

RADIOACTIVITY IN THE BAUXITE OF SERBIA

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The bauxite occurrences and deposits take place in the zone of Inner Dinarides and in extreme southeastern part of Carpatho-Balkanides related to Serbia. Bauxites occur in five ore fields: Počuta, Tara, Mačkat, Grebnik (western Serbia), and Babušnica (eastern Serbia). These are red to brown-red bauxites of karstic type, originated by redeposition of lateritic weathering crusts into the paleokarstic hollows in limestones of various ages. For the time being four bauxite bearing levels are known, as follows: Middle Triassic, Upper Jurassic-Lower Cretaceous, and Upper Cretaceous.

During bauxite explorations listing many years in districts of western and eastern Serbia, several hundreds of samples were collected, being analyzed for essential constituents, contents of microelements, terrigenous minerals, radioactive elements and others. The uranium and thorium contents are considerably higher in bauxites than in country rocks, but are generally much lower than in other Mediterranean bauxites, and so then the Vlasenica bauxites in eastern Bosnia, or in the Serbian Republic respectively.

The Grebnik and Babušnica ore fields are featured by the higher quality bauxites, exhibiting contents of uranium (from 4.56 to 15.14 ppm, the mean 8.16 ppm) and thorium (from 25.65 to 52.07 ppm, averaging 36.81 ppm), being remarkably increased compared with contents of the same elements in other ore fields of Serbia (0.10-12.11 ppm, the mean 3.73 ppm U; 0.17-57.19 ppm, the mean 24.73 ppm Th). From the aforementioned text it can be concluded that uranium and thorium contents depend, first of all, on the source material which serves as initial base for bauxite origin, then on bauxitisation degree, as well as on processes which took place in their later evolution.

The increased concentrations of radioactive elements in bauxites, compared with rocks in the floor and roof, offer opportunity for use radiometric exploratory methods. The experiences to date indicate that positive results are achieved by researchings of outcropping ore these occurring at lesser depths below overlying sediments.