



Sorbption-Photometric Determination Of Lead (II) Ion By Organic Reagent 1,3,4-Thiadiazole- 2,5-Dithiol

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ABSTRACT

" Almalyk KMK" was selected as the organic analytical reagent 1,3,4-thiadiazole-2,5-dithiol for the lead (II) ion contained in the wastewater technological waters of JSC in industrial and environmental facilities. The conditions of immobilization of 1,3,4-thiadiazole-2,5-dithiol organic organic reagent to different fiber carriers have been studied.

Keywords:

Lead (II) ion, 1,3,4-thiadiazole-2,5-dithiol organic analytical reagent, analytical reagent, immobilization, sorbption-photometric determination.

Analytical chemistry is strongly associated with production and science, and chemical analysis of raw materials, semi-products and finished products is necessary. Urgent problems of Analytical Chemistry are the development of industry and technology, leading to poisoning of environmental objects, therefore, regular analysis of environmental objects is considered, the determination of a million percent of their content in obtaining very clean substances in the industry.

Sorbption-photometric determination of the micromycone of elements using immobilized organic reagents is among the emerging methods. The sorbption-photometric method is a method that is fast and inexpensive to test nature, selectively affected, does not require expensive hardware that can be applied even in field conditions.

A method for detecting Pbb Cd, Al, Hg was created by the Fluorisent method by a

carrier formed from the modification of 8-hydroxyquinoline-5-Sul'phonate to a criminisome. Where the lower limit of detection is 0.001, pH=1-2, λ_{\max} =500-520 nm.

Detection by optical analysis method of Pb^{2+} , Ag^+ , Cd^{2+} , ions based on light-repellent Spectra has been established using ditizon reagent immobilized to AB-17. The lower detection limit is 0.02, pH = 4-8.

A method has been developed to detect Pb^{2+} using FAAR and KU-2 ion exchangers using optical analysis. It has been noted that the lower detection limit is 0.02 pH=1 and λ_{\max} =570

It has been studied that Pb(II), Hg(II), Cd (II) are bound to a solid-phase polyacrylonitrile fiber to an AB-17 anionalminant to form an anion complex in the same NaCl and KJ solution to sorbate metals above that solid phase. From a single sample, it is possible to individually

determine Pb(II), Hg(II), Cd(II) using a test method. The discovery minimum is 0.01 per 25 ml sample. The duration of the analysis is 50 minutes for 5-6 samples.

The literature has developed a mercury detection scheme in fractionated form in natural water and is based on its compatibility with neutron-activation radiative indicator, membrane filtration, extraction, ion exchange results. It has been found to exist in a significantly neutral and low organic form.

Determination of optimal immobilization time of 1,3,4-thiadiazole-2,5-dithiol organic reagent.

To study the time dependence of the immobilization of the organic reagent 1,3,4-thiadiazole-2,5 - dithiol into the fiber, the reagent was held for 5– 10 minutes from a solution of $1,0 \cdot 10^{-3}$ M li and analytical signals were measured, the results obtained are shown in Table 1 and Figure 1.

Table 1

Determination of optimal immobilization time of 1,3,4-thiadiazole-2,5-dithiol organic reagent

№	Time, min.	A ₁	A ₂	A ₃	$\Delta \bar{A}$
1	2	0,045	0,056	0,056	0,056
2	3	0,116	0,104	0,105	0,105
3	5	0,110	0,111	0,111	0,111
4	7	0,124	0,125	0,124	0,125
5	9	0,124	0,125	0,127	0,128
6	15	0,125	0,126	0,126	0,128
7	25	0,126	0,126	0,125	0,128

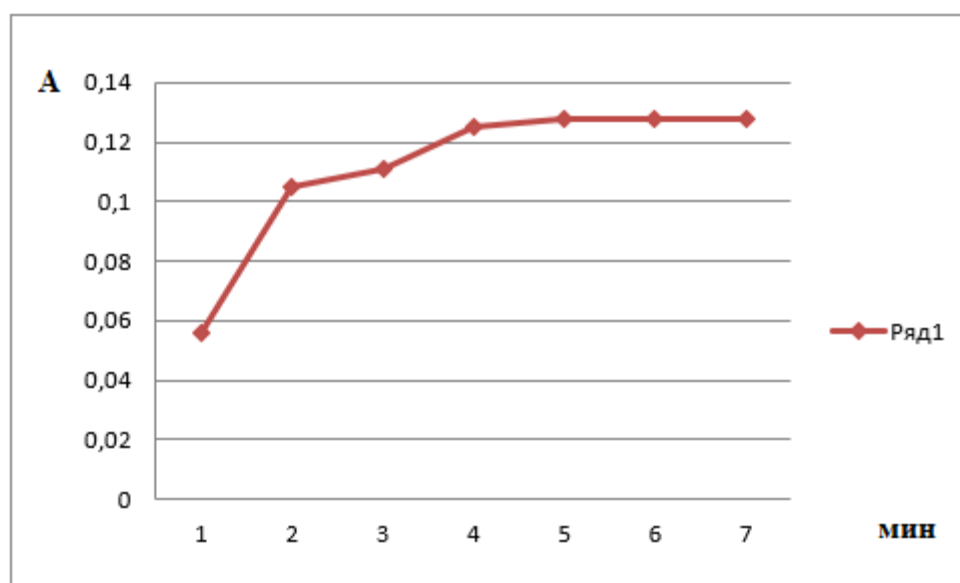


Figure 1. Time-dependent immobilization of 1,3,4-thiadiazole-2,5-dithiol organic reagent.

From Table 1 and Figure 1, it is seen that the time dependence of the organic reagent 1,3,4-thiadiazole-2,5-dithiol from immobilization into the fiber increases by up to 5 minutes and does not change thereafter.

Determining the optimal joining Order of components

3 different methods of immobilization are described:

1) determination of the metal After immobilizing the organic reagent that holds the active guru on the hard drive itself;

2) adding an organic reagent to immobilize metal ions and increase selectivity to the functional active Group-Holding disc;

3) initially immobilization into a polymer disk to increase stability by forming a liquid-state R:Me complex.

When determining the order of casting of components, a complex compound was formed in different casting orders. In order to determine the optimal for reagents selected from the above methods, 25.0 ml of a solution of 50 mcg/ml of iron was released into the measuring flasks from a universal buffer of 1.0 ml, 0.1% of a solution of 1,3,4-thiadiazole-2,5-dithiol organic reagent of 1.0 ml, 5.0 ml of pH= 6 and diluted to the mark. Optical densities of each solution generated ($\lambda_{\text{max}} = 540 \text{ nm}$, $l=1.0 \text{ cm}$) was measured relative to the specific solution.

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