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Bulgarian Academy of Sciences

ISBN 978-619-91305-4-4
e-ISBN 978-619-91305-5-1

GEOLOGICA BALCANICA
OFFICIAL JOURNAL OF THE CARPATHIAN-BALKAN GEOLOGICAL ASSOCIATION

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This study focuses on the mineralogical characterization of bentonite clay from Svrljig, Serbia. It has been found that the bentonite clay is the most abundant clay in this region, therefore an adequate identification of their mineralogy and physicochemical properties is an important step to a potential technical application in the future.

Characteristic properties of the sample were determined by chemical analysis, infrared spectrophotometry (Milošević and Logar, 2014; Milošević, 2011), differential thermal analysis (DTA) and X-ray diffraction (powder, oriented, saturated and heated). The physical properties were determined by granulometry (pipette method), cation exchange capacity (CEC) and specific surface area (SSA) measurements. The sample consists mostly of a fraction <1 μm (56.1%) with a 9.5% <2 μm, representing a total clay content (65.5%). Coarse grain fraction (>20 μm) is present in a total of 10.5%. When the clay, silt and sand content were plotted on the triangular diagram, it was concluded that the sample is sandy clay with low porosity and low permeability. Chemical analysis showed that the sample mainly consists of 52.95% SiO_2, 17.79% Al_2O_3, 1.02% K_2O, 2.92% FeO, 6.34% CaO and 1.17% MgO, with a lower content of MnO (0.70%), Na_2O (0.08%), TiO_2 (0.35%) and BaO (0.03%). Higher values of the SiO_2/Al_2O_3 mass ratios (2.97) together with LOI of 16%, CEC (84.5 mmol/100g) and SSA (661.8 m^2*g^{-1}) indicate a higher content of montmorillonite. Infrared spectrophotometry determined that the composition corresponds to a high content of montmorillonite clay with peaks at 3620 cm^{-1}, 3420 cm^{-1}, 1632 cm^{-1} and 1018 cm^{-1}. The peaks at 1444 cm^{-1} and 873 cm^{-1} correspond to carbonate minerals, although in a very small quantity. X-ray diffraction indicates that the bentonite sample is a mixture of montmorillonite as major component, identified by d001 basal spacing value of 15.11 Å at 5.86 (2θ) and less frequent minerals such as quartz, carbonates and feldspars. This mineralogy was confirmed by XRD for oriented, saturated and heated samples. DTA curve, in addition to the typical peaks related to montmorillonite (≈ 140 °C and 600 °C), also contains two smaller endothermic peaks at approximately 900 °C and 300 °C corresponding to carbonates and iron oxy/hydroxides, respectively.

The clay from Svrljig (Serbia) was characterized by chemical, mineralogical and thermal analysis. All applied methods were in good agreement indicating that the studied clay has a high content of montmorillonite and a smaller amount of quartz, carbonates, iron oxy/hydroxides and feldspars.

Acknowledgements. Ministry of Education and Science, Republic of Serbia, on realization and financing of scientific research work in 2022, contract No. 451-03-68/2022-14/200126.

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XXII International Congress
Carpathian-Balkan Geological Association
CBGA2022 – Plovdiv, Bulgaria, 7–11 September 2022



The 22nd Congress of the Carpathian-Balkan Geological Association (CBGA) will be held from 7 to 11 September 2022 in Plovdiv, Bulgaria. It will celebrate the 100th anniversary of the Association. CBGA2022 aims to bring together geoscientists from Southeastern Europe with geoscientists from all over the world, for a meeting covering all disciplines of Earth sciences. The congress is a forum where scientists can present and discuss their latest results not only from the Carpathian-Balkan region, but also beyond it.

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