

PRODUCTION OF SORBTSION-SPECTROSCOPIC DETECTION METHODS OF RHENIUM ION IN INDUSTRIAL CAKE

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Abstract - A simple, Express method of determining the rhenium ion using bismutol-II is shown. The Reagent interacts with the rhenium ion in a 1:6 ratio. Optimal conditions of immobilization are found. The physico-chemical properties were determined, the results were processed by the method of Mathematical Statistics and information about their application in the analysis was given.

Key words: Rhenium ions, bismutol-II, analytical reagent, immobilization, sorbtion-spectroscopic determination, buffer reagent.

Complexes of aminoglycoside antibiotics with metal cations have been developed in potesiometry with ion-selective electrodes, voltamperometric detection and spectrophotometric detection in a solution of 2 immiscible electrolytes. As a result, a 1:1 complex of gentamicin with metal was obtained. For ionometric determination, ionselective electrode associates are used as an electrode active compound. The concentration of GMDS that can be detected in the graduirophcal graph is 0.004-0.026 mg/ml, pH=3-4. In spectrophotometric determination, esa and $\lambda_{\text{max}} = 640 \text{ nm}$, $\epsilon = (3.2 \pm 0.5) \cdot 10^3$.

A spectrophotometric and thermolinase anylation of rhenium metal with 3-sulfo-5-nitro-4-diethyldiamino-2,2-dihydroxyazo benzene has been created. The spectrophotometric detection limit is 8 ng/ml in aqueous solution, 0.6 ng/ml in thermolinase detection (532.0 nm, initiating beam 42 MW), i.e. increased sensitivity. In thermolinzal determination, the sensitivity coefficient of aluminum in a water-organic mixture is 9.1-6.3 times higher. Moscow city was found to be 0.79-0.07 mg/l from voloprovod water by thermolaser method, which is significantly less than.

Currently, industrial wastewater may contain several rare metal ions. Similar research is underway to develop fast and highly selective exposure sorbtion - spectroscopic analysis methods using organic reagents immobilized to carriers of different natures of metal ions.

Therefore, it is necessary to improve the existing analytical processes of determination of the rhenium ion and develop new, more advanced and modern sorbtion - spectroscopic methods that meet modern requirements.

Preparation of a working solution for rhenium:

1. To prepare a working solution, 0.01% bismutol-2 reagents were pulled from 0.01 g bismutol-2 Reagent on an analytical scale, put it in a 100 ml measuring flask and brought with water to the mark. The finished solution was diluted and applied to further work. To prepare the standard 1mg/ml solution of the Re^{7+} ion, 0.732 g of ammonium perrinate salt was pulled from its salt, placed in a 100 ml flask and brought with distilled water up to the mark. Later work used this solution.

2. $1.0 \cdot 10^{-1}$ M ili was prepared by diluting concentrated hydrochloric acid in the preparation of a solution of hydrochloric acid.

3. The buffer was brought to the different pH (1-12) li universal buffer mixture of solutions by adding 0.04 M li (H_3BO_3 , H_3PO_4 , CH_3COOH) from a solution of 0.2 M NaOH. Other buffers were prepared as in literature.

4. For the preparation of fibers, 0.2 g was pulled out of the fibers synthesized in the Department of polymer chemistry. The fibers were transferred to a form of chlorine, laid in 0.1 m hydrochloric acid. Washed with distilled water until neutral. In a wet state, Petri was kept in a cup.

Immobilization methodology: 10 ml 0.1% bismutol-2 Reagent was placed in 50.0 ml measuring cups 0.2000 g of fiber was placed and mixed using a glass stick for 5-8 minutes. Then the fiber was washed with distilled water and the amount of reagent sitting on the fiber was measured, the results were studied the immobilization of the bismutol-2 Reagent into the fiber.

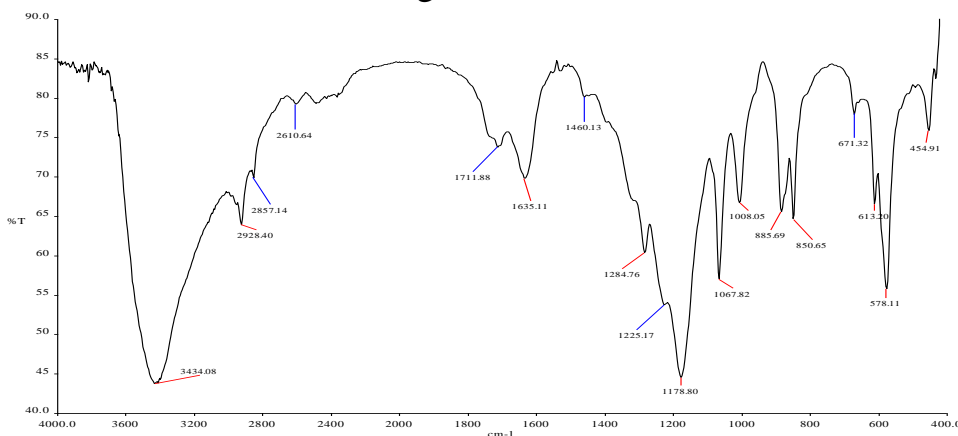


Figure 1. IR spectrum of fiber immobilization of bismutol-2 Reagent
The effect of the environment on the sorbtation of rhenium:

The concentration of hydrogen ions is considered one of the main factors in the formation of a complex and one of the main factors affecting the direction of reaction equilibrium. Many of the organic reagents synthesized and immobilized in the department are weak acids and are used to concentrate, isolate and identify the rhenium ion.

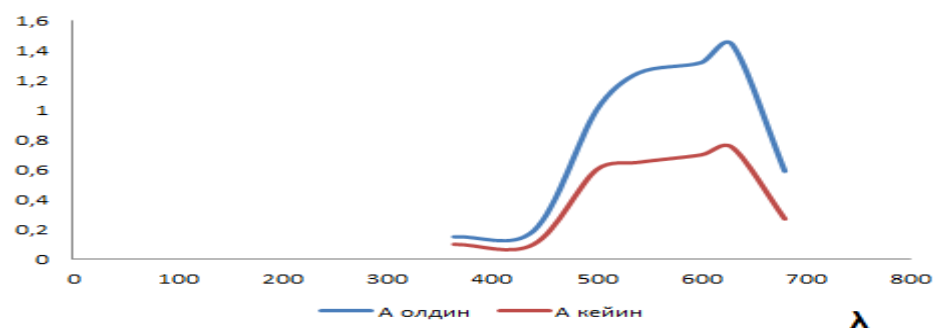


Figure 2. Graph of the absorption of light before and after immobilization of the complex of bismutol-2 reagents with rhenium.

In determining the Optimal rn, sorption levels ranging from 1.00 to 12.00 were found experimentally through a graph dependent on hydrogen ion concentration. For it, it was mixed by lowering 20 mg of sorbent into 12 Buks (volume 35 ml), adding 2 ml of rhenium solution (concentration 10 mkg/ml), 3-5ml NaOH HCl, nno3 solutions, and closing the lid, supplying the total volume to 20 ml of distilled water at room temperature (20±50 C). By filtering the sorbent through a "blue tape" filter, the amount of the element containing the filtrant was determined by a graduated graph using the bismutol-2 Reagent on the Specord 50 instrument using the sorbtion-photometric method.

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