

Electrochemical and Catalytic Initiation of Triethyl Phosphite Addition to Cyclohexanone

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Abstract

Electrochemical oxidation of triethyl phosphite in the presence of cyclohexanone results in a mixture of three products: diethyl(1-ethoxycyclohexyl)phosphonate, diethyl phosphonate, and 2-(1-cyclohexenyl)cyclohexanone. These products are formed through the stage on the anode synthesis of quasiphosphonium salts, which initiate addition of triethyl phosphite to cyclohexanone and condensation of cyclohexanone. The fact that quasiphosphonium salts catalyze addition of the phosphite to the ketone was proved by independent experiment.
