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Effect of electrolysis conditions on the process of anodic oxidation of tertiary phosphines in the presence of camphene

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Abstract

Anodic oxidation of tertiary phosphines (Et 3P, Pr 3P, Bu 3P, i-Bu 3P and Am 3P) in the presence of camphene and heterogenic base (trisodium phosphate) on platinum anode in acetonitrile solution of sodium perchlorate was studied. It is established that trialkylphosphine radical cations react with camphene to give two types of products: Camphenylphosphonium salts formed by elimination of proton, and phosphiniminoterpenylphosphonium salts which are obtained due to the rearrangement of terpenyl skeleton. Conditions of electrosynthesis are found where the summary yield of terpenylphosphonium products increases. The effect of length and degree of branching of alkyl substituents in trialkylphosphines on the rate of the reaction of phosphine radical cations with camphene and starting phosphine is found. © Pleiades Publishing, Ltd., 2012.

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