralization.

关键词: [红化蚀变](#) [显微孔隙](#) [净边结构](#) [安家营子](#) [赤峰-朝阳金矿带](#)

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