JOURNAL OF NATURAL SCIENCE

№2(7) 2022 http://natscience.jspi.uz

Жиззах давлат педагогика институти Табиий фанлар факултети

Табиий фанлар-Journal of Natural Science-электрон журнали

/http/www/natscience.jspi.uz

THE IMPORTANCE OF COLORIMETRY IN THE STUDY OF PB AND CD IONS IN WASTEWATER

Yaxshiyeva Z.Z.[1] *Jo’rayev. X.B.*[2]

Dean of the Faculty of Preschool Education of Jizzakh State Pedagogical Institute [1]

PhD student of Department of Chemistry Teaching Methods in Jizzakh State Pedagogical Institute [2]

Annotation: This article provides information on drinking and industrial waters, methods of their treatment, the results of the analysis of substances in water, colorimetry and its advantages. The importance of the colorimetry method in the determination of metals (Pb and Cd) is revealed.

Key words: colorimetry, drinking and industrial wastewater, water treatment methods, chemical plant waste, classical method results, etc.

One of the most important needs today for everyone living in the modern world is clean drinking water and quality products. The need for clean drinking water is growing in an era of growing global warming. Depending on the area of water consumption, drinking water can be classified into mineral, medicinal and industrial water. Water is purified by filtration, filtration, disinfection, softening, degassing and distillation. In short, 5-15% of the cost of the product is spent on water treatment and technological processing. In providing clean drinking water, the industry also needs to study wastewater. Because water is a waste of non-ferrous metallurgy and chemical plants: it is contaminated with the most harmful Hg, Pb, Cu, Zn, Cr, Cd, S compounds and organic substances. This will require doubling the size of the treatment plant to halve the amount of waste. Therefore, it is necessary to study new methods of studying the chemical composition of water. There are several ways to detect heavy metals in water, and it is tested with time-consuming devices. To date, heavy metals can be detected in water in 2 ways: electrochemical and spectrometric. The latter method has a special place in atomic absorption spectrometry. Detection of metals in natural waters is now often done by the method of flame atomic absorption spectroscopy (AAS), which requires a concentration of elements and increases the sample preparation time. But there is another method, which has the advantage of detecting metals in water compared to other methods. This method is the colorimetric determination of metals in analytical chemistry. The colorimetric method is one of the possible methods for quantifying the presence of various substances in solutions. We are talking about substances that can form colored solutions or convert into colored compounds directly in solution as a result of this or that reaction. Colorimetry is a physical method of chemical analysis based on determining the concentration of a substance by the color intensity of solutions.

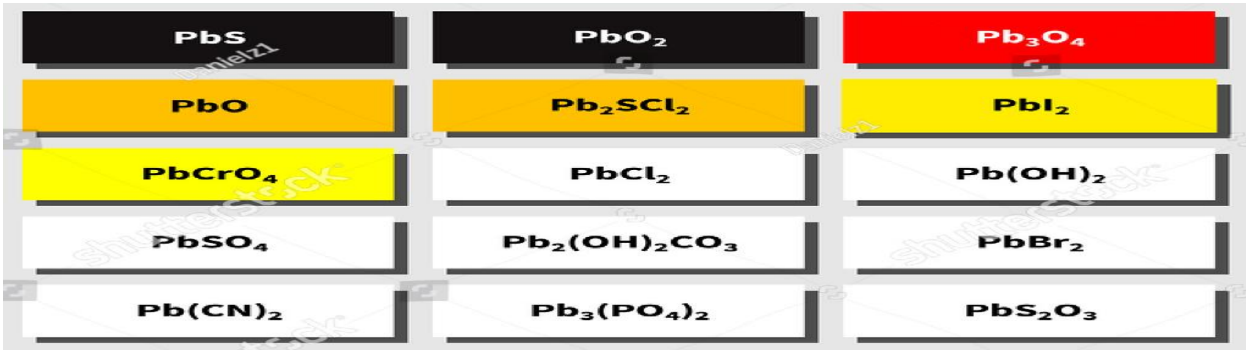
An important aspect of the method we are developing today is that the metals in the waste or drinking water being tested are based on the test method. That is, the Pb and Cd metals in the sample are tested for color change, not on devices, but on plain paper soaked in organic reagents, and the result is given. While the content of water from aquifers is mainly expressed in mg / l, the method we use is to study the color change of substances. That is, it is faster than the previous method. Checked using classical methods based on the data on drinking water samples from the water facilities of the Jizzakh State Unitary Enterprise "Suvokova", we obtained the following results.

Table 1

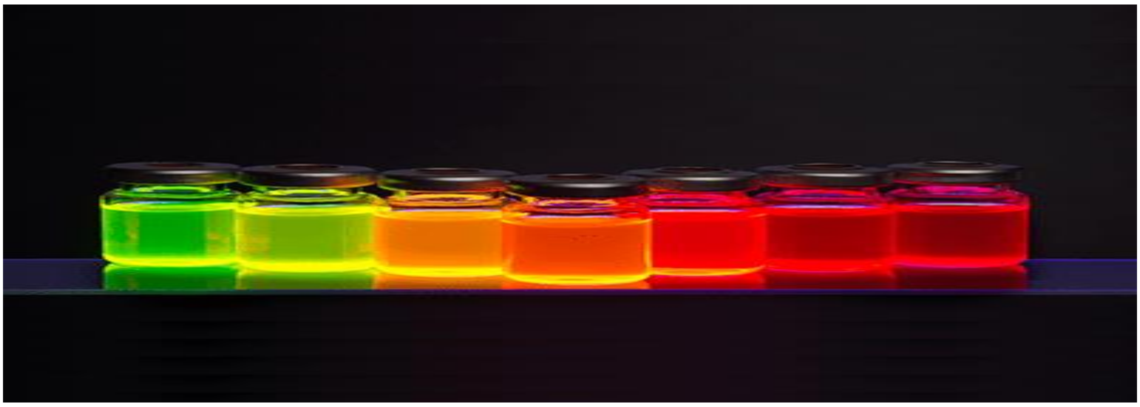
№	Names of analysis	Measure unit	O’z SST 950-2011 normative on	Mustaqillik street.	Well of Zilol neigh.
1	Temperature	degrees			
2	Smell	mark	2	0	0
3	Taste	mark	2	0	0
4	color	degrees	20-25	0	0
5	Blurring	mg/l	1,5-2	0	0
6	ph		.6-9	7	7
7	Nitrogen is ammonium	mg/l	0	available	available
8	Nitrites	mg/l	3	0	0
9	Nitrates	mg/l	45		
10	Total hardness	mg-ekv/l	.7-10	10,5	10,5
11	Oxidation	mg/l	2,0-2,5	1,12	1,12
12	Sulphates	mg/l	400-500	200	200
13	Chlorides	mg/l	250-350	42,5	50
14	Dry residue	mg/l	1000-1500	780	780
15	Ca	mg-ekv/l		4,8	4,9
16	Mg	mg-ekv/l		5,7	5,6
17	Alkalinity	mg/l		8	8

18	Residue of chlorine	mg/l	0,7-0,8		
19	Fe	mg/l	0,3	0,1	0
20	Cu	mg/l	1	0	0
21	Zn	mg/l	3	0	0
22	As	mg/l	0,05	available	available
23	Mo	mg/l	0,25	0	0
24	Pb	mg/l	0,03	0	0
25	F	mg/l	0,7	0	0
26	Mn	mg/l	0,1	0	0
27	Temporarily hardness	mg-ekv/l		8	8

In the method we propose, we can see the lead and cadmium ions in the water trail by color together with the corresponding reagent. That is, the metal interacts with the indicator to form the corresponding substance, and its color is compared with the developed color chart and summarized.



Color of Pb compounds in qualitative analysis



Color of Cd compounds in qualitative analysis

References:

1. Studying the mineral composition of gold mining waste- A.A. Avazbekova, Kh.B. Juraev National University of Uzbekistan the named after Mirzo Ulugbek, Tashkent, Uzbekistan

2. Xasan Juraev *Lecturer Jizzakh State Pedagogical Institute.*THEORETICAL FUNDAMENTALS OF CHEMICAL EXPERIMENTS (INNOVATIVE DEVELOPMENTS AND RESEARCH IN EDUCATION International scientific-online conference) Canada

3. Sh. R. Sharipov G. N. Sharifov H. Jorayev J. Bazorova Scientific and pedagogical bases of conducting chemical experiments at school (International engineering journal for research & development)

4. STUDYING THE MINERAL COMPOSITION OF GOLD MINING WASTE *Aziza A. Avazbekova, Khasan B. Juraev* National University of Uzbekistan the named after Mirzo Ulugbek, Tashkent, Uzbekistan

5. Sharipov, X. T., & Jo’rayev, X. B. (2021). IS MINING INDUSTRY WASTE HARMFUL TO NATURE AND HOW IS IT ADDRESSED?. *Журнал естественных наук*, *1*(1).

6. Sh, U., Jo’rayev, X., & Ergashev, B. (2021). METHODOLOGY OF CALCULATING ENERGY RELEASED IN NUCLEAR REACTIONS. *Журнал естественных наук*, *1*(1).

7. Шарипов, Ш. Р., Шарифов, Ғ. Н., & Жўраев, Х. Б. (2021). МАКТАБ КИМЁ КУРСИДА ЭРИТМАЛАР НАЗАРИЯСИНИ ЎҚИТИШНИНГ ИЛМИЙ ПЕДАГОГИК АСОСЛАРИ. *Журнал естественных наук*, *1*(1). 8. Shamurodov, E., Sharipov, S., Juraev, X., & Bazorova, J. (2022). Methodological Bases of Formation of Chemical Concepts in Pupils in School from Chemistry Course. *Journal of Pedagogical Inventions and Practices*, *4*, 1-5.

9. Шарипов, Х. Т., Туресебеков, А. Х., Авазбекова, А. А., & Жураев, Х. Б. (2020). ИССЛЕДОВАНИЕ МИНЕРАЛОГИЧЕСКОГО СОСТАВА И МИКРОСТРУКТУРЫ ХВОСТОВЫХ ОТХОДОВ НГМК. *«Научные основы и практика переработки руд и техногенного сырья» 07-10 апреля 2020 г.,* 149.

10.Авазбекова А.А., Джураев Х.Б., Шарипов Х.Т., Абдуллаев А.А. ИССЛЕДОВАНИЯ СОСТАВА ЗОЛОТОСОДЕРЩЕГО ТЕХНОГЕННОГО СЫРЬЯ

11. Жураев, Х. (2021). Marjonbuloq oltin qazib olish fabrikasidagi chiqindi tarkibidagi makrokomponentlarni o’rganish. *Журнал естественных наук*, 1(4).