Study on the Ore-forming Condition and Occurrence of Uranium Minerals in Sandstone-Type Uranium Deposits from Ordos Basin, Northwest China

X.Y. YANG[1], M.X. LING[1], W. SUN[2] AND C.Y. LIU[2]

[1]CAS Key Laboratory of Crust-Mantle Materials and Environments, School of Earth and Space Sciences, University Science and Technology of China, Hefei 230026, China. xyyang@ustc.edu.cn

[2]Department of Geology, Northwest University, Xi'an 710069, China

Introduction

The Ordos basin is the second largest sedimentary basins in China. The present Ordos basin is attributed to be a remnant craton basin in the Mesozoic (Darby and Ritts, 2002). With the development of oil and natural gas exploration, the breakthrough of sandstone-type uranium deposit in the northern part of the basin has been achieved in this basin.

Results

Sandstone-type uranium deposit is one of uranium deposits with industrial value (Granger et al., 1961). This study focuses on forming condition and occurrence of sandstone-type uranium deposits by the jointed research with fluid inclusion analysis and high-resolution SEM and EPMA. Fluid inclusion shows that the two major mineralization temperature ranges of 140-180□ and 100-120□, respectively. The sanity of the fluid inclusions is mainly ranging from 4-10 wt% (NaCl) with multiple climaxes in different drilling holes. Most of H and O isotopic data fall into the region of formation water, parts belong to metamorphic water.

The SEM and EPMA results show that most of the uranium minerals are in micro-grained distributed in potassic feldspar, microcline, quartz, muscovite and cement in the form of very tiny grains (<1μm) with different contents of UO_2 ranging from 0 to several percentages.

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References

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