

Nanocaptors pillaring clays with aluminum species used in depollution process

Denisa Ileana NISTOR^{a*}, Neculai Doru MIRON^a, Ilie BUCUR^a and Ilie SIMINICEANU^b

^a*Catalyse and Microporous Materials Laboratory, Department of Engineering Chemistry, University of Bacău, 157, Calea Mărășești, 600 115, Romania*

^b*Organic Synthesis and Environnement Laboratory, Department of Engineering Chemistry, University of Bacău, 157, Calea Mărășești, 600 115, Romania*

Abstract This study presents the improved method of smectite type clays pillaring, using aluminum salts. With that original method as collective can manufacture the nanocaptors materials for retention of the pollutants. To achieve this goal, natural clay with a percentage of more than 95% montmorillonite was used. The results of the pillaring process show that a controlled distance between the foliar band structures as long as $18 \cdot 10^{-10}$ m can be obtained. In order to analyze the pillaring process, a thermal procedure was used (Thermal Programmed Desorption). The clays modified by pillaring can be used as molecular sieves in microfiltration processes or as agents in residual water chemical depolluting processes. They also have properties similar with zeolites, which make them reusable.

Keywords: nanocaptor, nanomaterial, polluted agent, pillaring clays
