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Sorbtion-Photometric Determination of RHENIUM ION using Immobilized Organic Reagent

SMANOVA ZULAYHO ASANALIYEVNA, NOSIROV NURZOD IXTIYOROVICH, MIRZAXMEDOV RUSTAMJON MIRXAMIDOVICH, MUSTAFAEV BAKHTISHOD NURALI UGLI

Head of the Department of Analytical Chemistry, Faculty of Chemistry Mirzo Ulugbek National University of Uzbekistan;
Lecturer of the department "Mining" of the Almalyk branch of the Tashkent State Technical University named after Islam Karimov, Almalyk, Uzbekistan;
Assistant of the department "Mining" of the Almalyk branch of the Tashkent State Technical University named after Islam Karimov, Almalyk, Uzbekistan;
Assistant of the department "Mining" of the Almalyk branch of the Tashkent State Technical University named after Islam Karimov, Almalyk, Uzbekistan;

ABSTRACT. Renium coatings serve to protect other metals from corrosion and ingesting. Renium and its compounds are used as catalysts. The chemical and oil industry is widely used in the manufacture of rhenium catalysts instead of platinum catalysts, which leads not only to an increase in the amount of gasoline obtained during the processing of oil by the method of cracking, but also to an increase in its octane number.

KEY WORDS: extremely rigid, **separate,** renium, cracking, copper-molybdenum, analytical scales,

I. INTRODUCTION

Currently, spectrophotometric methods, which are one of the most modern equipment physico-chemical methods, are widely used in the detection of rare and rare metals. But not always will support the spectrophotometric method. Because of the extra many operations, the issue of alien ions halving, separating them and other preparatory work does not have a solution. This is why New immobilized organic reagents are being used. Analytical chemistry is firmly connected with science, technology and industry, and the creation of methods for separating and identifying toxic compounds from various biological objects and their decomposition products is one of the main problems of analytical chemistry.

Description of information about rhenium: Since rhenium is located in nature without precipitation, its minerals are also very rare. A common single mineral is very popular bulib, which is called jezkazganite- $CuReS_4$. It is threeraydi in the composition of copper molybdenum ores in cubes. Exactly in the composition of Apple ores, it is threeraydi in this mineral state. Rhenium is found mainly in copper sulphide and molybdenite minerals in the quenching state. It is also threeraydi in the composition of minerals of kupraqkhalkopirit, bornit, jezkazganit. Therefore, in copper and molybdenum technology, renium is distinguished as a companion. Simple tarqaq element. The main source of its use is copper-molybdenum, hot-tempered, hard-to-Melt alloys with tantalum. Hot-tempered, hard-to-ground alloys of rhenium with tungsten, molybdenum, tantalum are used in the preparation of details of aircraft and missiles that fly faster than sound. Renium coatings serve to protect other metals from corrosion and ingesting. Renium and its compounds are used as catalysts. The chemical and oil industry is widely used in the manufacture of rhenium catalysts instead of platinum catalysts, which leads not only to an increase in the amount of gasoline obtained during the processing of oil by the method of cracking, but also to an increase in its octane number. The wide use of rhenium in this industry led to the development of 5-6 times more pure gasoline. The hardness and inedible properties of the rhenium are extremely important, balance hooks of small-scale scales, X-ray tubes are used in the manufacture of marksheyderia and geodetic prices, as well as in the manufacture of many refractory and high-temperature resistant, extremely rigid details, rhenium alloys. The alloy of renium is explained as follows: 2% Re, 50 - 90% W and Cr 30%, Fe and Ni. In Apple conditions, molybdenum sulphide enrichment goes into gaseous state when the tubular circle is

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burnt in the oven, and it is captured in sulfuric acid shop and processed by Extraction method, perrenate ammonium is obtained.

II. LITERATURE SURVEY

1. For the preparation of a working solution of 0,01% li vismutol-2 reagents, 0,01 g of vismutol-2 reagents were pulled from the analytical scales and put it in a measuring tube of 100 ml and brought to the mark with water. The finished solution was diluted and applied to subsequent works. To prepare a standard 7mg/ml li solution of Re^{+7} ion, 0,732 g of ammonium perrenate salt was taken and put in 100 ml of li tube and brought to the mark with distilled water. In subsequent studies, the same solution was used.
2. $1{,}0 \bullet 10^{-1}$ M chloride if the acid arimasen tiered concentreren chloride of kislotnosoultrip of tigerland.
3. Various pH (1-12) li of buffer solutions were added to the unversal buffer mixture from 0,04 M li (H_3BO_3, H_3PO_4, CH_3COOH) 0,2 M NaOH solution.
4. For the preparation of fibers, 0,2 g was taken from the fibers synthesized under the chemistry of polymers. The fibers were transferred into the chlorine form by dissolving 0,1 M li hydrochloric acid. Washed with distilled water until the neutral state. In a wet state, Petri was kept in the attic.
5. The RNS of the solutions were measured usingsalsalionomer – EV-130 and pH-meter pH/MV/Iron Meter P25 EcoMet instrument developed in Korea.
6. Solutions top uteri VA itariri spectral "V-Vis Specord M-40, deb nalanganspectrocolorimeter of foydalanadi.
7. The spectrum of light absorption of aqueous solutions of Reagent and Komplex was measured on a spectrophotometer-46.

III. METHODOLOGY

Spectroscopic descriptions of used reagents: Several reagents with rhenium ion form a Komplex. Spectroscopic descriptions of the Vismutol-2 Reagent, spectroscopic descriptions of the 5 – mercapto – 3 – phenyl – 1,3,4 – tiadiazoltion – 2 potassium salt (Vismutol II) reagent.

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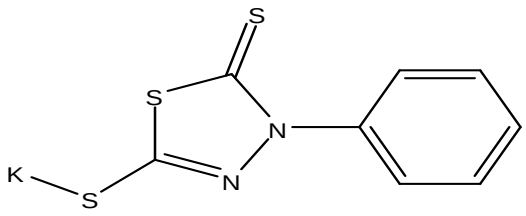
<td> 
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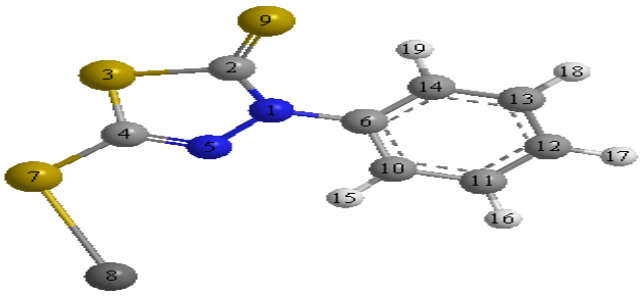
<td> 
</td>
</tr>
<tr>
<td>Total: 9.7342</td>
<td>Charges
N 0.528 [N(1)]
C 0.140 [C(2)]
S 0.294 [S(3)]
C 0.085 [C(4)]
N -0.363 [N(5)]
C 0.106 [C(6)]
S -0.350 [S(7)]
K 0.361 [K(8)]
S -0.503 [S(9)]
C -0.126 [C(10)]
C -0.031 [C(11)]</td>
</tr>
</table>

Fig 1.Crystal structure of elements

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5 – mercapto – 3 – phenyl – 1,3,4 – tiadiazoltion – 2 potassium salt (vismotal-2). Vismutol - 2 is a substance of yellow color, it does not dissolve well in distilled water, 96% ethyl alcohol is well soluble. For the preparation of immobilized carriers, vismutol – 2 reagents were immobilized into different fiber sorbents. Vismutol - 2 Reagent is prepared for fiber immobilization prior to the use of fiber. To do this, 0,2000 g of fiber carrier 50,0 ml was washed with 0,1 M li HCl and transferred to the anion exchanger-CI^-form, then washed down with distilled water (repeated 2-3 times). The finished fiber for immobilization was kept in a moist state. Immobilization Technique: in 50,0 ml measuring cups 10 ml 0,1% L vismutol – 2 Reagent was placed 0,2000 g of fiber and mixed using a glass stick for 5-8 minutes. Then the fiber was washed with distilled water and the amount of reagent that sat on the fiber was measured, the results, immobilization of the reagent of vismutol – 2 reagents into the fiber is expressed in the following formula.

$P\text{-}NH_2 + HC1 \rightarrow P\text{-}^+NH_3C1^-$

$P\text{-}^+NH_3C1^- + S – R \rightarrow P\text{-}^+NH_3 – S – R – N\ ¨Me$

Such: $P\text{-}NH_2$- polymer carrier

P – NH2 – S – R –vismutol - 2 reagent

Table-1Optimal carrier selection($t=25^0C$)

Fibre	A until immobilization (vismuton-II)	A immobilizedthen (vismuton-II)	λ, нм
SMA-1	0,35	0,12	0,23
SMA-2	0,700	0,290	0,410
SMA-3	0,700	0,500	0,200

As can be seen from the table, the best immobilized fiber, sma-1, therefore, in subsequent studies, the same fiber was used.

Table-2Choosing the Optimal kyuveta($t=25^0C$, CMA–1,vismuton-II)

L	5 – mercapto – 3 – phenyl – 1,3,4 – tiadiazoltion – 2 potassium salt			
	ΔA_1	ΔA_2	ΔA_3	$\Delta \bar{A}$
0,1	0,05	0,05	0,05	0,05
0,3	0,075	0,075	0,075	0,075
0,5	0,10	0,11	0,11	0,11
1	0,350	0,360	0,355	0,355
2	0,825	0,870	0,863	0,852
3	0,95	0,890	0,895	0,950
5	∞	∞	∞	∞

Further work was carried out measuring in l=1.

Table-3 Determination of wavelength of immobilized **organic reagent(*l*=1,CMA-1, $t=25^0C$)**

λ, нм	vismuton-II	
	A surface	A afterward
314	0,09	0,06
364	**0,35**	**0,12**
400	0,55	0,14
440	0,65	0,16
490	0,74	0,22
540	0,92	0,22

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590	0,75	0,18
615	0,42	0,15
670	0,25	0,15

As can be seen from the table, the best wavelength is observed at 364 nm, so in subsequent studies it was used the same wavelength.

Table-4Vismutol-dependence of the 2 Reagent on the wavelength of the Komplex formed by the rhenium ion (*l*=1,CMA-1, t=25^{0}C, λ=364)

λ, нм	**A surface Vismutol–II+Me**	**A afterward Vismutol–II +Me**	**ΔA**
364	0.15	0.10	0.05
440	0.19	0.10	0.09
500	1.00	0.60	0.40
540	1.25	0.65	0.60
600	1.32	0.70	0.62
630	1.44	0.75	0.69
680	0.59	0.27	0.32

Influence of the environment on sorption of rhenium. One of the main factors in the concentration of hydrogen ions is considered komplex is one of the main factors that affect the formation and direction of the equilibrium of the reaction. Kafed most of the organic reagents that are synthesized and used immobilized are weak acids, and they are used to concentrate, separate and determine the renium ion.

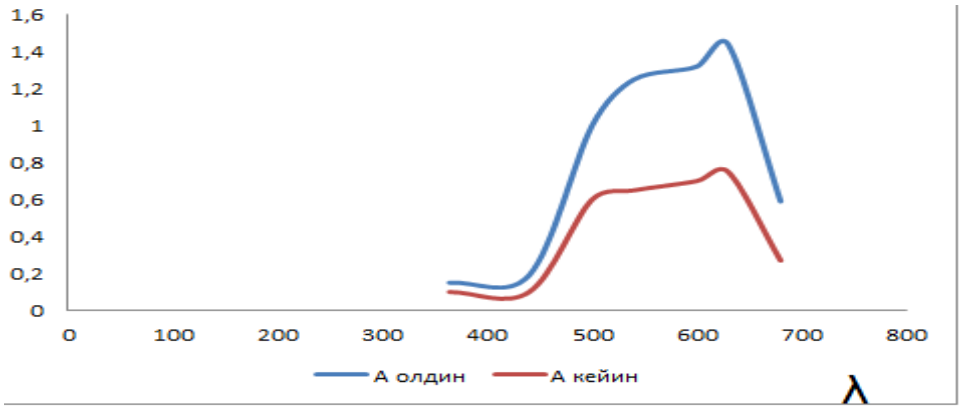

Fig 1.Vismutol - 2 reagents with rhenium before and after immobilization of the cortex chart of light absorption.

Table-5 Determination of the rhenium content in Real objects

Keepsake	Amount of metals,mkg	Found in the developed method	Found in the photometric method	S	S_r
AMMCthe resulting sample composition	Re (2,60) (Fe (0,001), Mo (3,80), Ni(3,70))	 2,54 2,63 2,53	 2,38 2,35 2,35	0,06	0,025

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AUTHOR'S BIOGRAPHY

SmanovaZulayhoAsanaliyevna, Head of the Department of Analytical Chemistry, Faculty of Chemistry Mirzo Ulugbek National University of Uzbekistan

NosirovNurzodIxtiyorovich, Lecturer of the department "Mining" of the Almalyk branch of the Tashkent State Technical University named after Islam Karimov, Almalyk, Uzbekistan.

MirzaxmedovRustamjonMirxamidovich, Assistant of the department "Mining" of the Almalyk branch of the Tashkent State Technical University named after Islam Karimov, Almalyk, Uzbekistan

MustafaevBakhtishodNuraliUgli, Assistant of the department "Mining" of the Almalyk branch of the Tashkent State Technical University named after Islam Karimov, Almalyk, Uzbekistan