

**STABILITY OF COORDINATION COMPOUNDS OF Co(III) WITH
DIETHANOLAMINE IN A NON-AQUEOUS SOLVENT DEPENDING ON THE pH**

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The synthesis of the intracomplex compound (ICC) of cobalt(III) with diethanoamine [Co(DetmHdetm)] was carried out, and the stability of the obtained compounds was investigated in a non-aqueous solvent (dimethylformamide) at different pH values. Using the methods of potentiometric titration and UV-Vis. spectrophotometry, the limits of the pH values of the medium in which ICC remain stable were determined.

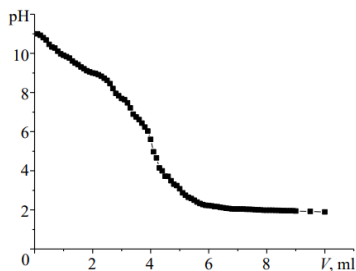


Fig. 1. Curve of potentiometric titration ($C(\text{HCl}) = 0.1 \text{ mol/l}$) of Co(DetmHdetm) dimethylformamide solution

Using the method of electronic adsorption spectroscopy, the transformation at a decrease in pH with the addition of hydrochloric acid to a non-aqueous solution of the internal complex compound of cobalt(III) with diaminoethanol was investigated. Electronic spectra are shown in Fig. 2.

According to the results of the research, the obtained material can be used in the development of the latest technology for creating catalytic materials based on thermal destruction products of cobalt(III)-nickel(II) complex compounds.

After synthesis, the solution of ICC in DMF had a pH value of 10.96. The potentiometric titration curve of this solution with hydrochloric acid is shown in Fig. 1. The inflection point at pH 5.6 on the titration curve has the following descending part.

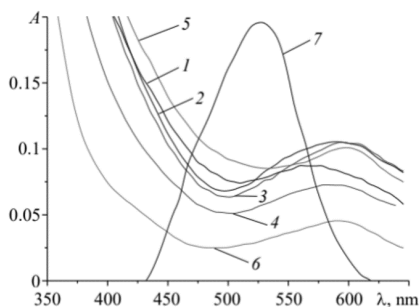


Fig. 2. The electron spectra in acid media of ICC cobalt(III) with diaminoethanol and reactant (1 – pH 10.96; 2 – pH 6.03; 3 – pH 4.01; 4 – pH 3.17; 5 – pH 2.08; 6 – pH 1.31; 7 – DMFA solution of Co^{2+})