

In this paper the comparative results of on-site analysis and modelling of the mechanisms and kinetics of the mining waters in the ore deposit Crnac are presented. The research process included hydrogeology explorations on aquifer types, ground water occurrences, and the process of the surface water penetration considering the rock porosity on the confined bed. The mineralogy and microstructure analysis of the ore body are performed through the scanning electron microscopy–energy dispersive spectrometry (SEM-EDS) and X-ray diffraction (XRD) analysis before and after the mining process. Results proved the increased rate of pyrite decomposition due to the oxidation reaction in disturbed ore body and better exposure to the air.