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Physico-Chemical Parameters Of Complex Formation Of The Molybdenum Ion

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Abstract: The study of the effect of molibdenium on dimethylglioxim from the composition of adsorbents used in this article, found that the optimum conditions in the bun were calculated and determined graphically by means of a spectrophotometer. The analysis was determined on the CFC-2

Key words: Mo (III) ions, bentonite, used MDEA solution, Chugaev's reagent, pH.

Introduction

This article discusses how to extract molybdenum ion using bentonite adsorbent, its physico-chemical parameters, experimental results.

It is known that bentonite catalyst, which plays an important role in the manufacturing industry, decomposes after some time and reaches other process devices in the form of dust. The utilization of these elements and their use as catalysts is one of the challenges facing the industry[3]. This article notes the physicochemical parameters of the process of re-extraction of the molybdenum element by the formation of a complex compound using a bentonite adsorbent. The experiments were carried out under laboratory conditions, and it was found that molybdenum and the side nickel ion together form a complex compound. However, we will only show the optimal conditions for the extraction of molybdenum [5].

In the photocolorimetric reaction, the pH value of the solution is maintained using appropriate buffer solutions or sufficient amounts of acid and alkali solutions [2]. The amount of analytical reagent added should be sufficient to convert all of the analyte to the analytical form over the given concentration range. The addition of an excess of the reagent does not increase the yield of the reaction product and does not increase light absorption . solution.[1] In photocolorimetric analysis, the solution must retain its true solubility over the entire range of concentrations to be determined. If this condition is not met, lower concentrations should be used or preservatives should be used to prevent the formation of a solid phase.

Experiment - Method

It is known that the maximum absorption area of the complex of molybdenum (III) ions with dimethylglyoxime reagent is determined as follows, each substance naturally absorbs light of a certain wavelength:

Mo (III) solution with a concentration of 25 μg/ml were added to a 50 ml volumetric flask; distilled water was added to the flask mark. The optical density of the resulting complex was measured using a KFK-2 photocolometer and another light filter in a cuvette with an absorption thickness of 1.0 cm against the background of a special solution.

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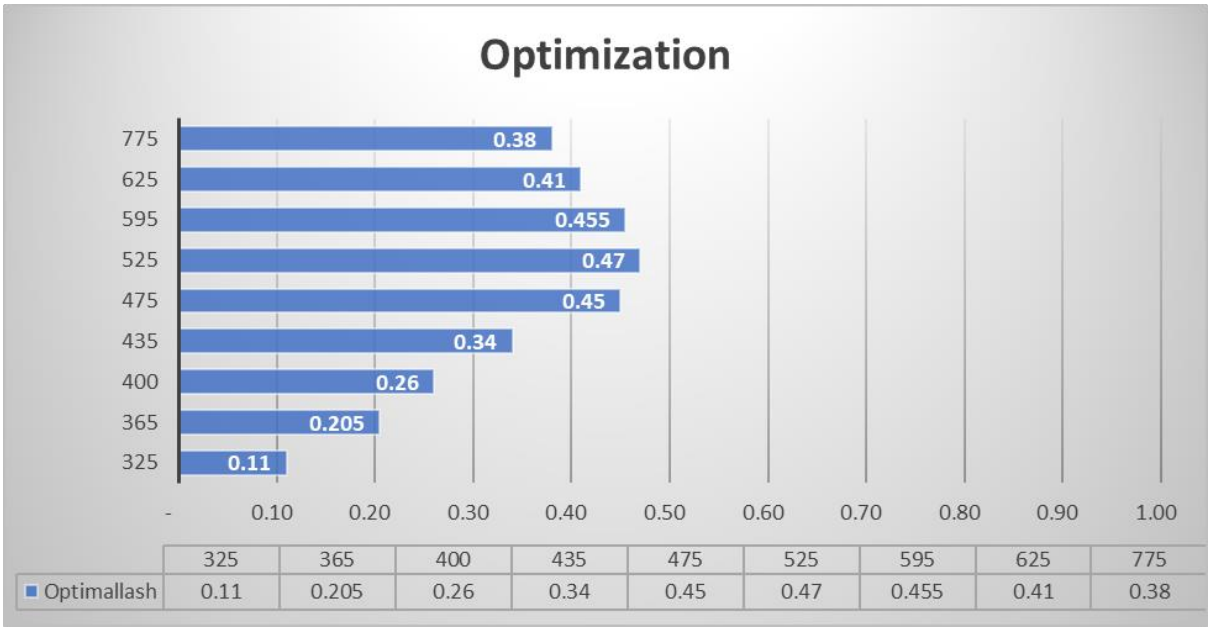
As a reference solution, we used a solution containing all components, except for the indicated metal ion [4]. The measurement results are presented in table. 1, fig. 1.

Table 1



The results show that the light filter from complex compound 6 has a high optical density at lmax = 525 nm . Further work is carried out at lmax = 525 nm .

Given that one of the important conditions for the reaction is a solution medium, when choosing the optimal conditions for the complex compound of the molybdenum (III) ion with pyridyl-2-azonaphthol, universal buffer solutions with different pH are prepared. 2 reactive[7]. Method of determination: 5 ml 5.0 ml universal buffer solution pH 3 to 12, 10 ml 0.01% dimethylglyoxime solution , 5 g used and purified activated charcoal residue in a 25 ml volumetric tube . containing nickel ions 20), add distilled water to the flask mark and pour the mixture into a cuvette: measured in a cuvette with a thickness of l = 1.0 cm. Results are presented in table 2.

Table 2

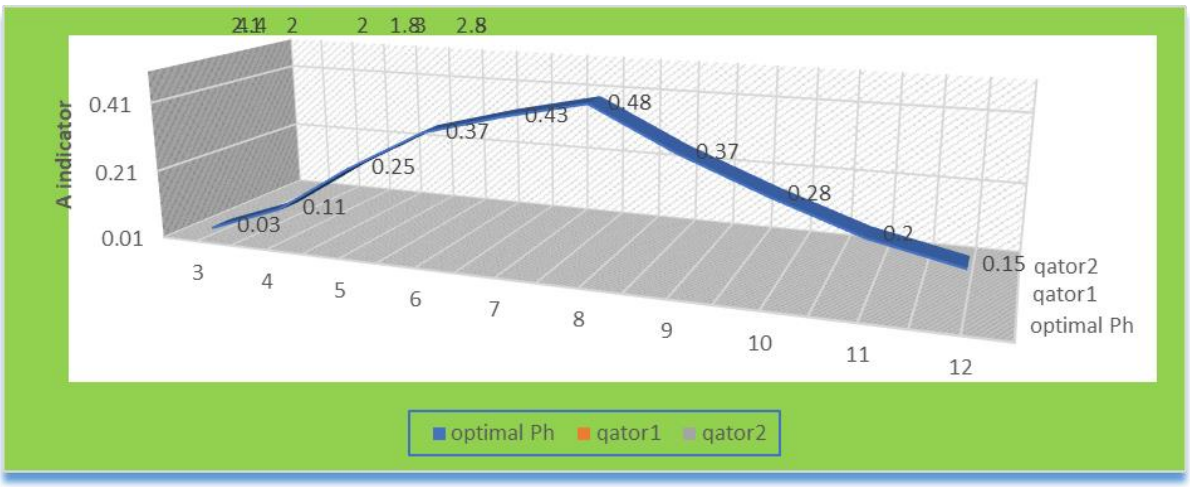


Figure 2. Graph dependencies optical density integrated compounds (Mo^{3+} - Reagent) from environments solution (pH).

Conclusion

The results show that the maximum optical density of the complex compound is observed to be greatest at pH = 9.0, and pH = 9.5 was chosen as the optimal medium, since the optical density in this dissolved medium has the maximum analytical signal. In further studies, a buffer solution with a pH of 9.5 was used.

II) ion complex with the dimethylglyoxime reagent on the composition of the buffer solution is carried out in the following order [9].

To study the dependence of the composition of buffer solutions on the main components of the reaction (Mo^{3+} - Reagent), a universal buffer solution with pH = 9.5 [8] was used.

Discussions

The experimental results show that when using the universal buffer solution, the solution of the complex compound had the maximum optical density. In further studies, a universal buffer solution with pH = 9.5 was used. The results obtained show that this complex compound rapidly decomposes under the same conditions, but is sensitive to molybdenum ions; bentonite, used as an adsorbent, completely traps metal ions. The results of this experiment led to the argument that molybdenum and nickel ions are very sensitive to dimethylglyoxime and can be used to extract these ions in adsorbent regeneration. however, in this method, the Chugayev reagent, i.e., dimethylglyoxime, is very expensive, and there is a high probability that it will not work well in production.

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