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摘要:

内蒙古苏莫查干(苏莫查干敖包)萤石矿区晚古生代火山-沉积岩分布广泛, 主要岩石类型有碳泥质板岩、安岩和流纹岩, 其中碳泥质板岩和流纹岩为苏莫查干大型萤石矿床的顶和底板围岩。采用锆石SHRIMP U-Pb铅同位素测年法对顶板围岩中未蚀变流纹岩样品进行了同位素年代测定, 所获数据分别为 $276 \pm 10$  Ma和 $271 \pm 8$  Ma。蚀变和未蚀变(早二叠世)。苏莫查干萤石矿区早二叠世流纹岩是华北陆台与西伯利亚板块从碰撞挤压到松弛张裂转折期, 酸性岩浆岩类来自壳-幔混合源。早二叠世流纹岩的出现不仅标志着苏莫查干西里庙地区海西期构造-岩浆活动的终结, 同时成矿作用提供了动力、热力和物质来源。早二叠世流纹岩成岩时代的厘定不仅为阐明华北陆台北缘西段构造演化查明流纹岩的原岩性质和圈定新的萤石矿床找矿靶区也具有重要意义。

关键词: [流纹岩](#) [锆石SHRIMP定年](#) [早二叠世](#) [苏莫查干\(苏莫查干敖包\)萤石矿区](#) [内蒙古](#)

Zircon SHRIMP U-Pb Dating on Rhyolite Samples from the Xilimiao Group Occurring in the Obo Fluorite District, Inner Mongolia [Download Fulltext](#)

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Abstract:

The Su Mo Cha (Sumoqagan Obo) fluorite district, located on the northern margin of the North China craton, is the largest fluorite only district in the world. Fluorite mineralization occurs mainly within the sedimentary sequences of the Xilimiao Group. Previous studies show that the geological setting for the fluorite district is a late Paleozoic rift basin along the convergence zone of the Northern China continental platform. The whole Xilimiao Group can be divided into 9 sections, with a total thickness of 5667 m. The first two sections constitute the hanging wall and foot wall of the fluorite bodies located in the Su-Cha district. The last two sections of the Xilimiao Group consist of mainly rhyolite (porphyritic rhyolite), rhyolitic tuffs, sandstone, marble, limestone, carbonaceous and argillaceous slates, with a certain amount of volcanic rocks. The volcano-sedimentary sequences of the Xilimiao Group have been intruded by a number of Mesozoic stocks. Both fresh rhyolite samples from the hanging wall and altered rhyolite samples from the foot wall fluorite bodies have been selected for the isotopic age dating. The SHRIMP U-Pb analytical data for the zircon grains from fresh and altered rhyolite samples are presented in this paper. The zircon grains separated from the fresh rhyolite samples give an average SHRIMP U-Pb age of  $271 \pm 8$  Ma, with MSWD value of 1.8. Meanwhile, the zircon grains from the altered rhyolite samples have yield an average SHRIMP U-Pb age of  $276 \pm 10$  Ma, with MSWD value of 1.9. Based on the age data mentioned above and combined with other geological evidences, it has been suggested that the fluorite deposit were formed within an Early Permian rift basin located along the collision zone of the continental massif and Siberian platform. The rhyolite is believed to be a product of late Hercynian magmatic processes caused by coeval re-working of the deep-rooted faults occurring along the northern margin of the North China Massif. The rock-forming materials of the rhyolite sequences were derived from the mixed sources of the mantle and crust related components.

Keywords: [rhyolite](#) [zircon SHRIMP U-Pb dating](#) [Early Permian](#) [Su-Cha \(Sumoqagan Obo\) fluorite district](#)