UDC 628.3.533.611.6

MODIFICATION OF MINERAL CLAY AND THE BASIS OF CHITOSAN AND ITS USE IN WASTEWATER TREATMENT AND TEXTILE INDUSTRY

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Keywords: chitin, chitosan, indigo, organosorbent, spectrophotometer.

Abstract. This article presents the results of sorption of indigo dye used for purification of textile industry wastewater of Navbahor bentonites modified with chitosan of the Republic of Uzbekistan.

In recent years, a large amount of waste water has accumulated in industrial enterprises around the world. Cleaning and returning it to the system is one of the urgent problems. However, cleaning is a multi-step process that takes a lot of time. Treatment of industrial wastewater should be carried out taking into account its composition. Waste treatment methods are divided into: mechanical, chemical, physico-chemical and biological types, but when they are used together, the method of wastewater treatment and disposal is called a combined method. The use of this method is determined in each specific case by the nature of pollution and the harmful level of released compounds [1]. One of the methods of chemical cleaning of waste, especially of the textile industry, is cleaning with the help of various adsorbents [2–3]. In this work, the organosorbent obtained as a result of modification named of Navbahor bentonite of the Republic of Uzbekistan with chitosan was used. Industrial wastewater of textile enterprises was taken as an object. When its composition was studied, it was found that it consists of various metal ions, dissolved salts and pigment dye residues.

Indigo dye solutions of different concentrations were prepared for this purpose. The absorbance level of indigo dye was determined on a UV-5100 spectrophotometer at a wavelength of 315 nm. The obtained results are presented in the following table and Figure 1, 2.

Table – Dependence of indigo dye adsorption on solution coconcentration

Indigo dye, concentration, mg/l	Amount absorbed in adsorption mg/l	Amount remaining in solution after adsorption, mg/l	The absorption concentration of the solution,%
1	0.961	0.039	96.1
2	1.62	0.38	81.0
5	3.69	1.31	73.8
10	5.23	4.77	52.3
20	7.55	12.45	37.75
30	10.45	19.55	34.84

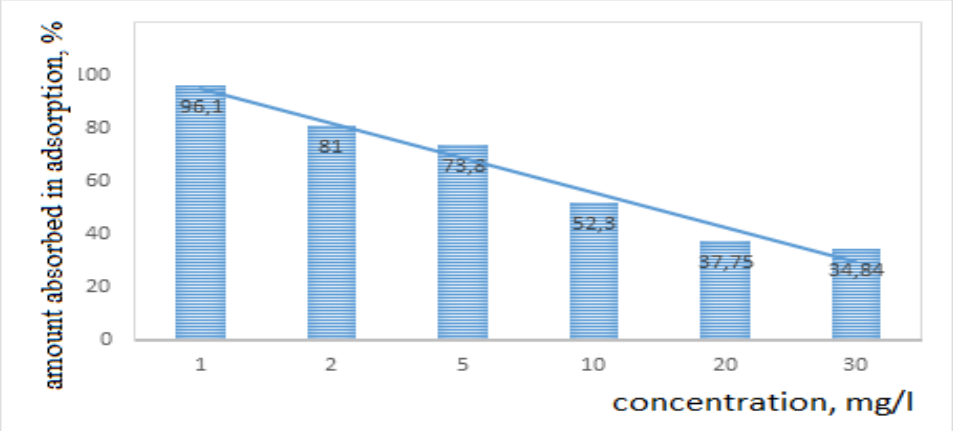

Figure 1 – Dependence of indigo dye solution adsorption on solution concentration

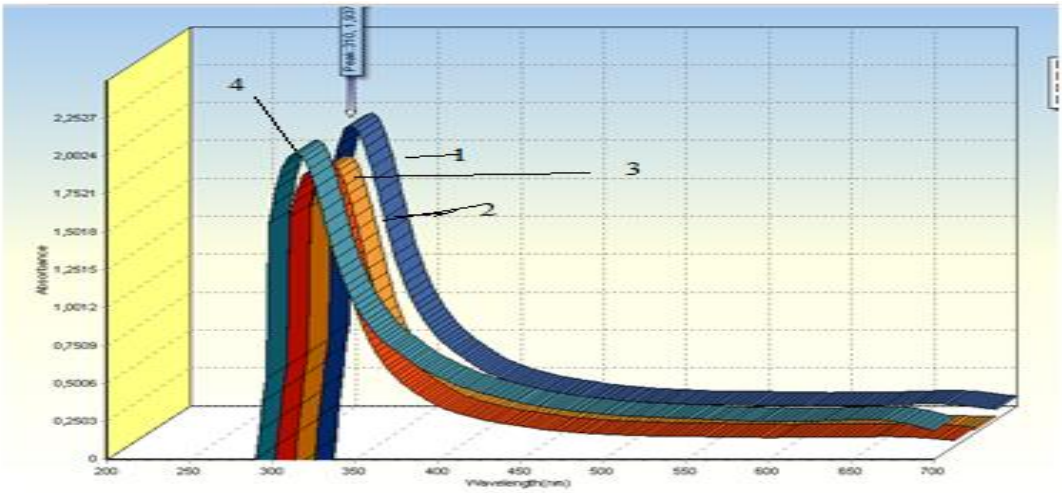

Figure 2 – 1 – BAU adsorbent; 2 – VK+HCl (12 %); 3 – VK+HCl (12 %)+XZ; 4 – WW (waste water)

The results of the obtained analysis show that the amount of adsorption absorption of indigo dye in the prepared solution with a concentration of 1-30 mg/l decreases from 96.1 % to 34.84 %, that is, its absorption capacity can be seen to decrease as the concentration increases. The concentration of indigo dye in 20 and 30 mg/l solutions is almost close, indicating that it has reached its saturation point. In short, it indicates the possibility of using colored dyes from the composition of textile industrial wastewater in the sorption of our organosorbents.

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UDC 66.094.9:66.092

RECYCLING AS A CHEMICAL TECHNOLOGY FOR PROCESSING POLYMER WASTE

РЕЦИКЛИНГ КАК ХИМИЧЕСКАЯ ТЕХНОЛОГИЯ ПЕРЕРАБОТКИ ПОЛИМЕРНЫХ ОТХОДОВ

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Keywords: recycling, polymer waste, modifying additives, composites.
Ключевые слова: рециклинг, полимерные отходы, модифицирующие добавки, композиты.

Abstract. The problems of recycling polymer waste are associated with the growth of polymer production and their processing. The problem of recycling polymer waste generated in solid municipal waste is quite acute. For the efficient recycling of polymer materials, it is necessary to develop new modifying additives that could ensure the compatibility of polymer waste in the composite system. Such additives can be used as special complex concentrates to restore the primary properties of secondary polymer materials. They include primary and secondary antioxidants, phosphites or phosphonites, thermal and light stabilizers of phenolic and amine type, neutralizing active radicals accumulated in the polymer and decomposing peroxide compounds. Using new types of equipment for recycling polymer materials based on polymer waste, it is possible to obtain high-quality products with low cost for industry, construction and agriculture.

The authors propose a hypothesis that the targeted thermal oxidative destruction of some secondary polymers may be one of the least expensive methods for obtaining