

The electrochemical oxidation of organometallic diphosphonate-bridged palladacycles

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Keywords: palladium complex, oxidation, electrolysis.

Abstract

The redox properties of new diphosphonate-bridged dipalladacycles [(phpy)Pd(EtO)₂P(O)]₂, [(phpy)Pd(EtO)₂P(O)]₂, [(phpy)Pd(EtO)₂P(O)]₂ (phpy = 2-phenylpyridine, bhq = benzo[h]quinoline, phpz = 1-phenylpyrazole) derived from acetate analogues were studied. It is found that the electrochemical oxidation of a number of dipalladacycles [PdL(EtO)₂P(O)]₂, in acetonitrile afforded corresponding arylphosphonates at a potential -1.1–1.4 V ref.Fc/Fc⁺. For complete conversion of dipalladacycles into arylphosphonates 8*F* electricity per each palladium atom is required. This oxidation process can be used in the synthesis of new arylphosphonate from different arenas in the ligand-directed reaction of aromatic CH phosphonation.