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Associates of chlorotellurite with azo-substituted ethoxyacridine in extraction-photometric analysis

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Abstract

The associates of the chloride complex of tellurium(IV) with azo-substituted ethoxyacridine were studied by spectrophotometric method. It was found that at 2.0-8.0 N by H_2SO_4 the chloride acidocomplex of tellurium with azo-substituted ethoxyacridine forms associates well extracted with a chloroform-acetone mixture (3:2). The composition, physico-chemical and analytical properties of the associates are determined.

Subordination to the Beer-Bouguer-Lambert law is observed in the range of tellurium concentrations of 0.3-20.0 μg in 5 ml. The ratio of the components of Te: R^+ = 1:1. It was studied the influence of interfering ions and masking reagents on complexation. The study of the influence of foreign ions on the accuracy of the determination of tellurium with 9-amino-4-ethoxyacridine-6-dimethylaniline (AEADMA) and 9-amino-4-ethoxyacridine-6-diethylaniline (AEADEA) showed that a number of ions do not interfere with the determination: Fe(II) (5000), Zn(II) (6000), Ta(V) (4000), Nb(V) (3000), Co(III) (5500), Ni(II) (5500), РЗЭ (2000), Cd(II) (1500). Interfere to definition: Fe(III) (1), Tl(III) (1), Sb(V) (10), Bi(III) (10), In(III) (1), Ga^{3+} (1), Au(III) (1), thiourea (1).

The maxima of light absorption of chlorotellurite AEADMA is observed at 520 nm, and AEADEA at 530 nm. The light absorption of the extracts of associates coincide with the maxima of the azoacridines, which indicates the electrostatic character of the interaction and the formation of various complexes.

Extraction-photometric methods have been worked out that are used to determine tellurium in various objects.

References

[1] V.G. Scripchuk, V.I. Murashova. *J. Analyt. Chem.* **1974**. Vol.2. No.9. P.1823-1827. (russian)
[2] V.G. Scripchuk, O.N. Chupakhin, V.N. Charushin. *J. Analyt. Chem.* **1982**. Vol.37. No.1. P.49-51. (russian)
[3] N.I. Ismayilov, N.Kh. Rustamov. *Azerb. Chem. Journal.* **2001**. No.4. P.38-41. (russian)
[4] N.I. Ismayilov, N.Kh. Rustamov. *J. Chem. Problems*. **2003**. No.1. P.69-75. (russian)
[5] N.I. Ismayilov, A.M. Pashajanov, G.R. Muradova. *J. of Adv.s in Chem*. **2016**. Vol.12. No.11. P. 4476-4479.
[6] N.P. Korostelev. Preparation of solutions for chemical-analytical works. *Moscow: Science*. **1964**. 260p. (russian)
[7] M.I. Butalov, I.P. Kalinkin. Practical guidance on photocolorimetric and spectrophotometric methods of analysis. *Leningrad: Chemistry*. **1976**. 376p. (russian)