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VOLTAMMETRY OF THE COMPLEXES OF THE PLATINUM METALS WITH ORGANIC SULPHIDES IN ACETONITRILE

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ABSTRACT

The electrochemical behaviour of palladium(II), ruthenium(III), rhodium(III), osmium(IV), iridium(IV) and platinum(IV) complexes with a number of sulphides was investigated at a glassy carbon electrode in acetonitrile. Complexes of Ru(III), Os(IV) and Ir(IV) have been found to undergo a reversible one-electron transfer yielding Ru(II), Os(III) and Ir(III) complexes. Electroreduction of the Ru(II) and Ir(III) compounds is of the EC type and is accompanied by the rearrangement of the complex coordination sphere. Compounds of Pd(II), Rh(III) and Pt(IV) are reduced with the transfer of 2 electrons in the first stage. The electrode process differs from a reversible one and is complicated by the dissociation reaction of the ligands. The influence of the nature of the donor atoms on the oxidation potentials of the complexes is considered.

INTRODUCTION

A number of articles and several reviews [1–3] deal with complexes of platinum metals with mono- and polyfunctional S-containing ligands. Organic sulphides and their complexes are of interest because of their biological activity [4] and usefulness as extraction reagents for the concentration and determination of metal ions [5]. The general principles of extraction voltammetry have been described in a review [6]. To understand the role of metals in processes of vital importance and to evaluate the

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