

## ABSTRACT

Master's thesis for master's degree in specialty 161 "Chemical technologies and engineering" on the topic: «**Preparation of composite materials based on surface-modified silicates**» / Igor Sikorsky Kyiv Polytechnic Institute; Supervisor: *Kornilovych B.Yu.*; Student: *Hes N.L.*, XM–61m group.

Explanatory note: 79 pages, 20 figures, 15 tables, 87 sources.

Graphic part: 19 slides.

Object of the research: Composite materials based on surface-modified layered minerals; Model water contaminated with heavy metals and organic dyes.

Purpose of the work development of composite materials based on surface-modified layered silicates with increased selectivity in relation to heavy metal ions and organic dyes .

Composite materials based on surface-modified silicates in polar and nonpolar solvents were obtained and their structure was investigated. The method of IR spectroscopy confirmed the chemical reaction between functional groups on the surface of layered silicates (montmorillonite and palygorskite) and the organosilicon compound – 3-aminopropyltriethoxysilane. The physico-chemical features of removing heavy metal ions (cobalt) and organic dyes from water using chemically-modified layered silicates have been investigated.

### **Keywords:**

CHEMICAL MODIFICATION OF SURFACE, BATH SILICATE, SORPTION COMPOSITE MATERIALS, CHARACTERIZATION OF METAL CATIONOYS, ORGANIC COLORS.