

Russian Journal of General Chemistry 1997 vol.67 N2, pages 227-234

Free-Radical Phosphorylation of Olefins Initiated by Anodic Oxidation

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Abstract

Electrochemical oxidation of lithium and sodium dialkyl phosphites generates dialkyl phosphonyl radicals, which initiate chain free-radical addition of dialkyl phosphites across the alkene multiple bond to form alkyl(cycloalkyl)phosphonates. Alkyl(cycloalkyl)phosphonates are formed simultaneously owing to anodic oxidation of adsorbed primary radical adducts of phosphonyl radical and alkene molecule to give the carbenium cation, followed by deprotonation of the latter.
