

USE OF CATALYTIC CURRENTS OF HYDROGEN EVOLUTION FOR THE EXTRACTION-VOLTAMMETRIC DETERMINATION OF RHODIUM AND RUTHENIUM IN SULFIDE ORES.

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Abstract

8-mercaptoquinoline or Thiooxine and its alkyl-substituted derivatives were selected as reactants for the determination of ruthenium and rhodium in sulfide ores; they form complexes with the metal ions which can be extracted with naphthalene at elevated temperatures. The model system used in the development of the procedure for the determination of ruthenium and rhodium consisted of a mixture of naphthalene with synthesized platinum thiooxinate and dimethylformamide (DMFA) dissolved in the melt. The voltammetric diagrams of these solutions with $(C_2H_5)_4NClO_4$ as the supporting electrolyte show diffusion waves for the reduction of complexes of Rh(III), Ru(III), Ir(III), Os(III), Pd(II), and Pt(II) at potentials close to those obtained in the reduction in pure DMFA. The highest catalytic current in the group of complexes under consideration is obtained by the osmium thiooxinate. The value of $E_{1/2}$ depends on the nature and position of the substituent in the quinoline ring. The differences between the potentials of the catalytic waves are the largest when using 2,7-dimethyl-8-mercaptoquinoline as the reagent.
