Structural features of clay minerals from Streltsovsky ore field (Russia)

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Streltsovsky ore field is located in Zabaykalsky Krai (Russia). It consists of nineteen Mo-U deposits with total uranium reserves of 250000 tons. Streltsovsky ore field is confined to a caldera extending over 140 km^2 with Late Mesozoic basalt-dacite-rhyolite series. The caldera is fractured by a system of faults, which divides it in several parts. The main meridional system of faults divides the field in two main parts: the western and the eastern, which were exposed to the alteration processes of different intensity. This ore field has been comprehensively investigated. Nevertheless there is an ambiguity of the genetic interpretations of the ore formation.

The aim of this research is to study the structural features of clay minerals from wallrock metasomatites, to find out what kind of mineral assemblages are characteristic for different layers and how are their differ at the eastern and western parts of the field. This research will be helpful to clarify some disputable genesis aspects of this deposit. The reason we are focused primarily on the clay minerals is that they are very sensitive to the changes of environmental conditions which can be useful for the revealing of the processes that took place during the formation of the ore field.

The Antei, Streltsovsky and Zherlovy deposits were selected for this research as the most distinguished and representative parts of the Streltsovsky ore field. About 90 samples from these deposits were selected for this research. The samples were studied by a series of methods: XRD analysis, including quantitative analysis of bulk samples with the Rietveld method, FTIR spectroscopy in the middle infrared region and XRF analysis.

In the result of the research several clay mineral assemblages were distinguished and attributed to different zones of the deposits. It was found that these assemblages are significantly more diverse at the western part of the ore field.

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