

Reaction of Olefins with Anodically Generated Radical Cations of Trialkyl Phosphites and Dialkyl Trimethylsilyl Phosphites

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Abstract

Electrochemical oxidation of trialkyl phosphites and dialkyl trimethylsilyl phosphites in the presence of olefins yields mixtures of isomeric dialkyl alkenyl(cycloalkenyl)phosphonates with predominating [alken(cycloalken)-2-yl]phosphonates. A scheme of the process was proposed, which involves attack of the alkene double bond by anodically generated radical cations of phosphites, followed by a second electron transfer, deprotonation, and elimination of cationic species: alkyl cation in the case of trialkyl phosphites and trimethylsilyl cation in the case of trimethylsilyl phosphites.
