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Electrosynthesis and chemical properties of hexaalkyldiphosphonium salts

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Abstract

Electrochemical oxidation of trialkylphosphines on the background of sodium perchlorate or tetraethylammonium tetrafluoroborate allows synthesis of a new class of organophosphorus compounds, hexaalkyldiphosphonium salts. A mechanism of the electrosynthesis is proposed, which includes generation of radical cations R3P+• on the anode, their reaction with the starting phosphine to give a dimeric radical cation whose oxidation leads to the final product. The synthesized hexaalkyldiphosphonium salts readily react with compounds containing an active hydrogen atom, as well as with dialkyldisulfides, but do not react with aromatic or unsaturated compounds under normal conditions. © 1996 MAEe cyrillic signK Наука/Interperiodica Publishing.