**Physico-chemical nanomaterials science**

**Selected physicochemical properties of hydroxyapatite and white clay composite.**

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Hydroxyapatite (HAP) composites are very important biomaterials, which can be applied in various life areas. HAP composite with white clay was prepared and studied using X-ray diffraction, nitrogen adsorption, Fourier transform infrared spectroscopy (FTIR), potentiometric titration, and quasi-elastic light scattering and zeta potential measurements. The values of pHpzc (point of zero charge) and pHIEP (isoelectric point) characteristic of the electrical double layer depend strongly on the white clay addition to HAP. Comparative studies of hydroxyapatite, white clay and composite by nitrogen adsorption and FTIR methods showed that in most cases composite has the properties nearly intermediate between hydroxyapatite and white clay taken for the synthesis; however, certain non-additivity is observed for the characteristics due to precipitation of HAP onto clay particles that changes the HAP formation conditions in comparison to HAP formation alone. Thus, changes in the condition of the composite preparation allow one to control the characteristics of the final materials [1,2].

1*. Skwarek E.*, Adsorption of Zn on synthetic hydroxyapatite from aqueous solution. // Separ. Sci. Technol. -2014. - **49.-P**.1654-1662

2. *Broda E., Skwarek E., Payentko V.V., Gunko* *V.M,* Synthesis and selected physicochemical properties of hydroxyapatite and white clay composite  //  Physicochem. Probl. Miner. Process.- 2019. -**55(6), -P**. 1475-1483