

ანოტაცია ინგლისურად

As it is known, the main material of nuclear energy is the chemical element uranium, the price of which is steadily increasing in the global market due to growing demand. Developed countries with the largest uranium deposits have a century-long history of mining, which has led to the effective depletion of their reserves. In order to discover new deposits, search-and-exploration works are constantly being held all over the world.

More recently, high-concentration mineralization of thorium-bearing uraninite (the main mineral resource of uranium) has been traced in the Shkhara massif of the Caucasus crystalline basement, near a major fault zone. This mineralization has not been previously studied before, and all the results and assumptions from our research are new.

The primary objective of our research was to determine the chemical composition and chemical age of the mentioned mineralization. This study was carried out at the Microprobe Research Laboratory of the Geoscience Center Potsdam, Germany, on superoxide JEOL-JXA-8230. In addition to the mentioned main goal, our research included both field-geological, petrographic and petrochemical studies.

The conducted research showed that the uranium mineralization of the Shkhara massif is represented by the thorianite-uraninite series, in particular thorium-rich uraninite and its chemical composition varies in the following percentage ranges: UO_2 - 79,5-82,6%, ThO_2 - 6,7-8,4%, PbO - 2,95-3,9%, Y_2O_3 - 1,15-3,77%. The U-Pb age of this mineralization corresponds to 292 ± 4 million years.

Based on our correlational analysis of the obtained results, we conclude that the Shkhara uraninite mineralization shows significant similarities to uranium deposits in the European Variscids in terms of host rocks, geodynamic formation processes, age and mineralization type.